1. Improved Hash Functions for Cancelable Fingerprint Encryption Schemes

Authors: Yang, Yijun (1, 2, 3); Yu, Jianping (1, 2, 3); Zhang, Qian (1, 2, 4); Meng, Fanyang (1, 2, 3)
Author affiliation: (1) ATR Key Laboratory, Shenzhen University, Shenzhen; Guangdong, China; (2) The Key Laboratory of Intelligent Information Processing, Guangdong Regular Higher Education Institutes, Shenzhen; Guangdong, China; (3) College of Information Engineering, Shenzhen University, Shenzhen; Guangdong, China; (4) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen; Guangdong, China
Corresponding author: Yu, Jianping
Abstract: In order to solve the prealignment problem, this paper constructs new fingerprint features which will not change along with the rotation of fingerprint image. And then the SHA1 algorithm is improved in four aspects: the modification of original register values, the modification of additive constants, the modification of logic functions, the modification of compression functions, then this paper improves the SHA2 algorithm in two aspects: the modification of compression functions and the modification of message word. Based on that, two cancelable and irreversible fingerprint encryption schemes are proposed in this paper. The efficiency analysis and security authentication show that these schemes have enhanced the security without increasing the complexity. © 2015, Springer Science +Business Media New York.

2. SmartSensing: Sensing through walls with your smartphone!

Authors: Zou, Yongpan (1, 2); Wang, Guanhua (2); Wu, Kaishun (3, 4); Ni, Lionel M. (2, 3)
Author affiliation: (1) Xi'an Jiaotong University, China; (2) Department of Computer Science and Engineering, Hong Kong University of Science and Technology, Hong Kong; (3) Guangzhou HKUST Fok Ying Tung Research Institute, China; (4) College of Computer Science and Software Engineering, Shenzhen University, China

Sponsor: IEEE Computer Society
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Seeing through walls and knowing clearly what exist inside just like a superman are not only fantastic wishes for humans, but also of much practical significance. For example, you would like to know whether there are pipes, or rebars inside a wall before drilling into it. Moreover, knowing how pipes are configured in a wall before attempting to fix defects would definitely prevent unnecessary damages. Existing methods that intend to address this issue are either costly due to the use of high-end technology, or too restrictive for reasons of some strong assumptions. However, in this paper, we present a novel system, SmartSening, which is based on off-the-shelf sensors embedded in smartphones. SmartSensing makes full use of in-built sensors, namely, the accelerometer, the gyroscope, and the magnetometer to achieve this goal inexpensively and conveniently. Specifically, by combining these sensors, we are able to clearly distinguish certain objects inside a wall. In addition, the layout of a pipeline system can be mapped out automatically in an economical and laborsaving way. We implement this system on two different kinds of smartphone platforms, namely iPhone4 and Xiaomi Mi2S. We conduct experiments in a proof-of-concept testbed of size 1.8m×1.0m. Experimental results show that SmartSensing can achieve no less than an average accuracy of 96%, 89% and 77% in distinguishing objects under three different depths, respectively. Also, as for layout mapping, it can achieve less than 32cm and 28cm length error with 90% probability on average for whole horizontal and vertical pipeline segments, with a 6.8m and 4.0m total length, respectively. © 2014 IEEE.
Number of references: 30
Main heading: Walls (structural partitions)
Controlled terms: Accelerometers - Pipelines - Signal encoding - Smartphones
Uncontrolled terms: Pipe-line systems - Pipeline layout - Pipeline segments - Proof of concept - Through walls - Total length
Classification code: 402 Buildings and Towers - 619.1 Pipe, Piping and Pipelines - 716.1 Information Theory and Signal Processing - 718.1 Telephone Systems and Equipment - 943.1 Mechanical Instruments
DOI: 10.1109/MASS.2014.46
Database: Compendex
Data Provider: Engineering Village

3. A simple method for DOA estimation in the presence of unknown nonuniform noise

Accession number: 20154501509824
Authors: Liao, Bin (1, 2); Chan, S.C. (2)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, China; (2) Department of Electrical and Electronic Engineering, University of Hong Kong, Hong Kong, Hong Kong
Source title: ICASSP, IEEE International Conference on Acoustics, Speech and Signal Processing - Proceedings
Abbreviated source title: ICASSP IEEE Int Conf Acoust Speech Signal Process Proc
Volume: 2015-August
Monograph title: 2015 IEEE International Conference on Acoustics, Speech, and Signal Processing, ICASSP 2015 - Proceedings
Issue date: August 4, 2015
Publication year: 2015
Pages: 2789-2793
Article number: 7178479
Language: English
ISSN: 15206149
CODEN: IPRODJ
ISBN-13: 9781467369978
Document type: Conference article (CA)
Conference name: 40th IEEE International Conference on Acoustics, Speech, and Signal Processing, ICASSP 2015
Conference date: April 19, 2014 - April 24, 2014
Conference location: Brisbane, QLD, Australia
Conference code: 116006
Sponsor: The Institute of Electrical and Electronics Engineers Signal Processing Society
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: When considering the problem of direction-of-arrival (DOA) estimation, uniform noise is often assumed and hence, the corresponding noise covariance matrix is diagonal and has identical diagonal entries. However, this does not always hold true since the noise is nonuniform in certain applications and a model of arbitrary diagonal noise covariance matrix should be adopted. To this end, a simple approach to handling the unknown nonuniform noise problem is proposed. In particular, an iterative procedure is developed to determine the signal subspace and noise covariance matrix. As a consequence, existing subspace-based DOA estimators such as MUSIC can be applied.

Furthermore, the proposed method converges within very few iterations, in each of which closed-form estimates of the signal subspace and noise covariance matrix can be achieved. Hence, it is much more computationally attractive than conventional methods which rely on multi-dimensional search. It is shown that the proposed method enjoys good performance, simplicity and low computational cost, which are desirable in practical applications. © 2015 IEEE.
Number of references: 10
DOI: 10.1109/ICASSP.2015.7178479
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

4. Two-level quantile regression forests for bias correction in range prediction

Accession number: 20143600030505
Authors: Nguyen, Thanh-Tung (1, 2, 3); Huang, Joshua Z. (1, 4); Nguyen, Thuy Thi (5)
Author affiliation: (1) Shenzhen Key Laboratory of High Performance Data Mining, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China; (2) School of Computer Science and Engineering, Water Resources University, Hanoi, Viet Nam; (3) University of Chinese Academy of Sciences, Beijing, China; (4) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (5) Vietnam National University of Agriculture, Hanoi, Viet Nam
Corresponding author: Huang, Joshua Z.
Source title: Machine Learning
Abbreviated source title: Mach Learn
Volume: 101
Issue: 1-3
Issue date: July 19, 2014
Publication year: 2015
Pages: 325-343
Language: English
ISSN: 08856125
E-ISSN: 15730565
CODEN: MALEEZ
Document type: Journal article (JA)
Publisher: Kluwer Academic Publishers
Abstract: Quantile regression forests (QRF), a tree-based ensemble method for estimation of conditional quantiles, has been proven to perform well in terms of prediction accuracy, especially for range prediction. However, the model may have bias and suffer from working with high dimensional data (thousands of features). In this paper, we propose a new bias correction method, called bcQRF that uses bias correction in QRF for range prediction. In bcQRF, a new feature weighting subspace sampling method is used to build the first level QRF model. The residual term of the first level QRF model is then used as the response feature to train the second level QRF model for bias correction. The two-level models are used to compute bias-corrected predictions. Extensive experiments on both synthetic and real world data sets have demonstrated that the bcQRF method significantly reduced prediction errors and outperformed most existing regression random forests. The new method performed especially well on high dimensional data. © 2014, The Author(s).
Number of references: 22
Main heading: Forecasting
Controlled terms: Clustering algorithms - Data mining - Decision trees - Random errors - Regression analysis - Virtual reality
Uncontrolled terms: Bias correction - Bias-correction methods - Conditional quantiles - High dimensional data - Prediction accuracy - Quantile regression - Random forests - Tree-based ensembles
Classification code: 721 Computer Circuits and Logic Elements - 723 Computer Software, Data Handling and Applications - 922 Statistical Methods - 922.2 Mathematical Statistics
DOI: 10.1007/s10994-014-5452-1
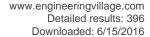**Compendex references:** YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

5. A new feature sampling method in random forests for predicting high-dimensional data

Accession number: 20154401486228

Authors: Nguyen, Thanh-Tung (1); Zhao, He (2); Huang, Joshua Zhexue (3); Nguyen, Thuy Thi (4); Li, Mark Junjie (3)
Author affiliation: (1) Thuyloi University, Hanoi, Viet Nam; (2) Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China; (3) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (4) Vietnam National University of Agriculture, Hanoi, Viet Nam
Corresponding author: Li, Mark Junjie

Abstract: Random Forests (RF) models have been proven to perform well in both classification and regression. However, with the randomizing mechanism in both bagging samples and feature selection, the performance of RF can deteriorate when applied to high-dimensional data. In this paper, we propose a new approach for feature sampling for RF to deal with high-dimensional data. We first apply p-value to assess the feature importance on finding a cut-off between informative and less informative features. The set of informative features is then further partitioned into two groups, highly informative and informative features, using some statistical measures. When sampling the feature subspace for learning RFs, features from the three groups are taken into account. The new subspace sampling method maintains the diversity and the randomness of the forest and enables one to generate trees with a lower prediction error. In addition, quantile regression is employed to obtain predictions in the regression problem for a robustness towards outliers. The experimental results demonstrated that the proposed approach for learning random forests significantly reduced prediction errors and outperformed most existing random forests when dealing with high-dimensional data. © Springer International Publishing Switzerland 2015.

Data Provider: Engineering Village

6. OWA operator based link prediction ensemble for social network

Authors: He, Yu-Lin (1); Liu, James N.K. (2); Hu, Yan-Xing (2); Wang, Xi-Zhao (1)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen 518060, China; (2) Department of Computing, Hong Kong Polytechnic University, Kowloon, Hong Kong
Corresponding author: He, Y.-L.(dryulinhe@gmail.com)

Issue: 1
Issue date: January 2015
Publication year: 2015
Pages: 21-50
Language: English
ISSN: 09574174
CODEN: ESAPEH
Document type: Journal article (JA)
Publisher: Elsevier Ltd

Abstract: The objective of link prediction for social network is to estimate the likelihood that a link exists between two nodes. Although there are many local information-based algorithms which have been proposed to handle this essential problem in the social network analysis, the empirical observations show that the stability of local information-based algorithm is usually very low, i.e., the variabilities of local information-based algorithms are high. Thus, motivated by obtaining a stable link predictor with low variance, this paper proposes a kind of ordered weighted averaging (OWA) operator based link prediction ensemble algorithm (LPEOWA) for social network by assigning the aggregation weights for nine local information-based link prediction algorithms with three different OWA operators. The finally experimental results on benchmark social network datasets show that LPEOWA obtains a more stable prediction performance and considerably improves the prediction accuracy which is measured by the area under the receiver operating characteristic curve (AUC) in comparison with nine individual prediction algorithms. © 2014 Elsevier Ltd. All rights reserved.

Number of references: 50
Main heading: Algorithms
Controlled terms: Benchmarking - Forecasting - Social networking (online)
Uncontrolled terms: Algorithm stability - Ensemble learning - Link prediction - Local information - OWA operators
Classification code: 723 Computer Software, Data Handling and Applications - 912 Industrial Engineering and Management - 913 Production Planning and Control; Manufacturing - 921 Mathematics
DOI: 10.1016/j.eswa.2014.07.018
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

7. An enhanced density peak-based clustering approach for hyperspectral band selection

Accession number: 20161302153196

Authors: Tang, Guihua (1); Jia, Sen (1); Li, Jun (2)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (2) School of Geography and Planning, Sun Yat-sen University, Guangzhou, China

Source title: International Geoscience and Remote Sensing Symposium (IGARSS)
Abbreviated source title: Dig Int Geosci Remote Sens Symp (IGARSS)
Volume: 2015-November
Monograph title: 2015 IEEE International Geoscience and Remote Sensing Symposium, IGARSS 2015 - Proceedings
Issue date: November 10, 2015
Publication year: 2015
Pages: 1116-1119
Article number: 7325966
Language: English
CODEN: IGRSE3
ISBN-13: 9781479979295
Document type: Conference article (CA)
Conference name: IEEE International Geoscience and Remote Sensing Symposium, IGARSS 2015
Conference date: July 26, 2015 - July 31, 2015
Conference location: Milan, Italy
Conference code: 117585
Sponsor: The Institute of Electrical and Electronics Engineers Geoscience and Remote Sensing Society (IEEE GRSS)
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: Recently, a fast density peak-based clustering algorithm, namely FDPC, has demonstrated its power on nonspherical clustering problems. In this paper, we propose an enhanced fast density peak-based clustering, namely E-FDPC, for hy-perspectral band selection. The main contributions of the proposed E-FDPC, in comparison with the original FDPC are two folds. First, we introduce a parameter to control the weight between the normalized local density and intra-cluster distance. The other aspect is that, we present an exponential-based learning rule to adjust the cut-off threshold for different number of selected bands, where it is empirically defined in FDPC. Furthermore, an effective

strategy, called isolated-point-stopping criterion, is developed to automatically determine the appropriate number of bands. That is, the clustering process will be stopped by the emergence of the isolated point (the only point in one cluster). Experimental results on real hyperspectral data demonstrate that E-FDPC approach could achieve higher overall classification accuracies than FDPC and other state-of-the-art band selection techniques. © 2015 IEEE.
Number of references: 13
DOI: 10.1109/IGARSS.2015.7325966
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

8. Adaptive Bayesian personalized ranking for heterogeneous implicit feedbacks

Accession number: 20144500176096
Authors: Pan, Weike (1); Zhong, Hao (2); Xu, Congfu (2); Ming, Zhong (1)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, China; (2) Institute of Artificial Intelligence, College of Computer Science, Zhejiang University, China
Corresponding author: Xu, Congfu
Source title: Knowledge-Based Systems
Abbreviated source title: Knowl Based Syst
Volume: 73
Issue date: January 1, 2015
Publication year: 2015
Pages: 173-180
Language: English
ISSN: 09507051
CODEN: KNSYET
Document type: Journal article (JA)
Publisher: Elsevier
Abstract: Implicit feedbacks have recently received much attention in recommendation communities due to their close relationship with real industry problem settings. However, most works only exploit users' homogeneous implicit feedbacks such as users' transaction records from "bought" activities, and ignore the other type of implicit feedbacks like examination records from "browsed" activities. The latter are usually more abundant though they are associated with high uncertainty w.r.t. users' true preferences. In this paper, we study a new recommendation problem called heterogeneous implicit feedbacks (HIF), where the fundamental challenge is the uncertainty of the examination records. As a response, we design a novel preference learning algorithm to learn a confidence for each uncertain examination record with the help of transaction records. Specifically, we generalize Bayesian personalized ranking (BPR), a seminal pairwise learning algorithm for homogeneous implicit feedbacks, and learn the confidence adaptively, which is thus called adaptive Bayesian personalized ranking (ABPR). ABPR has the merits of uncertainty reduction on examination records and accurate pairwise preference learning on implicit feedbacks. Experimental results on two public data sets show that ABPR is able to leverage uncertain examination records effectively, and can achieve better recommendation performance than the state-of-the-art algorithm on various ranking-oriented evaluation metrics. © 2014 Elsevier B.V.All rights reserved.
Number of references: 34
Main heading: Feedback
Controlled terms: Collaborative filtering - Learning algorithms
Uncontrolled terms: Bayesian - Implicit feedback - Preference learning - Recommendation performance - State-of-the-art algorithms - Transaction records - Transfer learning - Uncertainty reduction
Classification code: 723 Computer Software, Data Handling and Applications - 731.1 Control Systems - 903.1 Information Sources and Analysis
DOI: 10.1016/j.knosys.2014.09.013
Database: Compendex
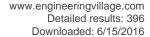Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

9. Simultaneous measurement of one dimensional bending and temperature based on Mach-Zehnder interferometer

Accession number: 20154301432280
Authors: Yu, Yongqin (1, 2, 3); Zhang, Yufeng (1, 2, 3); Ou, Zhilong (1, 2, 3); Chen, Xue (1, 2, 3); Huang, Quandong (1, 2, 3); Ruan, Shuangchen (1, 2, 3)

Author affiliation: (1) College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (2) Shenzhen Key Laboratory of Laser Engineering, Shenzhen, China; (3) Key Laboratory of Advanced Optical Precision Manufacturing Technology of Guangdong Higher Education Institutes, Shenzhen University, Shenzhen, China
Corresponding author: Yu, Yongqin

Abstract: A simple and compact optical fiber directional bending vector sensor with simultaneous measurement of temperature based on the Mach-Zehnder interferometer (MZI) is proposed and experimentally demonstrated. The device consists of a piece of photonic crystal fiber (PCF) sandwiched between two single mode fibers (SMFs) with a lateral offset splicing. It shows the capacity for recognizing positive and negative directions. Within a curvature range of -7.13 m-1to 7.13 m-1, the bending sensitivities of two resonant dips with opposite fiber orientations are obtained to be 0.484 nm/m-1and 0.246 nm/m-1, respectively. This simple MZI is formed by invoking interference between LP01and LP21core modes, which leads to that the sensor is not sensitive to ambient refractive index (ARI). The temperature sensitivity has also been investigated. Two dips have obviously different sensitivities on the temperature and bending, so two parameters of both curvature and temperature can be distinguished and measured simultaneously by constructing a matrix and using one simple model interferometer. © 2015, The Author(s).
Number of references: 16
Main heading: Photonic crystal fibers
Controlled terms: Fibers - Interferometers - Mach-Zehnder interferometers - Nonlinear optics - Optical fibers - Refractive index - Single mode fibers - Temperature sensors
Uncontrolled terms: Curvature sensor - Fiber optics sensors - Machzehnder interferometers (MZI) - Microstructured fibers - Simple modeling - Simultaneous measurement - Temperature sensitivity - Vector sensors
Classification code: 741 Light, Optics and Optical Devices - 941.3 Optical Instruments - 944.5 Temperature Measuring Instruments
DOI: 10.1007/s13320-015-0264-x
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

10. Angular characteristics of a multimode fibre surface plasmon resonance sensor under wavelength interrogation

Accession number: 20155101702421
Authors: Tan, Zhixin (1, 2, 3, 4); Hao, Xin (4); Li, Xuejin (3, 5); Chen, Yuzhi (3, 5); Hong, Xueming (3, 4); Fan, Ping (3, 4)
Author affiliation: (1) Institute of High Energy Physics, Chinese Academy of Sciences (CAS), Beijing, China; (2) Dongguan Neutron Science Center, Dongguan, China; (3) Shenzhen Key Laboratory of Sensor Technology, Shenzhen, Guangdong, China; (4) College of Physics Science and Technology, Shenzhen University, Guangdong, China; (5) College of Electronic Science and Technology, Shenzhen University, Guangdong, China

Document type: Journal article (JA)
Publisher: Institute of Physics Publishing
Abstract: In this paper the angular characteristics of a multimode fibre SPR sensor are theoretically investigated. By separating the contributions of beams incident at different angles, a compact model is presented to predict the shift of the resonance wavelength with respect to the angle and the environmental refractive index. The result suggests that the performance of conventional fibre SPR sensors can be substantially improved by optimizing the incident angle. Furthermore, our investigation suggests some problems in previous reports. © 2016 IOP Publishing Ltd.
Number of references: 22
Main heading: Surface plasmon resonance
Controlled terms: Fiber optic sensors - Fibers - Multimode fibers - Plasmons - Refractive index
Uncontrolled terms: Angular characteristics - Compact model - Fibre surfaces - Incident angles - Plasmonics - Resonance wavelengths - Surface plasmons - Wavelength interrogation
Classification code: 741.1 Light/Optics - 741.1.2 Fiber Optics - 931.3 Atomic and Molecular Physics
DOI: 10.1088/0022-3727/49/2/025401
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

11. Active constraints selection based semi-supervised dimensionality in ensemble subspaces

Accession number: 20155201732346
Authors: Zeng, Jie (1, 2); Nie, Wei (1); Zhang, Yong (1, 3)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, China; (2) Modern Communication and Information Processing Key Laboratory, Shenzhen University, Shenzhen, China; (3) ATR Key Laboratory of National Defense Technology, Shenzhen University, Shenzhen, China
Corresponding author: Zhang, Yong(yzhang@szu.edu.cn)
Source title: Journal of Systems Engineering and Electronics
Abbreviated source title: J Syst Eng Electron
Volume: 26
Issue: 5
Issue date: October 1, 2015
Publication year: 2015
Pages: 1088-1099
Article number: 00118
Language: English
ISSN: 10044132
CODEN: JSEEFQ
Document type: Journal article (JA)
Publisher: Beijing Institute of Aerospace Information, P.O.Box 142-32, Beijing, 100854, China
Abstract: Semi-supervised dimensionality reduction (SSDR) has attracted an increasing amount of attention in this big-data era. Many algorithms have been developed with a small number of pairwise constraints to achieve performances comparable to those of fully supervised methods. However, one challenging problem with semi-supervised approaches is the appropriate choice of the constraint set, including the cardinality and the composition of the constraint set, which to a large extent, affects the performance of the resulting algorithm. In this work, we address the problem by incorporating ensemble subspace and active learning into dimensionality reduction and propose a new algorithm, termed as global and local scatter based SSDR with active pairwise constraints selection in ensemble subspaces (SSGL-ESA). Unlike traditional methods that select the supervised information in one subspace, we pick up pairwise constraints in ensemble subspace, where a novel active learning algorithm is designed with both exploration and filtering to generate informative pairwise constraints. The automatic constraint selection approach proposed in this paper can be generalized to be used with all constraint-based semi-supervised learning algorithms. Comparative experiments are conducted on two face database and the results validate the effectiveness of the proposed method. © 2011 Beijing Institute of Aerospace Information.
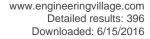**Number of references:** 29
Main heading: Learning algorithms
Controlled terms: Algorithms - Artificial intelligence - Big data - Information filtering - Learning systems - Supervised learning
Uncontrolled terms: Active constraints - Active Learning - Active-learning algorithm - Comparative experiments - Dimensionality reduction - ensemble subspace - Pairwise constraints - Supervised methods

Classification code: 723.2 Data Processing and Image Processing - 723.4 Artificial Intelligence - 903.1 Information Sources and Analysis
DOI: 10.1109/JSEE.2015.00118
Database: Compendex

Data Provider: Engineering Village

12. Research on measuring the corporate default willingness based on prospect theory

Authors: Lin, Xu Dong (1); Cheng, Lin (1); Zeng, Dan Dan (1)
Author affiliation: (1) College of Management, Shenzhen University, Shenzhen; Guangdong, China
Abstract: Based on prospect theory, we have measured three main factors of affecting corporate default willingness and established the simulation model to calculate them. As a result, with the change of reference point of three main factors, that is, degree of government regulation and penalties, and default rate of enterprises, the corporate default willingness will be altered accordingly. What is more, function curve of corporate default willingness is nonlinear and complex. Finally, we briefly analyzed reasons for these results. © 2015 Taylor & Francis Group, London.
Number of references: 7
Main heading: Engineering
Controlled terms: Industrial engineering
Uncontrolled terms: Default rates - Default willingness - Government regulation - Prospect theory - Reference points - Simulation model
Classification code: 912.1 Industrial Engineering
Compendex references: YES
Database: Compendex

Data Provider: Engineering Village

13. Symmetrically private information retrieval based on blind quantum computing

Authors: Sun, Zhiwei (1); Yu, Jianping (1); Wang, Ping (2); Xu, Lingling (3)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, Guangdong, China; (2) College of Computer Science and Software Engineering, Shenzhen Uni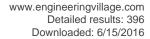versity, Shenzhen, China; (3) School of Computer Science and Engineering, South China University of Technology, Guangzhou, China

Abstract: Universal blind quantum computation (UBQC) is a new secure quantum computing protocol which allows a user Alice who does not have any sophisticated quantum technology to delegate her computing to a server Bob without leaking any privacy. Using the features of UBQC, we propose a protocol to achieve symmetrically private information retrieval, which allows a quantum limited Alice to query an item from Bob with a fully fledged quantum computer; meanwhile, the privacy of both parties is preserved. The security of our protocol is based on the assumption that malicious Alice has no quantum computer, which avoids the impossibility proof of Lo. For the honest Alice, she is almost classical and only requires minimal quantum resources to carry out the proposed protocol. Therefore, she does not need any expensive laboratory which can maintain the coherence of complicated quantum experimental setups. © 2015 American Physical Society.

Number of references: 21
Main heading: Quantum theory
Controlled terms: Computer privacy - Information retrieval - Microcomputers - Mobile security - Quantum computers - Quantum cryptography
Uncontrolled terms: Quantum Computing - Quantum limited - Quantum resources - Quantum technologies - Symmetrically private information retrievals
Classification code: 716 Telecommunication; Radar, Radio and Television - 717 Optical Communication - 718 Telephone Systems and Related Technologies; Line Communications - 722.4 Digital Computers and Systems - 723 Computer Software, Data Handling and Applications - 931.4 Quantum Theory; Quantum Mechanics
DOI: 10.1103/PhysRevA.91.052303
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

14. Enhance differential evolution algorithm based on novel mutation strategy and parameter control method

Authors: Cui, Laizhong (1); Li, Genghui (1); Li, Li (1); Lin, Qiuzhen (1); Chen, Jianyong (1); Lu, Nan (1)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, Guangdong, China
Corresponding author: Cui, Laizhong(cuilz@szu.edu.cn)

Abstract: Differential evolution (DE) algorithm is a very effective and efficient approach for solving global numerical optimization problems. However, DE still suffers from some limitations. Moreover, the performance of DE is sensitive to its mutation strategy and associated parameters. In this paper, an enhanced differential evolution algorithm called EDE is proposed, which including a new mutation strategy and a new control method of parameters. Compared with other DE algorithms including four classical DE and two state-of-the-art DE variants on ten numerical benchmarks,

the experiment results indicate that the performance of EDE is better than those of the other algorithms. © Springer International Publishing Switzerland 2015.

Number of references: 13
Main heading: Evolutionary algorithms
Controlled terms: Algorithms - Benchmarking - Information science - Optimization - Parameter estimation
Uncontrolled terms: Control methods - Differential Evolution - Differential evolution algorithms - Exploration and exploitation - Global numerical optimizations - Mutation strategy - Numerical benchmark - Parameter control method
Classification code: 921.5 Optimization Techniques
DOI: 10.1007/978-3-319-26532-2_70
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

15. Rate Distortion Optimized Inter-View Frame Level Bit Allocation Method for MV-HEVC

Accession number: 20161202122532

Authors: Yuan, Hui (1, 2, 3); Kwong, Sam (1, 4); Wang, Xu (5); Gao, Wei (3); Zhang, Yun (6)
Author affiliation: (1) School of Information Science and Engineering, Shandong University, Ji'nan, China; (2) Key Laboratory of Wireless Sensor Network and Communication, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Shanghai, China; (3) Department of Computer Science, City University of Hong Kong, Hong Kong, Hong Kong; (4) City University of Hong Kong, Shenzhen Research Institute, Shenzhen, China; (5) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (6) Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China

Source title: IEEE Transactions on Multimedia
Abbreviated source title: IEEE Trans Multimedia
Volume: 17
Issue: 12
Issue date: December 2015
Publication year: 2015
Pages: 2134-2146
Article number: 7254194
Language: English
ISSN: 15209210
CODEN: ITMUF8
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: In multi-view video coding, since inter-view prediction has been adopted as an important coding tool which could improve coding efficiency greatly, inter-view dependency is inevitable, i.e., the distortion of the reference view (RV) picture could be propagated to the non-reference view (NRV) pictures. Therefore, in order to achieve higher coding efficiency, the inter-view dependency must be taken into account for inter-view bit allocation. In this paper, the inter-view dependency is analyzed in detail, and a rate-distortion (RD) model for NRVs is derived by taking the distortion of RV into account. Based on the derived RD model, the inter-view bit allocation is represented as a mathematical problem with an analytic form, and is solved by a convex optimization (Lagrangian Multiplier) method. Experimental results demonstrate that the RD performance and the inter-view quality consistency of the proposed method is better than existing methods, while the complexity of the proposed method is comparable with the existing methods. © 2015 IEEE.

Number of references: 34
Main heading: Signal distortion
Controlled terms: Codes (symbols) - Convex optimization - Efficiency - Electric distortion - Image coding - Lagrange multipliers - Video signal processing
Uncontrolled terms: Bit allocation - inter-view dependency - Inter-view predictions - Lagrangian multipliers - Mathematical problems - Multiview video coding - MV-HEVC - Rate-distortion optimization
Classification code: 701.1 Electricity: Basic Concepts and Phenomena - 716.1 Information Theory and Signal Processing - 716.4 Television Systems and Equipment - 723.2 Data Processing and Image Processing - 913.1 Production Engineering
DOI: 10.1109/TMM.2015.2477682
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

16. Widely and continuously tunable continuum generation from CW-Pumped cascaded fibers

Authors: Guo, Chunyu (1); Yu, Jun (1, 2); Ruan, Shuangchen (1); Ouyang, Deqin (1); Lin, Huaiqin (1); Liu, Weiqi (1, 2); Chen, Yewang (1, 2); Yan, Peiguang (1); Hu, Xuejuan (1); Hua, Ping (1, 3)
Author affiliation: (1) Shenzhen Key Laboratory of Laser Engineering, Key Laboratory of Advanced Optical Precision, Shenzhen University, Shenzhen, China; (2) College of Electronic Science and Technology, Shenzhen University, Shenzhen, China; (3) Optoelectronics Research Centre, University of Southampton, Southampton, United Kingdom
Corresponding author: Ruan, Shuangchen
Abstract: A tunable continuum with multiwatt output power is demonstrated for the first time through the pumping of cascaded fibers by using a continuous-wave (CW) ytterbium fiber laser. The central wavelength of the output continuum can be tuned continuously and monotonically by varying input pump power, with a wide wavelength-tunable range from 1.2 to 1.4 \mu{\rm m} and a 3-dB bandwidth of tens of nanometers. Two configurations of the cascaded fibers both display the power-dependent wavelength tunability. The output spectral characteristics are presented, and the generation of the CW-pumped tunable continuum is tentatively attributed to the seed-dependent Raman amplification. © 2009-2012 IEEE.

17. Joint representation and pattern learning for robust face recognition

Authors: Yang, Meng (1); Zhu, Pengfei (2); Liu, Feng (1); Shen, Linlin (1)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (2) School of Computer Science and Technology, Tianjin University, Tianjin, China
Corresponding author: Shen, Linlin

Abstract: Image feature is a significant factor for the success of robust face recognition. Recently sparse representation based classifier (SRC) has been widely applied to robust face recognition by using sparse representation residuals to tolerate disturbed image features (e.g., occluded pixels). In order to deal with more complicated image variations, robust representation based classifier, which estimates feature weights (e.g., low weight values are given to the pixels with big representation residuals), has attracted much attention in recent work. Although these methods have achieved improved performance by estimating feature weights independently, structured information and prior knowledge of image features are ignored in these works, resulting in unsatisfactory performance in some challenging cases. Thus how to better learn image feature weight to fully exploit structure information and prior knowledge is still an open question in robust face recognition. In this paper, we proposed a novel joint representation and pattern learning (JRPL) model, in which the feature pattern weight is simultaneously learned with the representation of query image. Especially a feature pattern dictionary, which captures structured information and prior knowledge of image features, are constructed to represent the unknown feature pattern weight of a query image. An efficient algorithm to solve JRPL was also presented in this paper. The experiments of face recognition with various variations and occlusions on several benchmark datasets clearly show the advantage of the proposed JRPL in accuracy and efficiency. © 2015 Elsevier B.V.
Number of references: 54
Main heading: Face recognition
Controlled terms: Algorithms - Pixels - Query processing
Uncontrolled terms: Benchmark datasets - Feature pattern - Image variations - Pattern Learning - Prior knowledge - Sparse representation - Structure information - Structured information
Classification code: 716 Telecommunication; Radar, Radio and Television - 723 Computer Software, Data Handling and Applications - 921 Mathematics
DOI: 10.1016/j.neucom.2015.06.013
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

18. A method for reducing the sidelobes in superoscillation imaging

Accession number: 20160801965961
Authors: Liu, Yunchuan (1); Huo, Yingdong (1); Niu, Hanben (1)
Author affiliation: (1) College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Abstract: Superoscillation is a novel super-resolution method based on the propagation wave instead of evanescent waves and its limitation is increasing resolution with huge sidelobes. We developed a super-oscillation function filter based on Chebyshev linear array, which overcame the diffraction limit with lower side lobes in 4F system. It was proved that value of MSE and PSNR of single point and multipoint samples imaging reduced a half. © 2015 SPIE.
Number of references: 14
Main heading: Image processing
Controlled terms: Chebyshev filters - Diffraction - Image acquisition - Optical resolving power - Pattern recognition

Uncontrolled terms: 4-f system - Diffraction limits - Evanescent wave - Linear arrays - Super resolution - Super-oscillations - superoscillation - Superresolution methods
Classification code: 703.2 Electric Filters - 723 Computer Software, Data Handling and Applications - 741.1 Light/Optics
DOI: 10.1117/12.2230211
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

19. A broadband dual-polarization base station antenna element with a coupling feed

Accession number: 20160201789285
Authors: He, Yejun (1); He, Yuan (1); Tentzeris, Manos M. (2)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, Guangdong, China; (2) School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta; GA, United States
Corresponding author: He, Yejun
Source title: IEEE Antennas and Propagation Society, AP-S International Symposium (Digest)
Abbreviated source title: IEEE Antennas Propag Soc AP S Int Symp
Volume: 2015-October
Monograph title: 2015 IEEE Antennas and Propagation Society International Symposium, APS 2015 - Proceedings
Issue date: October 22, 2015
Publication year: 2015
Pages: 2001-2002
Article number: 7305390
Language: English
ISSN: 15223965
CODEN: IAPSBG
ISBN-13: 9781479978151
Document type: Conference article (CA)
Conference name: IEEE Antennas and Propagation Society International Symposium, APS 2015
Conference date: July 19, 2015 - July 24, 2015
Conference location: Vancouver, BC, Canada
Conference code: 117292
Sponsor: IEEE Antennas and Propagation Society; The Institute of Electrical and Electronics Engineers
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: This paper presents a broadband, dual-polarized base station antenna element by reasonably designing two orthogonal symmetrical dipole, four loading cylinders, balun, feed patches, specific shape reflector and plastic fasteners. Coupling feed is adopted to avoid the direct connection between the feed cables and the dipoles. The antenna element matches well in the frequency range of 1.7-2.7 GHz and the return loss (RL) S1125dB) and stable half-power beam width (HPBW) with 65±5° are also achieved. The proposed antenna element covers the whole long term evolution (LTE) band and is backward compatible with 3G and 2G bands. © 2015 IEEE.
Number of references: 7
DOI: 10.1109/APS.2015.7305390
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

20. EVOV: A video recommendation system to support sustainable vocabulary learning

Accession number: 20161602275351
Authors: Zhang, Yonghe (1); Jia, Weichen (1); Zhu, Chunying (1); Song, Ying (1)
Author affiliation: (1) Shenzhen University, China
Source title: Proceedings of 2015 IEEE International Conference on Teaching, Assessment and Learning for Engineering, TALE 2015
Abbreviated source title: Proc. IEEE Int. Conf. Teach., Assess. Learn. Eng., TALE
Monograph title: Proceedings of 2015 IEEE International Conference on Teaching, Assessment and Learning for Engineering, TALE 2015
Issue date: January 18, 2016
Publication year: 2015

Abstract: Learning vocabulary is both critical and boring for many EFL (English as foreign language) learners and one major difficulty is the lack of suitable context for learning new words. Although videos can provide a rich context for learning vocabulary, it often takes more time than textual media to learn. This paper presents the EVOV system which is to exploit the role of video in vocabulary learning with the human-interaction mechanism and recommendation engine. This system models vocabulary learning as an evolutionary process. It involves watching videos, reviewing vocabulary, learner modeling and individualized recommendations. This paper introduces the core modules of EVOV and demonstrates how it supported vocabulary learning through video in an efficient and sustainable way. © 2015 IEEE.

Number of references: 17
Main heading: Learning systems
Controlled terms: Computer aided instruction - Education computing - Engineering education - Recommender systems - Teaching
Uncontrolled terms: Evolutionary process - Foreign language - Human interactions - Intelligent tutoring system - Learner model - System models - Vocabulary learning
Classification code: 723.5 Computer Applications - 901.2 Education
DOI: 10.1109/TALE.2015.7386013
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

21. Q-switched and Q-Switched mode-locking operation from Nd:YVO4laser using reflective MoS2saturable absorber

Authors: Li, Pingxue (1); Zhang, Guangju (1); Zhang, Han (2); Zhao, Chujun (2); Chi, Junjie (1); Hu, Haowei (1); Yao, Yifei (1); Su, Ning (1)
Author affiliation: (1) Institute of Laser Engineering, Beijing University of Technology, Beijing, China; (2) College of Optoelectronic Engineering, Shenzhen University, Shenzhen; Guangdong, China

Abstract: The generation of both Q-switched and Q-switched mode-locking pulses from Nd:YVO4laser using reflective MoS2saturable absorber is reported. The Nd:YVO4laser system is designed as a folded cavity. At the absorbed pump power of 4.47 W, Q-switched pulses with average output power of 87.2 mW are obtained. The Q-switched mode-locking operation with average output power of 95.3 mW is achieved at the absorbed pump power of 4.75 W. The wavelength of the ultrashort pulses is centered at 1064.39 nm. The experimental results are analyzed, and a good preparation is made for the next-step work. ©, 2015, Chinese Optical Society. All right reserved.

Number of references: 27
Page count: 5

Main heading: Laser mode locking
Controlled terms: Lasers - Locks (fasteners) - Molybdenum compounds - Optical pumping - Q switching - Saturable absorbers - Ultrashort pulses
Uncontrolled terms: Absorbed pump power - Average output power - Folded cavity - Layered material - Nd : YVO - Passive Q-switched - Q-switched mode locking - Q-switched pulse
Classification code: 744.1 Lasers, General - 744.8 Laser Beam Interactions
DOI: 10.3788/AOS201535.s114003
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

22. Unitary PUMA Algorithm for Estimating the Frequency of a Complex Sinusoid

Accession number: 20161002059398
Authors: Qian, Cheng (1); Huang, Lei (2); So, Hing Cheung (3); Sidiropoulos, Nicholas D. (4); Xie, Junhao (1)
Author affiliation: (1) Department of Electronics and Information Engineering, Harbin Institute of Technology, Harbin, China; (2) College of Information Engineering, Shenzhen University, Shenzhen, China; (3) Department of Electronic Engineering, City University of Hong Kong, Hong Kong, Hong Kong; (4) Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis; MN, United States
Source title: IEEE Transactions on Signal Processing
Abbreviated source title: IEEE Trans Signal Process
Volume: 63
Issue: 20
Issue date: October 15, 2015
Publication year: 2015
Pages: 5358-5368
Article number: 7152983
Language: English
ISSN: 1053587X
CODEN: ITPRED
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: One-dimensional (1-D) and two-dimensional (2-D) frequency estimation for a single complex sinusoid in white Gaussian noise is a classic signal processing problem with numerous applications. It is revisited here through a new unitary principal-singular-vector utilization modal analysis (PUMA) approach, which is realized in terms of real-valued computations. The 2-D unitary PUMA is first formulated as an iteratively weighted least squares optimization problem. Recognizing that only one iteration is sufficient when 2-D unitary PUMA is initialized using least squares, a computationally attractive closed-form solution is then obtained. A variant of 2-D unitary PUMA is also developed for the 1-D case. Due to the real-valued computations and closed-form expression for the frequency estimate, the unitary PUMA is more computationally efficient than a number of state-of-The-Art methods. Furthermore, the asymptotic variances of 1-D and 2-D unitary PUMA estimators are theoretically derived, and numerical results are included to demonstrate the effectiveness of the proposed methods. © 1991-2012 IEEE.
Number of references: 36
Main heading: Frequency estimation
Controlled terms: Algorithms - Computerized tomography - Gaussian noise (electronic) - Iterative methods - Least squares approximations - Modal analysis - Numerical methods - Optimization - Signal processing
Uncontrolled terms: Closed form solutions - Closed-form expression - Complex sinusoid - Computationally efficient - Signal processing problems - Sub-space methods - Two Dimensional (2 D) - Weighted least squares
Classification code: 716.1 Information Theory and Signal Processing - 723.5 Computer Applications - 921 Mathematics
DOI: 10.1109/TSP.2015.2454471
Compendex references: YES
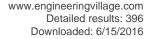**Database:** Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

23. CW-THz image contrast enhancement using wavelet transform and Retinex

Accession number: 20161602266862
Authors: Chen, Lin (1, 2); Zhang, Min (1, 2); Hu, Qi-Fan (1, 2); Huang, Ying-Xue (1, 2); Liang, Hua-Wei (1, 2)

Author affiliation: (1) Shenzhen Key Laboratory of Laser Engineering, Shenzhen University, Shenzhen, China; (2) College of Electronic Science and Technology, Shenzhen University, Shenzhen, China
Source title: Proceedings of SPIE - The International Society for Optical Engineering
Abbreviated source title: Proc SPIE Int Soc Opt Eng
Volume: 9675
Monograph title: AOPC 2015: Image Processing and Analysis
Issue date: 2015
Publication year: 2015
Article number: 96751M
Language: English
ISSN: 0277786X
E-ISSN: 1996756X
CODEN: PSISDG
ISBN-13: 9781628419009
Document type: Conference article (CA)
Conference name: Applied Optics and Photonics, China: Image Processing and Analysis, AOPC 2015
Conference date: May 5, 2015 - May 7, 2015
Conference location: Beijing, China
Conference code: 117481
Sponsor: Chinese Society for Optical Engineering
Publisher: SPIE

Abstract: To enhance continuous wave terahertz (CW-THz) scanning images contrast and denoising, a method based on wavelet transform and Retinex theory was proposed. In this paper, the factors affecting the quality of CW-THz images were analysed. Second, an approach of combination of the discrete wavelet transform (DWT) and a designed nonlinear function in wavelet domain for the purpose of contrast enhancing was applied. Then, we combine the Retinex algorithm for further contrast enhancement. To evaluate the effectiveness of the proposed method in qualitative and quantitative, it was compared with the adaptive histogram equalization method, the homomorphic filtering method and the SSR(Single-Scale-Retinex) method. Experimental results demonstrated that the presented algorithm can effectively enhance the contrast of CW-THZ image and obtain better visual effect. © 2015 SPIE.
Number of references: 12
Main heading: Image processing
Controlled terms: Discrete wavelet transforms - Functions - Image analysis - Mathematical transformations - Optical data processing - Terahertz waves - Wavelet transforms
Uncontrolled terms: Adaptive histogram equalization - Continuous-wave terahertz - Contrast Enhancement - Homomorphic filtering - Image contrast enhancement - Nonlinear functions - Retinex - THz imaging
Classification code: 711 Electromagnetic Waves - 723.2 Data Processing and Image Processing - 921 Mathematics - 921.3 Mathematical Transformations
DOI: 10.1117/12.2199505
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

24. A Monte Carlo-based feeding policy for tailoring microstructure of copolymer chains: Reconsidering the conventional metallocene catalyzed polymerization of α-olefins

Accession number: 20151600754923
Authors: Saeb, Mohammad Reza (1); Mohammadi, Yousef (2); Ahmadi, Mostafa (3); Khorasani, Mohammad Mehdi (2); Stadler, Florian J. (4, 5, 6, 7)
Author affiliation: (1) Department of Resin and Additives, Institute for Color Science and Technology, P.O. Box 16765-654, Tehran, Iran; (2) Petrochemical Research and Technology Company (NPC-rt), National Petrochemical Company (NPC), P.O. Box 14358-84711, Tehran, Iran; (3) Department of Polymer Engineering and Color Technology, Amirkabir University of Technology, Tehran, Iran; (4) College of Materials Science and Engineering, Shenzhen University, Shenzhen, China; (5) Nanshan District Key Lab for Biopolymers and Safety Evaluation, Shenzhen, China; (6) Shenzhen Key Laboratory of Special Functional Materials, Shenzhen, China; (7) Shenzhen Engineering Laboratory for Advanced Technology of Ceramics, Shenzhen, China
Corresponding author: Mohammadi, Yousef
Source title: Chemical Engineering Journal
Abbreviated source title: Chem. Eng. J.
Volume: 274

Abstract: A standard Monte Carlo-based program with innovative data storage structure was developed and put into practice to tailor ethylene/1-hexene copolymers through semibatch single site metallocene catalyzed copolymerization. The distribution of copolymer composition, ethylene sequence length, longest ethylene sequence length, as well as the number-average degree of polymerization, and sequential placement of 1-hexene comonomer segments along copolymer chains were monitored and evaluated applying a computerized feeding to metallocene catalyzed ethylene/1-hexene copolymerization. In particular, bivariate copolymer composition-chain length (CC-CL) distribution was compared for two feeding recipes with uncontrolled and well-controlled comonomer insertion. The advantages of controlled feeding in comparison to uncontrolled feeding were discussed in view of aforementioned architectural features. To obtain macromolecules with tailored comonomer distributions, special feeding strategies were developed by training and examining the developed model to capture crystallization analysis fractionation (CRYSTAF) of ethylene/1-hexene chains, as a unique signature of tailored copolymers with rather narrow bivariate CC-CL distribution. The simulation results appropriately highlight the critical importance of computerized feeding with respect to uncontrolled feeding. © 2015 Elsevier B.V.

Number of references: 53
Main heading: Monte Carlo methods
Controlled terms: Catalysis - Chains - Copolymerization - Copolymers - Digital storage - Ethylene - Feeding - Intelligent systems - Microstructure - Organometallics - Polymerization - Polymers
Uncontrolled terms: Bivariate distribution - Catalyzed polymerization - Coordination polymerization - Copolymer compositions - Crystallization analysis fractionation - Ethylene/1-hexene copolymerizations - Longest ethylene sequences - Microstructure tailoring
Classification code: 602.1 Mechanical Drives - 691.2 Materials Handling Methods - 722.1 Data Storage, Equipment and Techniques - 723.4 Artificial Intelligence - 802.2 Chemical Reactions - 804.1 Organic Compounds - 815.1 Polymeric Materials - 815.2 Polymerization - 922.2 Mathematical Statistics - 933 Solid State Physics - 951 Materials Science
DOI: 10.1016/j.cej.2015.02.095
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

25. Effect of induction frequency of chemical liquid vaporization deposition on preparation of hydroxyapatite coating on C/C composites

Authors: Xin-Bo, Xiong (1); Xin-Ye, Ni (1, 2); Cen-Cen, Chu (1); Ji-Zhao, Zou (1); Xie-Rong, Zeng (1)
Author affiliation: (1) College of Materials Science and Engineering, Shenzhen University, ShenZhen, China; (2) Second People's Hospital of Changzhou, Nanjing Medical University, Changzhou, China
Corresponding author: Xin-Ye, Ni(nxy2000@aliyun.com)

Abstract: Chemical liquid vaporization deposition (CLVD) is used on C/C composites to prepare hydroxyapatite (HA) coating. The induction heating frequencies of CLVD are 450, 390, 330, and 290 kHz. The phase, morphology,

and composition of the coatings are characterized by SEM, XRD, and EDS. Adhesion of the coatings onto the C/C substrates is evaluated through a scratch test. Results demonstrate that the induction heating frequencies of CLVD hardly influence the phase of HA coating. With increased induction heating frequency, the critical load increases but the density of HA coating decreases. Under extremely high frequencies, abundant defects are observed on the HA coating surfaces, and the critical load dramatically decreases. The critical load reaches the maximum (47.8 N) at 330 kHz. Copyright © 2015 American Scientific Publishers. All rights reserved.

Number of references: 14
Main heading: Coatings
Controlled terms: Carbon carbon composites - Chemical vapor deposition - Composite coatings - Composite materials - Deposition - Hydroxyapatite - Induction heating - Surfaces - Vapor deposition - Vaporization
Uncontrolled terms: C/C composites - Chemical vapour deposition - Critical load - Extremely high frequencies - Heating frequency - Hydroxyapatite coating - Liquid vaporization - Scratch test
Classification code: 415.4 Structural Materials Other Than Metal, Plastics or Wood - 642.1 Process Heating - 802.2 Chemical Reactions - 802.3 Chemical Operations - 804.2 Inorganic Compounds - 813.2 Coating Materials - 951 Materials Science
DOI: 10.1166/jbmb.2015.1551
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

26. A new fiber-tip Fabry-Perot interferometer and its application for pressure measurement

Accession number: 20153301175843
Authors: Wang, Guanjun (1, 2); Liu, Shen (1); Zhao, Jing (1); Liao, Changrui (1); Xu, Xizhen (1); Wang, Yiping (1)
Author affiliation: (1) College of Optoelectronic Engineering, Shenzhen University, Shenzhen; Guangdong, China; (2) Shanxi Provincial Research Center for Opto-electronic Information and Instrument Engineering Technology, North University of China, Taiyuan; Shanxi, China
Corresponding author: Wang, Yiping
Source title: Proceedings of SPIE - The International Society for Optical Engineering
Abbreviated source title: Proc SPIE Int Soc Opt Eng
Volume: 9655
Part number: 1 of 1
Monograph title: Fifth Asia-Pacific Optical Sensors Conference, APOS 2015
Issue date: 2015
Publication year: 2015
Article number: 965517
Language: English
ISSN: 0277786X
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CODEN: PSISDG
ISBN-13: 9781628418651
Document type: Conference article (CA)
Conference name: 5th Asia-Pacific Optical Sensors Conference, APOS 2015
Conference date: May 20, 2015 - May 22, 2015
Conference location: Jeju, Korea, Republic of
Conference code: 113227
Sponsor: et al.; FIBERPRO, Inc.; JT, Inc.; NineOne Co., Ltd.; SeongKyeong Photonics; Taihan Fiberoptics Co., Ltd.
Publisher: SPIE
Abstract: This paper reports a new silica fiber-tip Fabry-Perot interferometer with thin film and large surface area characteristic for high pressure and vacuum degree detection simultaneously, which is fabricated by etching a flat fiber tip into concave surface firstly, with subsequent arc jointing the concave fiber into a inline Fabry-Perot cavity, then drawing one surface of the F-P cavity into several micrometers scale by arc discharge and finally etching the surface into sub-micrometer scale integrally. As the silica fiber-tip Fabry-Perot interferometer film thickness could be tailored very thinly by HF acid solution, plus the surface area of thin film could be expanded during the chemical etching process, the variation of the bubble cavity length is very sensitive to the inner/outer pressure difference of the fiber-tip Fabry-Perot interferometer. Experimental result shows an high sensitivity of 780nm/MPa is feasible. Such configuration has the advantages of lowcost, ease of fabrication and compact size, which make it a promising candidate for pressure and vacuum measurement. © 2015 Copyright SPIE.
Number of references: 10
Main heading: Fabry-Perot interferometers

Controlled terms: Cavity resonators - Etching - Fibers - Film thickness - Hydrofluoric acid - Interferometers - Micrometers - Optical sensors - Pressure measurement - Silica - Thin films
Uncontrolled terms: Chemical etching - Chemical-etching process - Fabry-Perot cavity - Fiber Sensor - Large surface area - Pressure differences - Vacuum degree - Vacuum measurements
Classification code: 423 Non Mechanical Properties and Tests of Building Materials - 714 Electronic Components and Tubes - 801 Chemistry - 804.2 Inorganic Compounds - 812 Ceramics, Refractories and Glass - 817 Plastics and Other Polymers: Products and Applications - 941.3 Optical Instruments - 943 Mechanical and Miscellaneous Measuring Instruments - 943.1 Mechanical Instruments - 944.4 Pressure Measurements
DOI: 10.1117/12.2184402
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

27. Range-only target localisation using geometrically constrained optimisation

Accession number: 20152000851731
Authors: Fan, En (1); Xie, Weixin (2); Liu, Zongxiang (2); Li, Peng-Fei (3)
Author affiliation: (1) Xidian University, Xi'an, China; (2) Shenzhen University, Shenzhen, China; (3) Air Defense Forces Academy, Zhengzhou, China
Source title: Defence Science Journal
Abbreviated source title: Def. Sci. J.
Volume: 65
Issue: 1
Issue date: January 1, 2015
Publication year: 2015
Pages: 70-76
Language: English
ISSN: 0011748X
E-ISSN: 0976464X
CODEN: DSJOAA
Document type: Journal article (JA)
Publisher: Defense Scientific Information and Documentation Centre
Abstract: The problem of optimal range-only localisation of a single target is of considerable interest in two-dimensional search radar networking. For coping with this problem, a range-only target localisation method using synchronous measurements from radars is presented in the real ellipsoidal earth model. In the relevant radar localisation scenario, geometric relationships between the target and three radars were formed. A set of localisation equations was derived on range error in such a scenario. Using these equations, the localisation task has been formulated as a nonlinear weighted least squares problem that can be performed using the Levenberg- Marquardt (LM) algorithm to provide the optimal estimate of the target's position. To avoid the double value solutions and to accelerate the convergence speed for the LM algorithm, the initial value was approximately given according to observations from two radars. In addition, the relative validity has been defined to evaluate the performance of the proposed method. The performance of the proposed approach is evaluated using two simulation experiments and a real-test experiment, and it has been found to possess higher localisation accuracy than the other conventional method. © 2015, DESIDOC.
Number of references: 17
Main heading: Radar measurement
Controlled terms: Algorithms - Computerized tomography - Constrained optimization - Cramer-Rao bounds - Least squares approximations - Nonlinear equations - Nonlinear programming - Radar - Radar theory
Uncontrolled terms: Cramer Rao lower bound - Levenberg-Marquardt algorithm - Localisation - Non-linear optimisation - Radar networking - Two-dimensional search
Classification code: 531 Metallurgy and Metallography - 716.1 Information Theory and Signal Processing - 716.2 Radar Systems and Equipment - 723 Computer Software, Data Handling and Applications - 801 Chemistry - 921 Mathematics - 922 Statistical Methods - 922.2 Mathematical Statistics - 961 Systems Science
DOI: 10.14429/dsj.65.5474
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

28. Adaptive comprehensive learning bacterial foraging optimization and its application on vehicle routing problem with time windows

Authors: Tan, Lijing (1); Lin, Fuyong (1); Wang, Hong (2)
Author affiliation: (1) Management School, Jinan University, Guangzhou, China; (2) College of Management, Shenzhen University, Shenzhen, China
Corresponding author: Lin, Fuyong
Abstract: This paper proposes a variant of the bacterial foraging optimization (BFO) algorithm with time-varying chemotaxis step length and comprehensive learning strategy which we call adaptive comprehensive learning bacterial foraging optimization (ALCBFO). An adaptive non-linearly decreasing modulation model is used to keep a well balance between the exploration and exploitation of the proposed algorithm. The comprehensive learning mechanism maintains the diversity of the bacterial population and thus alleviates the premature convergence. Compared with the classical GA, PSO, the original BFO and two improved BFO (BFO-LDC and BFO-NDC) algorithm, the proposed ACLBFO shows significantly better performance in solving multimodal problems. We also assess the performance of the ACLBFO method on vehicle routing problem with time windows (VRPTW). Compared with three other BFO algorithms, the proposed algorithm is superior and confirms its potential to solve vehicle routing problem with time windows (VRPTW).
Number of references: 45
Main heading: Problem solving
Controlled terms: Algorithms - Biochemistry - Network routing - Particle swarm optimization (PSO) - Routing algorithms - Vehicle routing - Vehicles
Uncontrolled terms: Bacterial foraging optimization - Bacterial foraging optimizations (BFO) - Bacterial population - Comprehensive learning - Exploration and exploitation - Multimodal problems - Pre-mature convergences - Vehicle routing problem with time windows
Classification code: 432 Highway Transportation - 721 Computer Circuits and Logic Elements - 723 Computer Software, Data Handling and Applications - 801.2 Biochemistry - 921 Mathematics
DOI: 10.1016/j.neucom.2014.03.082
Database: Compendex
Data Provider: Engineering Village

29. Nonlinear Modeling of Electromagnetic Forces for the Planar-Switched Reluctance Motor

Authors: Cao, Guang-Zhong (1); Li, Ling-Long (1); Huang, Su-Dan (1, 2); Li, Ling-Ming (1); Qian, Qing-Quan (2); Duan, Ji-An (3)
Author affiliation: (1) Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China; (2) College of Electrical Engineering, Southwest Jiaotong University, Chengdu, China; (3) State Key Laboratory of High Performance Complex Manufactory, Central South University, Changsha, China
Corresponding author: Cao, Guang-Zhong

Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: This paper proposes novel nonlinear electromagnetic force models of a planar switched reluctance motor (PSRM) for accurate optimization design and precise motion of PSRMs. For the mover with exciting current and the adjacent stator blocks, the flux distribution is gained by the finite-element method, the air-gap permeance between the mover tooth and the adjacent stator blocks is deduced using the flux tube method, the total permeance of the mover and the stator blocks is formulated utilizing the magnetic equivalent circuit method, and the magnetic field energy and the coenergy are derived with the obtained total permeance. In addition, the nonlinear electromagnetic forces, including thrust force and normal force, are modeled based on the magnetic field energy and the coenergy. The simulation and experiment are carried out to acquire electromagnetic forces. The results demonstrate that the average relative errors of the simulated and measured electromagnetic forces compared with the theoretical electromagnetic forces are <10%, and the accuracy and effectiveness of the proposed modeling are verified. © 2015 IEEE.

Number of references: 12
Main heading: Electric machine theory
Controlled terms: Electric motors - Finite element method - Magnetic devices - Magnetic fields - Magnetic flux - Magnetism - Nonlinear systems - Reluctance motors - Stators
Uncontrolled terms: Average relative error - Electromagnetic force model - Electromagnetic forces - Flux tubes - Magnetic equivalent circuit method - Magnetic field energy - Non-linear model - Planar switched reluctance motor
Classification code: 701.2 Magnetism: Basic Concepts and Phenomena - 705 Electric Generators and Motors - 921.6 Numerical Methods - 961 Systems Science
DOI: 10.1109/TMAG.2015.2444432
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

30. Multiferroic properties of lead-free Ni0.5Zn0.5Fe1.9O4-$_{\delta-}$Na0.5Bi0.5TiO3 composites synthesized by spark plasma sintering

Accession number: 20150800544338

Authors: Mudinepalli, Venkata Ramana (1); Song, S.-H. (1); Ravi, M. (1); Li, J.-Q. (2); Murty, B.S. (3)
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Source title: Ceramics International
Abbreviated source title: Ceram Int
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Language: English
ISSN: 02728842
CODEN: CINNDH
Document type: Journal article (JA)
Publisher: Elsevier Ltd

Abstract: Multiferroic composites of x Ni0.5Zn0.5Fe1.9O4-$_{\delta-}$(1-x) Na0.5Bi0.5TiO3 (x NZF-(1-x) NBT, where x=0.05, 0.15 and 0.25 mol fraction) were synthesized by spark plasma sintering (SPS) in conjunction with high-energy ball milling. The presence of NZF and NBT phases in the composites was confirmed by X-ray diffraction. The dielectric constant was studied as a function of frequency (0.5 kHz to 1 MHz) and temperature (30-500 °C). It was found that the 0.25 NZF-0.75 NBT composite possessed the most promising dielectric properties with its dielectric constant being 5-10 times higher than those for the other two composites in the full range of frequency. The magnetic and ferroelectric properties were examined at room temperature and all composite samples exhibited both pronounced ferromagnetic and ferroelectric characteristics. A maximum ME voltage coefficient of $_{\sim 870}$ µV/cm Oe was obtained at the magnetic field of $_{\sim 1.25}$ kOe for the 0.25 NZF-0.75 NBT composite, which was well comparable with the ME output for the lead-containing NZF-PZT composites. © 2015 Elsevier Ltd and Techna Group S.r.l.

Number of references: 38
Main heading: Dielectric properties of solids

Controlled terms: Ball milling - Dielectric properties - Electric sparks - Ferroelectricity - Gyrators - Nickel - Sintering - Sodium - Spark plasma sintering - X ray diffraction - Zinc
Uncontrolled terms: Composite samples - Ferroelectric characteristics - Ferroelectric property - Function of frequency - High-energy ball milling - ME voltage coefficients - Multiferroic composites - Multiferroic properties
DOI: 10.1016/j.ceramint.2015.01.140
Database: Compendex

Data Provider: Engineering Village

31. A real-time axial activeanti-drift device with high-precision

Accession number: 20150600487599
Authors: Huo, Ying-Dong (1, 2); Cao, Bo (2); Yu, Bin (2); Chen, Dan-Ni (2, 3); Niu, Han-Ben (2)
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Corresponding author: Niu, Han-Ben
Source title: Wuli Xuebao/Acta Physica Sinica
Abbreviated source title: Wuli Xuebao
Volume: 64
Issue: 2
Issue date: January 20, 2015
Publication year: 2015
Article number: 028701
Language: Chinese
ISSN: 10003290
CODEN: WLHPAR
Document type: Journal article (JA)
Publisher: Institute of Physics, Chinese Academy of Sciences
Abstract: In a fluorescent nano-resolution microscope based on single molecular localization, drift of focal plane will bring an additional deviation to the accuracy of single molecular localization. Consequently, this will reduce the final resolution of the reconstructed image and cause image degradation. Therefore, it is vital to control the system drift to a minimum level as much as possible. In recent years, the anti-drift ways emerged in endlessly. In this paper we made a systematic study aiming at the method in which optical measurement and negative feedback control are used. The basic principle and its implementation of the system are analyzed, and possible error is also evaluated. Finally, the precision of the system is tested experimentally. With this device, axial drift can be detected and corrected automatically in time, and the axial anti-drift accuracy as high as 9.93 nm can be achieved, which is one order higher than that of the existing commercial microscopies. © 2015 Chinese Physical Society.
Number of references: 19
Page count: 6
Main heading: Feedback
Controlled terms: Optical data processing
Uncontrolled terms: Axial anti-drift - Basic principles - Image degradation - Molecular localization - Nano resolution - Optical measurement - Quadrant detectors - Reconstructed image
Classification code: 731.1 Control Systems - 741.3 Optical Devices and Systems
DOI: 10.7498/aps.64.028701
Database: Compendex
Data Provider: Engineering Village

32. Dissipative soliton resonance in a wavelength-tunable thulium-doped fiber laser with net-normal dispersion

Accession number: 20152100866924
Authors: Xu, Yi (1, 2, 3); Song, Yu-Li (1, 2, 3); Du, Ge-Guo (1, 2, 3); Yan, Pei-Guang (2, 3, 4); Guo, Chun-Yu (2, 3, 4); Zheng, Guo-Liang (1); Ruan, Shuang-Chen (2, 3, 4)
Author affiliation: (1) College of Electronic Science and Technology, Shenzhen University, Guangdong, China; (2) Shenzhen Key Laboratory of Laser Engineering, Shenzhen, China; (3) Key Laboratory of Advanced Optical Precision Manufacturing Technology, Guangdong Higher Education Institutes, Shenzhen University, Shenzhen, China; (4) College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China

Corresponding author: Du, Ge-Guo
Abstract: We demonstrate an all-fiber figure-eight mode-locked thulium-doped fiber laser with a wide tunable range in both pulsewidth and wavelength. A 45-m-long ultrahigh numerical aperture fiber is used to manage the cavity dispersion, and the net cavity dispersion is calculated to be 0.8585 ps^2 at 1900 nm. With net-normal dispersion, the experimental laser, operating in a dissipative soliton resonance region, generates stable rectangular pulses. The pulsewidth varies from 480 ps to 6.19 ns with the increasing pump power, and its center wavelength has a 28.95-nm tunable range (from 1940.22 to 1969.17 nm) by properly adjusting the polarization controllers. The maximum of average output power and pulse energy is 60.73 mW and 19.51 nJ, respectively. The rectangular pulses have a clamped peak power of about 3.16 W. The wavelength-tunable fiber laser with high-energy output operating at 2μm has great potential in various application fields. © 2015 IEEE.
Number of references: 36
Main heading: Mode-locked fiber lasers
Controlled terms: Dispersion (waves) - Fiber lasers - Fibers - Lasers - Locks (fasteners) - Optical pumping - Pulse generators - Solitons - Thulium
Uncontrolled terms: Average output power - Dissipative solitons - High-energy output - Mode-locked laser - Polarization controllers - Thulium-doped fibers - Ultra-high numerical apertures - Wavelength tunable fiber laser
Classification code: 547.2 Rare Earth Metals - 601.3 Mechanisms - 711.1 Electromagnetic Waves in Different Media - 713.4 Pulse Circuits - 741.1 Light/Optics - 741.1.2 Fiber Optics - 744.1 Lasers, General - 744.4 Solid State Lasers - 812 Ceramics, Refractories and Glass - 817 Plastics and Other Polymers: Products and Applications - 931.3 Atomic and Molecular Physics
DOI: 10.1109/JPHOT.2015.2424855
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

33. Two-step demodulation algorithm based on the orthogonality of diamond diagonal vectors

Authors: Luo, Chunshu (1); Zhong, Liyun (1); Sun, Peng (1); Wang, Hanling (1); Tian, Jindong (2); Lu, Xiaoxu (1)
Author affiliation: (1) Guangdong Provincial Key Laboratory of Nanophotonic Functional Materials and Devices, Guangzhou, China; (2) College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Lu, Xiaoxu
Abstract: An advanced two-step phase demodulation algorithm is proposed based on the orthogonality of diamond diagonal vectors. By performing the subtraction and the addition of two background-eliminated interferograms, respectively, two corresponding orthogonal vectors are constructed easily. Then, the measured phase and the

phase shifts can be extracted from the elements and lengths of these orthogonal vectors. In addition to maintaining advantages of the known two-step algorithms, the proposed algorithm reveals significantly faster computing speed, better accuracy and the readily comprehensible physical picture of the orthonormalization algorithm. Both the simulation and the experimental results demonstrate the outstanding performance of the proposed algorithm. © 2015, Springer-Verlag Berlin Heidelberg.

Number of references: 13
Main heading: Algorithms
Controlled terms: Demodulation - Optical variables measurement - Phase shift - Vectors
Uncontrolled terms: Computing speed - Demodulation algorithms - Interferograms - Orthogonal vectors - Orthonormalization - Phase demodulation - Physical pictures - Two-step algorithms
DOI: 10.1007/s00340-015-6087-z
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

34. Achieving phase transformation and structure control of crystalline anatase TiO2at C hybrids from titanium glycolate precursor and glucose molecules

Accession number: 20144500161859

Authors: Cheng, Gang (1, 3, 6); Stadler, Florian J. (2, 3, 4, 5)
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CODEN: JCISA5
Document type: Journal article (JA)
Publisher: Academic Press Inc.

Abstract: Considerable efforts have focused on functional TiO2at carbonaceous hybrid nanostructured materials (TiO2at C) to satisfy the future requirements of environmental photocatalysis and energy storage using these advanced materials. In this study, we developed a two-step solution-phase reaction to prepare hybrid TiO2at C with tuneable structure and composition from the hydrothermal carbonization (HTC) of glucose. X-ray diffraction (XRD), Raman spectroscopy, X-ray photoelectron spectroscopy (XPS), and thermogravimetric analysis (TGA) were used to determine the crystallite size, composition, and phase purity. The results of scanning electron microscopy (SEM), transmission electron microscopy (TEM), and high resolution TEM (HRTEM) showed that the morphology of the as-synthesized TiO2at C hybrids could be controlled by varying the amount of glucose, also acting as the carbon source. Based on the observations made with different glucose concentrations, a formation mechanism of nanoparticulate and nanoporous TiO2at C hybrids was proposed. In addition, the as-synthesized TiO2at C hybrids with different compositions and structures showed enhanced adsorption of visible light and improved dye-adsorption capacity, which supported their potential use as photocatalysts with good activity. This new synthetic approach, using a nanoprecursor, provides a simple and versatile way to prepare TiO2at C hybrids with tuneable composition, structures, and properties, and is expected to lead to a family of composites with designed properties. © 2014 Elsevier Inc.

Number of references: 60
Main heading: X ray photoelectron spectroscopy
Controlled terms: Adsorption - Carbonization - Crystallite size - Glucose - High resolution transmission electron microscopy - Hybrid materials - Hydrothermal synthesis - Light - Light absorption - Mesoporous materials - Scanning electron microscopy - Structure (composition) - Thermochemistry - Thermogravimetric analysis - Titanium - Titanium dioxide - Transmission electron microscopy - X ray diffraction

Uncontrolled terms: Dye adsorption - Hybrid nanostructures - Hydrothermal carbonization - Structure control - TiO - Titanium glycolate - Visible light absorption
Classification code: 415 Metals, Plastics, Wood and Other Structural Materials - 542.3 Titanium and Alloys - 712 Electronic and Thermionic Materials - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 801 Chemistry - 801.4 Physical Chemistry - 802.2 Chemical Reactions - 802.3 Chemical Operations - 804.1 Organic Compounds - 804.2 Inorganic Compounds - 931.2 Physical Properties of Gases, Liquids and Solids - 931.3 Atomic and Molecular Physics - 933 Solid State Physics - 951 Materials Science
DOI: 10.1016/j.jcis.2014.09.084
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

35. Temperature simulation and its application in on-line temperature measurement of a micro drill bit

Accession number: 20150400443079
Authors: Shi, Hongyan (1); Li, Hui (1); Chen, Shengzhi (1)
Author affiliation: (1) Shenzhen University, Shenzhen, China
Corresponding author: Chen, Shengzhi
Source title: Circuit World
Abbreviated source title: Circuit World
Volume: 41
Issue: 1
Issue date: February 2, 2015
Publication year: 2015
Pages: 1-6
Language: English
ISSN: 03056120
CODEN: CIWODV
Document type: Journal article (JA)
Publisher: Emerald Group Publishing Ltd., Howard House, Wagon Lane, Bingley, BD16 1WA, United Kingdom
Abstract: Purpose - The purpose of this paper is to obtain the micro drill bit temperature field distribution in micro-drilling process and the temperature drop in retracting process with simulation software. Meanwhile, the key factors that affect the micro drill bit temperature will be obtained as well. The results can also be used to improve the accuracy in on-line drilling temperature measurement. Design/methodology/approach - The purpose of this paper is to obtain the micro drill bit temperature field distribution in micro-drilling process and the temperature drop in retracting process with simulation software. Meanwhile, the key factors that affect the micro drill bit temperature will be obtained as well. The results can also be used to improve the accuracy in on-line drilling temperature measurement. Findings - Micro drill bit high-temperature area mainly concentrates in the cutting edge and chisel edge. With the increase of spindle speed and feed speed, the micro drill bit highest temperature increased. The micro drill bit temperature drop rate reaches 20° in the micro-drilling retraction process with certain parameters. The micro drill bit highest temperature detected by an infrared camera is lower by 22° than that in real drilling. The simulation results can be used to guide the actual industrial production. Originality/value - The simulation results can be applied to revise the temperature measurement by an infrared camera in the drilling process. Drilling experiments show that the simulation method is correct and has certain practical significance. The current temperature measurement method can satisfy most of the requirements of temperature measurements.
Number of references: 5
Main heading: Drills
Controlled terms: Bits - Cameras - Computer software - Drops - Infrared devices - Social networking (online) - Temperature - Temperature distribution - Temperature indicating cameras - Temperature measurement
Uncontrolled terms: Design/methodology/approach - Drilling process - Industrial production - Micro drills - Simulation - Temperature field distribution - Temperature measurement methods - Temperature simulations
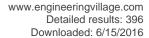**Classification code:** 443.1 Atmospheric Properties - 603.2 Machine Tool Accessories - 641.1 Thermodynamics - 723 Computer Software, Data Handling and Applications - 741.3 Optical Devices and Systems - 742.2 Photographic Equipment - 944.6 Temperature Measurements
DOI: 10.1108/CW-10-2014-0045
Database: Compendex
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Data Provider: Engineering Village

36. Topological insulator solution filled in photonic crystal fiber for passive mode-locked fiber laser

Accession number: 20150500473643
Authors: Yan, Peiguang (1); Lin, Rongyong (1); Chen, Hao (1); Zhang, Han (2); Liu, Aijiang (1); Yang, Haipeng (3); Ruan, Shuangchen (1)
Author affiliation: (1) Shenzhen Key Laboratory of Laser Engineering, College of Electronic Science and Technology, Shenzhen University, Shenzhen, China; (2) Key Laboratory of Optoelectronic Devices and Systems of Guangdong Province, Ministry of Education, Shenzhen University, Shenzhen, China; (3) College of Materials Science and Engineering, Shenzhen University, Shenzhen, China
Source title: IEEE Photonics Technology Letters
Abbreviated source title: IEEE Photonics Technol Lett
Volume: 27
Issue: 3
Issue date: February 1, 2015
Publication year: 2015
Pages: 264-267
Article number: 6918434
Language: English
ISSN: 10411135
CODEN: IPTLEL
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: We first reported that the topological insulator (TI) nanosheets solution filled in photonic crystal fiber can operate as an effective saturable absorber (SA) with the merits of low-insertion loss $_{(\sim 0.42}$ dB), long interaction length (>10 cm), and high-power tolerance. This SA device exhibited a saturable intensity of 14.9 MW/cm2, modulation depth of 19.1%, and nonsaturable loss of 25% at 1060 nm. Upo employing, this device rendered us to establish an ytterbium-doped all-fiber laser oscillator, where stable evanescent wave mode-locking operation has been achieved. This letter provided a new way of utilizing the unique nonlinear optical property of TI. © 2014 IEEE.
Number of references: 38
Main heading: Mode-locked fiber lasers
Controlled terms: Crystal whiskers - Electric insulators - Electromagnetic wave reflection - Fiber lasers - Fibers - Laser mode locking - Locks (fasteners) - Nonlinear optics - Optical properties - Photonic crystal fibers - Saturable absorbers
Uncontrolled terms: Evanescent wave modes - Interaction length - Low insertion loss - Modulation depth - Non-linear optical properties - Non-saturable loss - Passive mode-locked fiber lasers - Topological insulators
Classification code: 601.3 Mechanisms - 704 Electric Components and Equipment - 711 Electromagnetic Waves - 741 Light, Optics and Optical Devices - 744.1 Lasers, General - 744.4 Solid State Lasers - 801.4 Physical Chemistry - 812 Ceramics, Refractories and Glass - 817 Plastics and Other Polymers: Products and Applications - 951 Materials Science
DOI: 10.1109/LPT.2014.2361915
Database: Compendex
Data Provider: Engineering Village

37. An Intelligent Wireless Sensor Networks System with Multiple Servers Communication

Accession number: 20153501221285
Authors: Li, Jian-Qiang (1, 2); He, Sui-Qiang (1, 2); Ming, Zhong (1, 2); Cai, Shubin (1, 2)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (2) Shenzhen Engineering Laboratory for Mobile Internet Application Middleware Technology, Shenzhen University, Shenzhen, China
Corresponding author: Li, Jian-Qiang
Source title: International Journal of Distributed Sensor Networks
Abbreviated source title: Int. J. Distrib. Sens. Netw.
Volume: 2015
Issue date: 2015
Publication year: 2015
Article number: 960173
Language: English
ISSN: 15501329

E-ISSN: 15501477
Document type: Journal article (JA)
Publisher: Hindawi Publishing Corporation, 410 Park Avenue, 15th Floor, 287 pmb, New York, NY 10022, United States

Abstract: For shortcomings of current smart home system and power line carrier insufficient data transferring, an intelligent sensor networks system based on intelligent gateway is studied in this paper. Smart home system includes internal network, intelligent gateway, and external network. Multiple servers are designed in gateway, which start at the same time and receive various forms of data. Then data is processed for internal network format. External network includes several modes of communication such as TCP/IP, UDP, and pipe. Internal network includes ZigBee wireless and power line carrier (PLC) communication. Power line carrier protocol is improved, and it expands data transmission capacity to accommodate communication needs of modern family. Smart home system is designed as modules, such as intelligent gateway module, power line carrier communication module, ZigBee wireless communication modules, and appliance within electric equipment. Finally this system is physically designed and verified. The smart home system introduced in this paper has easily used and has strong compatibility. © 2015 Jian-qiang Li et al.
Number of references: 26
Main heading: Gateways (computer networks)
Controlled terms: Automation - Carrier communication - Intelligent buildings - Terminals (electric) - Transmission control protocol - Wireless sensor networks - Wireless telecommunication systems - Zigbee
Uncontrolled terms: Data transferring - Intelligent gateway - Intelligent sensor networks - Multiple servers - Power line carrier - Power line carrier communication - Smart-home system - ZigBee wireless communication
Classification code: 402 Buildings and Towers - 704.1 Electric Components - 716 Telecommunication; Radar, Radio and Television - 717 Optical Communication - 718 Telephone Systems and Related Technologies; Line Communications - 722.3 Data Communication, Equipment and Techniques - 723 Computer Software, Data Handling and Applications - 731 Automatic Control Principles and Applications - 732 Control Devices
DOI: 10.1155/2015/960173
Database: Compendex
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Data Provider: Engineering Village

38. Rotation invariant color texture classification using multiple sub-DLBPs

Accession number: 20152500942316
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Source title: Journal of Visual Communication and Image Representation
Abbreviated source title: J Visual Commun Image Represent
Volume: 31
Issue date: June 15, 2015
Publication year: 2015
Pages: 1-13
Language: English
ISSN: 10473203
E-ISSN: 10959076
CODEN: JVCRE7
Document type: Journal article (JA)
Publisher: Academic Press Inc.

Abstract: It is known that the rotations of real-world color textures will vary arbitrarily. This paper presents a novel, simple, yet powerful method for rotation-invariant color texture classification. Firstly, we define a Distance-based Local Binary Pattern (DLBP) descriptor to characterize the color texture. By learning the joint distribution of the rotation-invariant DLBP and color intensity information, we define our Multiple Sub-DLBPs (MS-DLBP) descriptor. The MS-DLBP features defined in this paper are invariant to rotation. Here, we also compared seven important color spaces in terms of their effectiveness in our proposed MS-DLBP approach. The experimental results on the Outex and CUReT databases show the defined DLBP descriptor performs better than the existing color LBP descriptors and the proposed MS-DLBP approach is very robust to rotation invariance and outperforms state-of-the-art texture analysis methods. Also, HSV color space is shown to outperform the other color spaces in many cases. © 2015 Elsevier Inc. All rights reserved.
Number of references: 42
Main heading: Color
Controlled terms: Rotation - Textures

Uncontrolled terms: Color index - Color space - Color texture classification - Color textures - Descriptors - DLBP - Rotation invariance
Classification code: 601.1 Mechanical Devices - 741.1 Light/Optics - 933 Solid State Physics
DOI: 10.1016/j.jvcir.2015.05.003
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

39. High-sensitivity strain sensors based on in-fiber reshaped air bubbles

Accession number: 20153301175903
Authors: Liu, Shen (1); Wang, Yiping (1); Liao, Changrui (1); Li, Zhengyong (1); Yang, Kaiming (1)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Wang, Yiping
Source title: Proceedings of SPIE - The International Society for Optical Engineering
Abbreviated source title: Proc SPIE Int Soc Opt Eng
Volume: 9655
Part number: 1 of 1
Monograph title: Fifth Asia-Pacific Optical Sensors Conference, APOS 2015
Issue date: 2015
Publication year: 2015
Article number: 96550A
Language: English
ISSN: 0277786X
E-ISSN: 1996756X
CODEN: PSISDG
ISBN-13: 9781628418651
Document type: Conference article (CA)
Conference name: 5th Asia-Pacific Optical Sensors Conference, APOS 2015
Conference date: May 20, 2015 - May 22, 2015
Conference location: Jeju, Korea, Republic of
Conference code: 113227
Sponsor: et al.; FIBERPRO, Inc.; JT, Inc.; NineOne Co., Ltd.; SeongKyeong Photonics; Taihan Fiberoptics Co., Ltd.
Publisher: SPIE
Abstract: We reported a few high-sensitivity optical strain sensors based on different types of in-fiber FPIs with air bubble cavities those were fabricated by use of a commercial fusion splicer. The cavity length and the shape of air bubbles were investigated to enhance its tensile strain sensitivity. A FPI based on a spherical air bubble was demonstrated by splicing together two sections of standard single-mode fibers, and the spherical air bubble was reshaped into an elliptical air bubble by mean of repeating arc discharge, so the strain sensitivity of the FPI based on an elliptical air bubble was enhanced to 6.0 pm/$_{\mu E}$ owe to the decrease of the air cavity length. Moreover, a unique FPI based on a rectangular air bubble was demonstrated by use of an improved technique for splicing two sections of standard single mode fibers together and tapering the splicing joint. The sensitivity of the rectangular-bubble-based strain sensor was enhanced to be up to 43.0 pm/$_{\mu E}$ and is the highest strain sensitivity among the in-fiber FPI-based strain sensors with air bubble cavities reported so far. The reason for this is that the rectangular air bubble has a sharply taper and a thin wall with a thickness of about 1 μm. Moreover, those strain sensors above have a very low temperature sensitivity of about 2.0 pm/°C. Thus, the temperature-induced strain measurement error is less than 0.046 $_{\mu E}$/°C. © 2015 Copyright SPIE.
Number of references: 8
Main heading: Tensile strain
Controlled terms: Fabry-Perot interferometers - Fiber optic sensors - Fibers - Optical fiber fabrication - Optical fibers - Optical sensors - Single mode fibers - Temperature
Uncontrolled terms: Air bubbles - Improved techniques - Optical fiber sensor - Optical strain sensors - Standard single mode fibers - Strain sensors - Temperature-induced - Very low temperatures
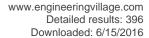**Classification code:** 421 Strength of Building Materials; Mechanical Properties - 641.1 Thermodynamics - 741.1.2 Fiber Optics - 801 Chemistry - 812 Ceramics, Refractories and Glass - 817 Plastics and Other Polymers: Products and Applications - 941.3 Optical Instruments
DOI: 10.1117/12.2184262
Database: Compendex
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Data Provider: Engineering Village

40. Recommending high-utility search engine queries via a query-recommending model

Authors: Wang, JianGuo (1); Zhexue Huang, Joshua (2); Guo, Jiafeng (3); Lan, Yanyan (3)
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Abstract: Query recommendation technology is of great importance for search engines, because it can assist users to find the information they require. Many query recommendation algorithms have been proposed, but they all aim to recommend similar queries and cannot guarantee the usefulness of the recommended queries. In this paper, we argue that it is more important to recommend high-utility queries, i.e., queries that would induce users to search for more useful information. For this purpose, we propose a query-recommending model to rank candidate queries according to their utilities and to recommend those that are useful to users. The query-recommending model ranks a candidate query by assessing the joint probability that the query is selected by the user, that the obtained search results are subsequently clicked by the user, and that the clicked search results ultimately satisfy the user's information need. Three utilities were defined to solve the model: query-level utility, representing the attractiveness of a query to the user; perceived utility, measuring the user's probability of clicking on the search results; and posterior utility, measuring the useful information obtained by the user from the clicked search results. The methods that were used to compute these three utilities from the query log data are presented. The experimental results that were obtained by using real query log data demonstrated that the proposed query-recommending model outperformed six other baseline methods in generating more useful recommendations. © 2015 Elsevier B.V.

41. Perfluorinated compounds (PFCs) in the atmosphere of Shenzhen, China: Spatial distribution, sources and health risk assessment

Authors: Liu, Baolin (1, 2, 3); Zhang, Hong (1); Yao, Dan (1); Li, Juying (4); Xie, Liuwei (1); Wang, Xinxuan (3); Wang, Yanping (3); Liu, Guoqing (1); Yang, Bo (4)
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Corresponding author: Zhang, Hong

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Document type: Journal article (JA)
Publisher: Elsevier Ltd

Abstract: This study investigated the occurrence of perfluorinated compounds (PFCs) in the atmosphere of Shenzhen, China. 11 PFCs, including two perfluoroalkyl sulfonic acids (PFSAs, C6 and C8) and perfluoroalkyl carboxylic acids (PFCAs, C4-12) were determined by high performance liquid chromatography-negative electrospray ionization-tandem mass spectrometry (HPLC/ESI-MS/MS). Total PFC concentrations $(\sum \text{PFCs})$ in the atmospheric samples ranged from 3.4 to 34pgm-3 with an average of 15pgm-3. Perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS) were the two most abundant PFCs and on average accounted for 35% and 22% of $\sum$ PFCs, respectively. $\sum$ PFCs and total PFCA concentrations $(\sum \text{PFCAs})$ showed a tendency of low-lying East West, while the distribution of total PFSA concentrations $(\sum \text{PFSAs})$ was uniform. Higher concentrations of $\sum$ PFCs were found in Bao'an District which had very well-developed manufacturing industries. PCA model was employed to quantitatively calculate the contributions of sources. The results showed that PFOA-factor, long chain PFCs-factor and PFOS-factor were the three main source categories for PFCs in the atmosphere. Meanwhile, long-distance transport of pollutants from southeastern coastal areas might be another source of PFCs in Shenzhen atmosphere. PFCs in the atmosphere were more positively correlated with the levels PM10 than PM2.5, which indicated PFCs were more likely to adhere to particles with relatively large sizes. The hazard ratios of noncancer risk through breathing based on PFOS and PFOA concentrations were calculated and were less than unity, suggesting that PFCs concentrations may pose no or immediate threat to the residents in Shenzhen. © 2015 Elsevier Ltd.

Number of references: 58
Main heading: Risk assessment
Controlled terms: Electrospray ionization - Health risks - High performance liquid chromatography - Ionization of liquids - Liquid chromatography - Mass spectrometry - Spatial distribution - Water analysis
Uncontrolled terms: Environmental health risk assessment - Manufacturing industries - Negative electrospray ionizations - Perfluorinated compound (PFCs) - Perfluoroalkyl carboxylic acids - Perfluoroalkyl sulfonic acids - Perfluorooctane sulfonic acids - Source appointment
Classification code: 461.7 Health Care - 801 Chemistry - 802.2 Chemical Reactions - 921 Mathematics - 922.1 Probability Theory
DOI: 10.1016/j.chemosphere.2015.07.012
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

42. Robust point matching by l1regularization

Accession number: 20161502221781
Authors: Yi, Jianbing (1, 3); Li, Yan-Ran (2); Yang, Xuan (2); He, Tiancheng (4); Chen, Guoliang (2)
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Source title: Proceedings - 2015 IEEE International Conference on Bioinformatics and Biomedicine, BIBM 2015
Abbreviated source title: Proc. - 2015 IEEE Int. Conf. Bioinform. Biomed., BIBM
Monograph title: Proceedings - 2015 IEEE International Conference on Bioinformatics and Biomedicine, BIBM 2015
Issue date: December 16, 2015
Publication year: 2015
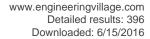**Pages:** 369-374
Article number: 7359709
Language: English
ISBN-13: 9781467367981
Document type: Conference article (CA)
Conference name: IEEE International Conference on Bioinformatics and Biomedicine, BIBM 2015

Conference date: November 9, 2015 - November 12, 2015
Conference location: Washington, DC, United states
Conference code: 118735
Sponsor: IEEE Computer Society; National Science Foundation (NSF)
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: We propose a new method to solve the point matching problem by l1regularization. The non-rigid transformation function based on compact support radial basis functions (CSRBF) is represented by the linear system with respect to its coefficients. The transformation function is estimated by the proposed sparse optimization model with regularizing the CSRBF coefficients by l1norm and the affine coefficients by the square of l2 norm. The optimization model for linear problem of transformation function can be efficiently solved by a fast iterative shrinkage-thresholding algorithm (FISTA) to accelerate the convergence speed of iterative procedure. Experiments on simulated point sets and lung datasets show that our method by l1regularization obtains accurate registration results and is robust to estimate the correspondence and the transformation between two point sets in the presence of noise and outlier. © 2015 IEEE.

Number of references: 15
Main heading: Linear transformations
Controlled terms: Bioinformatics - Geometry - Iterative methods - Linear systems - Mathematical transformations - Optimization - Radial basis function networks
Uncontrolled terms: Compact support radial basis function - Iterative shrinkage-thresholding algorithms - l1norm regularization - Linear problems - Non-rigid transformation - Point-matching - transformation - Transformation functions
Classification code: 461.8.2 Bioinformatics - 921 Mathematics - 961 Systems Science
DOI: 10.1109/BIBM.2015.7359709
Compendex references: YES
Database: Compendex

Data Provider: Engineering Village

43. Ultrafast and Low-Power Dynamically Tunable Plasmon-Induced Transparencies in Compact Aperture-Coupled Rectangular Resonators

Accession number: 20153001072085

Authors: Han, Xu (1); Wang, Tao (1); Li, Xiaoming (2); Liu, Bo (1); He, Yu (1); Tang, Jian (1)
Author affiliation: (1) Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, Hubei, China; (2) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, Guangdong, China

Source title: Journal of Lightwave Technology
Abbreviated source title: J Lightwave Technol
Volume: 33
Issue: 14
Issue date: July 15, 2015
Publication year: 2015
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Article number: 7056460
Language: English
ISSN: 07338724
CODEN: JLTEDG
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: In this paper, ultrafast and low-power dynamically tunable single and multiple plasmon-induced transparencies in ultracompact rectangular resonators aperture-coupled metal-dielectric-metal (MDM) waveguide system with nonlinear optical Kerr medium is investigated both analytically and numerically. Multiple PITs are realized in this plasmonic waveguide structure based on bright-dark mode coupling mechanism. High tunability in transparency window magnitude, phase shift, and group index is obtained when nonlinear optical Kerr material is embedded in the MDM waveguide. In order to reduce the pump intensity, traditional nonlinear optical Kerr material is replaced by graphene. A shift of 45 nm in the central wavelength of the single transparency window is achieved when the rectangular resonators are covered by monolayer graphene with pump intensity increasing from 6.7 to 7.5 MW/cm2. Calculated results show that whole structure is ultracompact with the footprint of 2 and an ultrafast response time of the order of 1 ps can be reached. © 1983-2012 IEEE.

Number of references: 34
Main heading: Nonlinear optics

Controlled terms: Graphene - Multiplexing - Optical Kerr effect - Optical waveguides - Phase shift - Phase shifters - Plasmons - Resonators - Transparency - Waveguides
Uncontrolled terms: Central wavelength - Induced transparency - Metal dielectrics - Non-linear optical - Plasmonic waveguides - Rectangular resonator - Ultra-fast response time - Waveguide systems
Classification code: 703.1 Electric Networks - 712.1 Semiconducting Materials - 714 Electronic Components and Tubes - 714.3 Waveguides - 716 Telecommunication; Radar, Radio and Television - 717 Optical Communication - 718 Telephone Systems and Related Technologies; Line Communications - 741.1 Light/Optics - 741.1.1 Nonlinear Optics - 761 Nanotechnology - 804 Chemical Products Generally - 942.2 Electric Variables Measurements
DOI: 10.1109/JLT.2015.2411395
Database: Compendex

Data Provider: Engineering Village

44. Mussel-inspired electrospun smart magnetic nanofibers for hyperthermic chemotherapy

Accession number: 20152100862141

Authors: Ghavaminejad, Amin (1); Sasikala, Arathyram Ramachandra Kurup (1); Unnithan, Afeesh Rajan (1, 2); Thomas, Reju George (3); Jeong, Yong Yeon (3); Vatankhah-Varnoosfaderani, Mohammad (4); Stadler, Florian J. (5, 6, 7); Park, Chan Hee (1, 2); Kim, Cheol Sang (1, 2)
Author affiliation: (1) Department of Bionanosystem Engineering, Graduate School, Chonbuk National University, Jeonju, Korea, Republic of; (2) Mechanical Design Engineering, Chonbuk National University, Jeonju, Korea, Republic of; (3) Department of Radiology, Chonnam National University Hwasun Hospital, Chonnam National University Medical School, Gwangju, Korea, Republic of; (4) Department of Chemistry, University of North Carolina, Chapel Hill; NC, United States; (5) College of Materials Science and Engineering, Shenzhen University, Shenzhen, China; (6) Nanshan District Key Lab for Biopolymers and Safety Evaluation, Shenzhen, China; (7) Shenzhen Key Laboratory of Special Functional Materials, Shenzhen, China
Corresponding author: Stadler, Florian J.

Source title: Advanced Functional Materials
Abbreviated source title: Adv. Funct. Mater.
Volume: 25
Issue: 19
Issue date: May 1, 2015
Publication year: 2015
Pages: 2867-2875
Language: English
ISSN: 1616301X
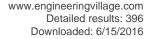**E-ISSN:** 16163028
CODEN: AFMDC6
Document type: Journal article (JA)
Publisher: Wiley-VCH Verlag

Abstract: A method for the versatile synthesis of novel, mussel-inspired, electrospun nanofibers with catechol moieties is reported. These mussel-inspired nanofibers are used to bind iron oxide nanoparticles (IONPs) and the borate-containing anticancer drug Bortezomib (BTZ) through a catechol metal binding mechanism adapted from nature. These smart nanofibers exhibit a unique conjugation of Bortezomib to their 1, 2-benzenediol (catechol) moieties for enabling a pH-dependent drug delivery towards the cancer cells and the IONPs via strong coordination bonds for exploiting the repeated application of hyperthermia. Thus the synergistic anticancer effect of these mussel-inspired magnetic nanofibers were tested in vitro for the repeated application of hyperthermia along with the chemotherapy and found that the drug-bound catecholic magnetic nanofibers exhibited excellent therapeutic efficacy for potential anticancer treatment. Drug-loaded magnetic nanofibers are designed for a synergistic anticancer treatment that combines hyperthermia treatment and chemotherapy. A mussel-inspired binding is used to incorporate iron oxide nanoparticles (IONPs) and the drug onto the nanofibers. The smart nanofibers are capable of pH-dependent drug delivery to cancer cells, and their IONPs enable multiple cycles of hyperthermia therapy with the application of an alternating magnetic field (AMF). © 2015 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim.

Number of references: 41
Main heading: Nanofibers
Controlled terms: Cells - Chemotherapy - Diseases - Drug delivery - Electrospinning - Hyperthermia therapy - Iron oxides - Magnetic materials - Magnetism - Medical applications - Metal nanoparticles - Molluscs - Nanomagnetics - Nanoparticles - Phenols
Uncontrolled terms: Alternating magnetic field - Anticancer treatment - Biomedical applications - Electrospun nanofibers - Hyperthermia treatments - Iron oxide nanoparticles (IONPs) - Multi-functional materials - Repeated application

Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

45. Use correlation coefficients in gaussian process to train stable ELM models

Authors: He, Yulin (1); Huang, Joshua Zhexue (1); Wang, Xizhao (1); Raza, Rana Aamir (2)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (2) College of Information and Communication Engineering, Shenzhen University, Shenzhen, China
Corresponding author: He, Yulin
Abstract: This paper proposes a new method to train stable extreme learning machines (ELM). The new method, called StaELM, uses correlation coefficients in Gaussian process to measure the similarities between different hidden layer outputs. Different from kernel operations such as linear or RBF kernels to handle hidden layer outputs, using correlation coefficients can quantify the similarity of hidden layer outputs with real numbers in (0, 1] and avoid covariance matrix in Gaussian process to become a singular matrix. Training through Gaussian process results in ELM models insensitive to random initialization and can avoid overfitting. We analyse the rationality of StaELM and show that existing kernel-based ELMs are special cases of StaELM. We used real world datasets to train both regression and classification StaELM models. The experiment results have shown that StaELM models achieved higher accuracies in both regression and classification in comparison with traditional kernel-based ELMs. The StaELM models are more stable with respect to different random initializations and less over-fitting. The training process of StaELM models is also faster. © Springer International Publishing Switzerland 2015.
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Data Provider: Engineering Village

46. Stratified feature sampling method for ensemble clustering of high dimensional data

Accession number: 20152300920065
Authors: Jing, Liping (1); Tian, Kuang (1); Huang, Joshua Z. (2)
Author affiliation: (1) Beijing Key Lab of Traffic Data Analysis and Mining, Beijing Jiaotong University, Beijing, China; (2) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Jing, Liping
Source title: Pattern Recognition
Abbreviated source title: Pattern Recogn.
Volume: 48
Issue: 11
Issue date: November 1, 2015
Publication year: 2015
Pages: 3688-3702
Language: English
ISSN: 00313203
CODEN: PTNRA8
Document type: Journal article (JA)
Publisher: Elsevier Ltd
Abstract: High dimensional data with thousands of features present a big challenge to current clustering algorithms. Sparsity, noise and correlation of features are common characteristics of such data. Another common phenomenon is that clusters in such high dimensional data often exist in different subspaces. Ensemble clustering is emerging as a prominent technique for improving robustness, stability and accuracy of high dimensional data clustering. In this paper, we propose a stratified sampling method for generating subspace component data sets in ensemble clustering of high dimensional data. Instead of randomly sampling a subset of features for each component data set, in this method we first cluster the features of high dimensional data into a few feature groups called feature strata. Using stratified sampling, we randomly sample some features from each feature stratum and merge the sampled features from different feature strata to generate a component data set. In this way, the component data sets have better representations of the clustering structure in the original data set. Comparing with random sampling and random projection methods in synthetic data analysis, the component clustering by stratified sampling has demonstrated that the average clustering accuracy was increased without sacrificing clustering diversity. We carried out a series of experiments on eight real world data sets from microarray, text and image domains to evaluate ensemble clustering methods using three subspace component data generation methods and four consensus functions. The experimental results consistently showed that the stratified sampling method produced the best ensemble clustering results in all data sets. The ensemble clustering with stratified sampling also outperformed three other ensemble clustering methods which generate component clusters from the entire space of the original data. © 2015 Elsevier Ltd. All rights reserved.
Number of references: 41
Main heading: Clustering algorithms
Controlled terms: Algorithms - Cluster analysis - Virtual reality
Uncontrolled terms: Clustering accuracy - Consensus functions - Current clustering algorithms - Data generation - Ensemble clustering - High dimensional data - Random projection methods - Stratified sampling
DOI: 10.1016/j.patcog.2015.05.006
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

47. Nonlinear modeling of the inverse force function for the planar switched reluctance motor using sparse least squares support vector machines

Accession number: 20153001060172
Authors: Huang, Su-Dan (1, 2); Cao, Guang-Zhong (2); He, Zheng-You (1); Pan, J.F. (2); Duan, Ji-An (3); Qian, Qing-Quan (1)
Author affiliation: (1) Department of Electrical Engineering, Southwest Jiaotong University, Chengdu, China; (2) Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China; (3) State Key Laboratory of High Performance Complex Manufactory, Central South University, Changsha, Hunan, China
Corresponding author: Cao, Guang-Zhong
Source title: IEEE Transactions on Industrial Informatics
Abbreviated source title: IEEE Trans. Ind. Inf.
Volume: 11

Abstract: In the advanced manufacturing industry, planar switched reluctance motors (PSRMs) have proved to be a promising candidate due to their advantages of high precision, low cost, low heat loss, and ease of manufacture. However, their inverse force function, which provides vital phase current command for precise motion, is highly nonlinear and hard to be accurately modeled. This paper proposes a novel inverse force function using sparse least squares support vector machines (LS-SVMs) to achieve nonlinear modeling for precise motion of a PSRM. The required training and testing sets of sparse LS-SVMs are first obtained from experimental measurement. A sparse LS-SVMs regression is further developed using training set to accurately model the inverse force function. Accordingly, the function is tested via the testing set to assess its feasibility. Finally, the proposed approach is applied to the PSRM system with dSPACE controller for trajectory tracking, and its effectiveness and superior performance are verified through experimental results. ©2015 IEEE.

Number of references: 34
Main heading: Electric machine theory
Controlled terms: Inverse problems - Manufacture - Nonlinear systems - Reluctance motors - Support vector machines
Uncontrolled terms: Advanced manufacturing - High-precision - Least squares support vector machines - Non-linear model - Phase currents - Planar switched reluctance motor - Training and testing - Trajectory tracking
Classification code: 537.1 Heat Treatment Processes - 705.1 Electric Machinery, General - 705.3.1 AC Motors - 723 Computer Software, Data Handling and Applications - 921 Mathematics
DOI: 10.1109/TII.2015.2411438
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

48. High-pressure sensor based on fiber in-line Mach-Zehnder interferometer

Accession number: 20154501518549
Authors: Talataisong, W. (1, 2); Wang, D.N. (1, 3, 5); Chitaree, R. (2); Liao, C.R. (1, 3, 4); Wanga, C. (1)
Author affiliation: (1) Department of Electrical Engineering, Hong Kong Polytechnic University, Hung Hom, Kowloon Hong Kong, Hong Kong; (2) Department of Physics, Mahidol University, Rama 6 Road, Thungpayatai, Rajathewee, Bangkok, Thailand; (3) Shenzhen Research Institute, Hong Kong Polytechnic University, Shenzhen, China; (4) College of Optoelectronic Engineering, Shenzhen University, Nanshan, Shenzhen, China; (5) College of Optical and Electronic Technology, China Jiliang University, Hangzhou, China
Corresponding author: Wang, D.N.

Publisher: SPIE
Abstract: A fiber in-line Mach-Zehnder interferometer based on an inner air-cavity is presented for high-pressure measureement. The inner air-cavity is fabricated by use of femtosecond laser micromachining together with fusion splicing technique. A micro-channel is created on the top of the inner air-cavity to allow the high pressure gas to flow in. The fiber in-line device is featured with miniature size, good robustness and excellent operation stability while exhibiting a high pressure sensitivity of 8,239 pm/MPa. © 2015 SPIE.
Number of references: 15
Main heading: Fibers
Controlled terms: Composite micromechanics - Interferometers - Mach-Zehnder interferometers - Micromachining - Optical fibers - Pressure sensors - Ultrashort pulses
Uncontrolled terms: Air cavity - Femtosecond laser micromachining - Fusion splicing - High pressure - High pressure gas - High pressure sensors - Line-interferometer - Operation stability
Classification code: 604.2 Machining Operations - 741.1.2 Fiber Optics - 931.1 Mechanics - 941.3 Optical Instruments - 944.3 Pressure Measuring Instruments
DOI: 10.1117/12.2190520
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

49. Design and analysis of a direct-drive two dimensional hybrid-flux planar machine

Accession number: 20154001322705
Authors: Pan, J. (1, 2); Zhang, B. (1); Or, S. (2)
Author affiliation: (1) Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China; (2) Electrical Engineering, Hong Kong Polytechnic University, Hong Kong
Source title: 2015 IEEE International Magnetics Conference, INTERMAG 2015
Abbreviated source title: IEEE Int. Magn. Conf., INTERMAG
Monograph title: 2015 IEEE International Magnetics Conference, INTERMAG 2015
Issue date: July 14, 2015
Publication year: 2015
Article number: 7157246
Language: English
ISBN-13: 9781479973224
Document type: Conference article (CA)
Conference name: 2015 IEEE International Magnetics Conference, INTERMAG 2015
Conference date: May 11, 2015 - May 15, 2015
Conference location: Beijing, China
Conference code: 113931
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: High precision, two dimensional (2D) control systems are in vast demand in industry, such as component insertion, 2D soldering and carving systems [1]. To realize a high speed or high precision motion control performance, a direct-drive machine is a potential candidate [2-3] since the problems such as backlash, accumulated error, etc., from the traditional rotary motors with linear translators stacked on top of each other can be alleviated [4]. © 2015 IEEE.
Number of references: 7
DOI: 10.1109/INTMAG.2015.7157246
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

50. Ultrathin willow-like CuO nanoflakes as an efficient catalyst for electro-oxidation of hydrazine

Accession number: 20151800811697
Authors: Ma, Yuanyuan (1); Li, Hao (2); Wang, Rongfang (1); Wang, Hui (1); Lv, Weizhong (3); Ji, Shan (3)
Author affiliation: (1) College of Chemistry and Chemical Engineering, Northwest Normal University, Lanzhou, China; (2) Department of Chemical Engineering, Huizhou University, Huizhou, Guangdong, China; (3) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Wang, Rongfang
Source title: Journal of Power Sources

Abbreviated source title: J Power Sources
Volume: 289
Issue date: September 1, 2015
Publication year: 2015
Pages: 22-25
Language: English
ISSN: 03787753
CODEN: JPSODZ
Document type: Journal article (JA)
Publisher: Elsevier
Abstract: In this paper, preparation of ultrathin willow-like CuO nanoflakes via a one-step process was reported. X-ray diffraction pattern showed the formation of monoclinic CuO crystal, which was also confirmed by result of high resolution transmission electron microscopy. Scanning electron microscopy showed that ultrathin willow-like CuO nanoflakes were formed. Catalytic testing indicated that the ultrathin willow-like CuO nanoflakes exhibited high electrocatalytic activity and durability toward the electro-oxidation of hydrazine in alkaline medium. The results suggested that the as-prepared CuO nanoflakes were potential electrode materials for hydrazine fuel cell. © 2015 Elsevier B.V. All rights reserved.
Number of references: 17
Main heading: High resolution transmission electron microscopy
Controlled terms: Catalysts - Catalytic oxidation - Durability - Electron microscopy - Electrooxidation - Fuel cells - Hydrazine - Oxidation - Scanning electron microscopy - X ray diffraction
Uncontrolled terms: Catalytic testing - CuO - Efficient catalysts - Electrocatalytic activity - Electrode material - Hydrazine oxidation - One-step process - Willow-like
Classification code: 421 Strength of Building Materials; Mechanical Properties - 454 Environmental Engineering - 702.2 Fuel Cells - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 802.2 Chemical Reactions - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.2 Inorganic Compounds - 933 Solid State Physics - 933.1.1 Crystal Lattice
DOI: 10.1016/j.jpowsour.2015.04.151
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

51. Video Popularity Dynamics and Its Implication for Replication

Accession number: 20152901046098
Authors: Zhou, Yipeng (1); Chen, Liang (2); Yang, Chunfeng (3); Chiu, Dah Ming (3)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (2) College of Information Engineering, Shenzhen University, Shenzhen, China; (3) Department of Information Engineering, Chinese University of Hong Kong, Hong Kong, Hong Kong
Corresponding author: Zhou, Yipeng
Source title: IEEE Transactions on Multimedia
Abbreviated source title: IEEE Trans Multimedia
Volume: 17
Issue: 8
Issue date: August 1, 2015
Publication year: 2015
Pages: 1273-1285
Article number: 7128393
Language: English
ISSN: 15209210
CODEN: ITMUF8
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Popular online video-on-demand (VoD) services all maintain a large catalog of videos for their users to access. The knowledge of video popularity is very important for system operation , such as video caching on content distribution network (CDN) servers. The video popularity distribution at a given time is quite well understood. We study how the video popularity changes with time, for different types of videos, and apply the results to design video caching strategies. Our study is based on analyzing the video access levels over time, based on data provided by a large video service provider. Our main finding is, while there are variations, the glory days of a video's popularity typically pass by quickly and the probability of replaying a video by the same user is low. The reason appears to be due to fairly

regular number of users and view time per day for each user, and continuous arrival of new videos. All these facts will affect how video popularity changes, hence also affect the optimal video caching strategy. Based on the observation from our measurement study, we propose a mixed replication strategy (of LFU and FIFO) that can handle different kinds of videos. Offline strategy assuming tomorrow's video popularity is known in advance is used as a performance benchmark. Through trace-driven simulation, we show that the caching performance achieved by the mixed strategy is very close to the performance achieved by the offline strategy. © 1999-2012 IEEE.

Number of references: 24
Main heading: Video on demand
Controlled terms: Benchmarking
Uncontrolled terms: Content distribution networks - Dynamic videos - lifetime - Popularity distribution - Trace driven simulation - Video cache - video replication - Video service providers
Classification code: 716.4 Television Systems and Equipment - 912 Industrial Engineering and Management - 913 Production Planning and Control; Manufacturing
DOI: 10.1109/TMM.2015.2447277
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

52. Control of CuO nanocrystal morphology from ultrathin "willow-leaf" to "flower-shaped" for increased hydrazine oxidation activity

Accession number: 20154101352348
Authors: Ma, Yuanyuan (1); Wang, Hui (1); Key, Julian (2); Ji, Shan (3); Lv, Weizhong (3); Wang, Rongfang (1)
Author affiliation: (1) College of Chemistry and Chemical Engineering, Northwest Normal University, Lanzhou, China; (2) South African Institute for Advanced Materials Chemistry, University of the Western Cape, Bellville, Private Bag X17, Cape Town, South Africa; (3) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Ji, Shan

Abstract: Three CuO nanocrystal morphologies (willow-leaf, spiny, and flower-shaped) with different exposed crystal facets are prepared through a two-step liquid-phase procedure. The CuO crystals have high hydrazine oxidation reaction (HOR) activity and good stability. Flower-shaped CuO has the highest HOR activity and stability of the three forms, with a positive onset-potential of -0.14 V and a high oxidation peak current density of 5.23 mA cm-2. HOR activity of the CuO crystals correlates to the type of exposed crystalline facet. © 2015 Elsevier B.V. All rights reserved.

Number of references: 43
Main heading: Oxidation
Controlled terms: Copper oxides - Electrocatalysts - Hydrazine - Nanocrystals
Uncontrolled terms: Crystal facets - Crystalline facets - Flower-shaped - Good stability - Hydrazine oxidation - Liquid Phase - Onset potential - Oxidation peak
Classification code: 761 Nanotechnology - 802.2 Chemical Reactions - 803 Chemical Agents and Basic Industrial Chemicals - 804.2 Inorganic Compounds
DOI: 10.1016/j.jpowsour.2015.09.087
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

53. Modeling, design and experimentation of a UHF RFID tag antenna embedded in railway tickets

Engineering Village

Authors: He, Wei (1); He, Yejun (1); Tentzeris, Manos M. (2)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, Guangdong, China; (2) School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta; GA, United States
Corresponding author: He, Yejun
Abstract: RFID (radio frequency identification) tag antennas usually operate at UHF frequency band. One qualified tag antenna is designed and embedded in railway ticket with international standard ISO/IEC 18000-6C chip. Test results show that the maximum reading distance of the proposed tag antenna can reach 10 cm when the reader's RF transmit power is less than or equal to effective isotropic radiated power 18 dBm at 920 MHz. © 2015 IEEE.

54. Micro-bending vector sensor based on six-airhole grapefruit microstructure fiber using lateral offset splicing

Authors: Huang, Quandong (1); Yu, Yongqin (2); Li, Xuejin (2); Chen, Xue (1); Zhang, Yufeng (3); Zhou, Wen (1); Du, Chenlin (1)
Author affiliation: (1) College of Electronic Science and Technology, Shenzhen University, Shenzhen, China; (2) College of Physics Science and Technology, Shenzhen University, Shenzhen, China; (3) College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Abstract: A one-dimensional micro-bending vector sensor based on twomode interference has been introduced. This device was fabricated by lateral offset splicing a piece of six-air-hole grapefruit microstructure fiber (GMF) with single mode fiber (SMF). Variation of effective mode index occurred by micro-bending was investigated in simulation and experiment. This device exhibits micro-bending sensitivities of 0.441 nm/m-1 and -0.754 nm/m-1 at 0° and 180°

bending orientations, respectively. Moreover, this sensor is immune to surrounding refractive index (SRI) and presents a low crosstalk of temperature. © 2015 Optical Society of America.

Number of references: 28
Main heading: Single mode fibers
Controlled terms: Citrus fruits - Microstructure - Refractive index
Uncontrolled terms: Air holes - Grapefruit microstructure fibers - Micro-bending - Mode index - Surrounding refractive indices (SRI) - Two-mode interference - Vector sensors
Classification code: 741.1 Light/Optics - 741.1.2 Fiber Optics - 821.4 Agricultural Products - 933 Solid State Physics - 951 Materials Science
DOI: 10.1364/OE.23.003010
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

55. High-precision dual-loop position control of An Asymmetric bilateral linear hybrid switched reluctance motor

Accession number: 20154601555481
Authors: Pan, J.F. (1); Zou, Yu (1, 2); Cao, Guangzhong (1); Cheung, Norbert C. (2); Zhang, Bo (1)
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Corresponding author: Zhang, Bo(zhangbo@szu.edu.cn)
Source title: IEEE Transactions on Magnetics
Abbreviated source title: IEEE Trans Magn
Volume: 51
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Issue date: November 1, 2015
Publication year: 2015
Article number: 7128700
Language: English
ISSN: 00189464
CODEN: IEMGAQ
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: In this paper, to enhance the machine performance and realize a high-precision position control performance, a dual-loop position controller is employed for the asymmetric bilateral linear hybrid switched reluctance motor (ABLHSRM). Machine characteristics are investigated by finite-element method. The dual-loop controller is constructed by employing a tradition proportional-integral differential velocity controller as the inner loop and a fuzzy proportional differential (PD) controller for the outer loop. Experimental results demonstrate that both the position control performance and the velocity control performance under the dual-loop control algorithm are superior to the single-loop PD position control strategy. An absolute steady-state error of 4 μ m can be achieved under the dual-loop control strategy. Performance comparison from the ABLHSRM and its asymmetric bilateral linear switched reluctance counterpart with the same dimensions are carried out. Position tracking results show that the rise time is improved for the proposed ABLHSRM under the proposed control scheme. © 1965-2012 IEEE.
Number of references: 14
Main heading: Electric machine theory
Controlled terms: Algorithms - Closed loop control systems - Controllers - Finite element method - Position control - Reluctance motors - Tracking (position) - Two term control systems - Velocity control
Uncontrolled terms: Dual-loop control - fuzzy - High-precision position - Performance comparison - Position controller - Proportional integral differentials - Proportional-differential controllers - Switched Reluctance Motor
Classification code: 705.3.1 AC Motors - 731.1 Control Systems - 731.3 Specific Variables Control - 732.1 Control Equipment - 921.6 Numerical Methods
DOI: 10.1109/TMAG.2015.2447522
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

56. Improved bacterial foraging optimization algorithm with information communication mechanism

Engineering Village

Accession number: 20150800546601
Authors: Niu, Ben (1, 2, 3); Liu, Jing (1); Bi, Ying (1); Xie, Ting (1); Tan, Lijing (4)
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Corresponding author: Tan, Lijing
Source title: Proceedings - 2014 10th International Conference on Computational Intelligence and Security, CIS 2014
Abbreviated source title: Proc. - Int. Conf. Comput. Intell. Secur., CIS
Part number: 1 of 1
Issue date: January 20, 2015
Publication year: 2015
Pages: 47-51
Article number: 7016851
Language: English
ISBN-13: 9781479974344
Document type: Conference article (CA)
Conference name: 10th International Conference on Computational Intelligence and Security, CIS 2014
Conference date: November 15, 2014 - November 16, 2014
Conference location: Kunming, Yunnan, China
Conference code: 110202
Sponsor: Aviation Key Laboratory of Science and Technology on Airborne and Missileborne Computer; Beijing Normal University; Guangdong University of Technology; IEEE CPS; Shenzhen University; Xidian University
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: In this paper, a Structure-Redesigned-Based Bacterial Foraging Optimization (SRBFO) proposed in the previous work is used to reduce the computational time. Then by transplanting information communication mechanism to SRBFO, we proposed several variants of SRBFO with different topology structures, which are called SRBFO-ST, SRBFO-FC, SRBFO-Ri, SRBFO-VN and SRBFO-DN, respectively. A series of experiments are conducted to test the performance of those proposed algorithms and the superiority of them have been demonstrated. © 2014 IEEE.
Number of references: 12
Main heading: Algorithms
Controlled terms: Artificial intelligence - Optimization - Topology
Uncontrolled terms: Bacterial foraging optimization - Bacterial foraging optimization algorithms - Computational time - Information communication - Information communication mechanisms - Neighborhood topology - Topology structure
Classification code: 723 Computer Software, Data Handling and Applications - 723.4 Artificial Intelligence - 921 Mathematics
DOI: 10.1109/CIS.2014.106
Database: Compendex
Data Provider: Engineering Village

57. NiCo2O4nanosheets in-situ grown on three dimensional porous Ni film current collectors as integrated electrodes for high-performance supercapacitors

Accession number: 20151500735780
Authors: Wang, Tao (1, 2); Guo, Ying (1); Zhao, Bo (1); Yu, Shuhui (1); Yang, Hai-Peng (2); Lu, Daniel (1); Fu, Xian-Zhu (1); Sun, Rong (1); Wong, Ching-Ping (3, 4)
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Corresponding author: Fu, Xian-Zhu
Source title: Journal of Power Sources
Abbreviated source title: J Power Sources
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Issue date: July 15, 2015
Publication year: 2015
Pages: 371-379
Language: English
ISSN: 03787753

CODEN: JPSODZ
Document type: Journal article (JA)
Publisher: Elsevier
Abstract: Three dimensional interconnected hierarchical porous Ni films are easily fabricated as effective current collectors through hydrogen bubble template electrochemical deposition. The binder-free integrated electrodes of spinel NiCo2O4nanosheets directly coated the three dimensional porous Ni films are facilely obtained through successively electrochemical co-deposition of Ni/Co alloy layer then followed by subsequent annealing at 350 °C in air. Compared with NiCo2O4nanosheets on smooth Ni foil or porous NiO/Ni film electrodes, the porous NiCo2O4/Ni integrated film electrodes for supercapacitors demonstrate remarkably higher area specific capacitance. The porous NiCo2O4/Ni film electrodes also exhibit excellent rate capability and cycling stability. The super electrochemical capacitive performances are attributed to the unique integrated architecture of NiCo2O4nanosheets in-situ grown on three dimensional continuous hierarchical porous Ni collector collectors, which could provide large electrode-electrolyte interface area, high active sites, low contact resistance between current collector and active materials, fast electron conduction and ion/electrolyte diffusion. © 2015, Elsevier B.V. All rights reserved.
Number of references: 40
Main heading: Electrochemical electrodes
Controlled terms: Binders - Capacitors - Deposition - Electric current collectors - Electrodes - Electrolytic capacitors - Interfaces (materials) - Nanosheets - Nickel - Reduction
Uncontrolled terms: Binder free - Electrochemical capacitor - Electrochemical deposition - Electrode-electrolyte interfaces - Hydrogen bubble templates - Integrated architecture - Integrated electrodes - Porous nickel
Classification code: 548.1 Nickel - 704.1 Electric Components - 704.2 Electric Equipment - 761 Nanotechnology - 802.2 Chemical Reactions - 802.3 Chemical Operations - 803 Chemical Agents and Basic Industrial Chemicals - 933 Solid State Physics - 951 Materials Science
DOI: 10.1016/j.jpowsour.2015.03.180
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

58. Effect of lithium thiocyanate addition on the structural and electrical properties of biodegradable poly(#-caprolactone) polymer films

Accession number: 20150800549986
Authors: Ravi, M. (1); Song, S.-H. (1); Gu, K.-M. (2); Tang, J.-N. (2); Zhang, Z.-Y. (3)
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Corresponding author: Song, S.-H.
Source title: Ionics
Abbreviated source title: Ionics
Volume: 21
Issue: 8
Issue date: February 17, 2015
Publication year: 2015
Pages: 2171-2183
Language: English
ISSN: 09477047
E-ISSN: 18620760
Document type: Journal article (JA)
Publisher: Institute for Ionics
Abstract: Polymer electrolyte films of biodegradable poly(#-caprolactone) (PCL) doped with LiSCN salt in different weight ratios were prepared using solution cast technique. The effect of crystallinity and interaction between lithium ions and carbonyl groups of PCL on the ionic conduction of PCL:LiSCN polymer electrolytes was characterized by X-ray diffraction (XRD), optical microscopy, Fourier transform infrared spectroscopy (FTIR) and AC impedance analysis. The XRD results revealed that the crystallinity of the PCL polymer matrix decreased with an increase in LiSCN salt concentration. The complexation of the salt with the polymer and the interaction of lithium ions with carbonyl groups of PCL were confirmed by FTIR. The ionic conductivity was found to increase with increasing salt concentration until 15 wt% and then to decrease with further increasing salt concentration. In addition, the ionic conductivity of the polymer electrolyte films followed an Arrhenius relation and the activation energy for conduction decreased with increasing

LiSCN concentration up to 15 wt%. UV–vis absorption spectra were used to evaluate the optical energy band gaps of the materials. The optical energy band gap shifted to lower energies with increasing LiSCN salt concentration. © 2015, Springer-Verlag Berlin Heidelberg.

Number of references: 54
Main heading: Polyelectrolytes
Controlled terms: Activation energy - Band structure - Biodegradable polymers - Electric impedance - Electric properties - Electrolytes - Energy gap - Fourier transform infrared spectroscopy - Ionic conduction - Ionic conductivity - Lithium - Lithium alloys - Polymer films - X ray diffraction
Uncontrolled terms: AC impedance analysis - Interaction behavior - Optical energy band gap - Poly (epsiloncaprolactone) - Polymer electrolyte - Polymer electrolyte films - Structural and electrical properties - XRD
DOI: 10.1007/s11581-015-1384-4
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

59. Key factors for the BIM adoption by architects: A China study

Authors: Ding, Zhikun (1); Zuo, Jian (2); Wu, Jinchuang (3); Wang, J.Y. (4)
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Abstract: Purpose: There has been a growing attention to building information modeling (BIM) globally due to its benefits to various stages of a building's life cycle. To facilitate the implementation of BIM in the construction industry effectively, the purpose of this paper is to gain a better understanding of the mechanism for BIM adoption by practitioners such as architects. Design/methodology/approach: A questionnaire survey of architects is conducted in Shenzhen, China. A structural equation model is built with survey data to identify the key factors affecting architects' BIM adoption in the design firms. Findings: It is found that motivation, technical defects of BIM and BIM capability are the statistically significant factors affecting architects' BIM adoption whereas management support and knowledge structure are not. Research limitations/implications: Only one architectural, engineering and construction (AEC) profession, i.e. architects were selected as research participants. In future, other professions such as construction engineers, project managers, etc. should be investigated with respect to their BIM adoption issues. Practical implications: BIM technology developers should improve the technology along the objectives of economic benefits, effectiveness and efficiency of BIM adoption. The compatibility and integration between BIM and other widely available software in the industry should also be improved. Moreover, AEC company and project managers should provide architects with opportunities of BIM training so that architects are more likely to apply BIM in future projects. Originality/ value: A quantitative theoretical model, i.e. structural equation model is built to identify key factors affecting architects' BIM adoption, which takes one step further to reveal the BIM adoption mechanism in contrast to previous descriptive-oriented studies. © Emerald Group Publishing Limited 0969-9988.
Number of references: 71
Main heading: Architectural design
Controlled terms: Construction industry - Economic and social effects - Life cycle - Managers - Personnel training - Professional aspects - Project management - Surveys
Uncontrolled terms: Architect - BIM - China - Key factors for bim adoption - Structural equation modelling - Theory of reasoned action
Classification code: 402 Buildings and Towers - 405 Construction Equipment and Methods; Surveying - 901.1 Engineering Professional Aspects - 912.2 Management - 912.4 Personnel - 971 Social Sciences

60. Performance analysis of a hybrid linear switched reluctance machine

Authors: Fan, Y. (1); Zhang, B. (1)
Author affiliation: (1) Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China
Abstract: The linear switched reluctance machine (LSRM) has the merits of low cost, simple structure and mechanical robustness [1]. It is one of the most promising candidates in the direct-drive applications such as linear transportation and position control systems [2-3]. However, they are limited to some special use due to their inherently low propulsion force output and high force ripples, especially in low speed [4]. © 2015 IEEE.

61. Compressed knowledge transfer via factorization machine for heterogeneous collaborative recommendation

Authors: Pan, Weike (1); Liu, Zhuode (1); Ming, Zhong (1); Zhong, Hao (2); Wang, Xin (2); Xu, Congfu (2)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, China; (2) Institute of Artificial Intelligence, College of Computer Science, Zhejiang University, China
Corresponding author: Ming, Zhong
Abstract: Collaborative recommendation has attracted various research works in recent years. However, an important problem setting, i.e., "a user examined several items but only rated a few", has not received much attention yet. We coin this problem heterogeneous collaborative recommendation (HCR) from the perspective of users' heterogeneous feedbacks of implicit examinations and explicit ratings. In order to fully exploit such different types of feedbacks, we propose a novel and generic solution called compressed knowledge transfer via factorization machine (CKT-FM). Specifically, we assume that the compressed knowledge of user homophily and item correlation, i.e., user

groups and item sets behind two types of feedbacks, are similar and then design a two-step transfer learning solution including compressed knowledge mining and integration. Our solution is able to transfer high quality knowledge via noise reduction, to model rich pairwise interactions among individual-level and cluster-level entities, and to adapt the potential inconsistent knowledge from implicit feedbacks to explicit feedbacks. Furthermore, the analysis on time complexity and space complexity shows that our solution is much more efficient than the state-of-the-art method for heterogeneous feedbacks. Extensive empirical studies on two large data sets show that our solution is significantly better than the state-of-the-art non-transfer learning method w.r.t. recommendation accuracy, and is much more efficient than that of leveraging the raw implicit examinations directly instead of compressed knowledge w.r.t. CPU time and memory usage. Hence, our CKT-FM strikes a good balance between effectiveness and efficiency of knowledge transfer in HCR. © 2015 Elsevier B.V. All rights reserved.

Number of references: 32
Main heading: Information management
Controlled terms: Factorization - Knowledge management - Noise abatement - Solution mining
Uncontrolled terms: Collaborative recommendation - Compressed knowledge - Effectiveness and efficiencies - Factorization machines - Recommendation accuracy - State-of-the-art methods - Transfer learning - Transfer learning methods
DOI: 10.1016/j.knosys.2015.05.009
Compendex references: YES
Database: Compendex
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62. He application of the path based Integer Linear Programming method for optimizing energy consumption in blocking IP over WDM networks

Accession number: 20152000855562
Authors: Chen, Bin (1); Bao, Dong-Hui (1); Su, Gong-Chao (1); Dai, Ming-Jun (1); Wang, Hui (1); Lin, Xiao-Hui (1)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Bao, Dong-Hui
Source title: Dianzi Yu Xinxi Xuebao/Journal of Electronics and Information Technology
Abbreviated source title: Dianzi Yu Xinxi Xuebao
Volume: 37
Issue: 3
Issue date: March 1, 2015
Publication year: 2015
Pages: 715-720
Language: Chinese
ISSN: 10095896
CODEN: DKXUEC
Document type: Journal article (JA)
Publisher: Science Press
Abstract: A path based Integer Linear Programming (ILP) method is proposed to optimize the network energy consumption under the bandwidth constrained transparent IP over WDM network model. Compared with the link based ILP method, this method can provide more lightpath combinations in the optical layer. The simulation results show that the path based ILP method can select the better lightpath combinations than the link based ILP method, and achieve lower network energy consumption. ©, 2015, Science Press. All right reserved.
Number of references: 16
Main heading: Integer programming
Controlled terms: Computer systems programming - Constrained optimization - Energy utilization - Optical communication - Wavelength division multiplexing
Uncontrolled terms: Bandwidth-constrained - Integer Linear Programming - Integer linear programming methods - IP over WDM networks - IP-over-WDM - Network energy consumption - Optical layers - Optimizing energy
Classification code: 525.3 Energy Utilization - 716 Telecommunication; Radar, Radio and Television - 717 Optical Communication - 717.1 Optical Communication Systems - 718 Telephone Systems and Related Technologies; Line Communications - 723.1 Computer Programming - 921.5 Optimization Techniques - 961 Systems Science
DOI: 10.11999/JEIT140704
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

63. Fuzzy logic-based multi-factor aided multiple-model filter for general aviation target tracking

Accession number: 20155301740108
Authors: Wang, Quanhui (1); Huang, Jianjun (1); Huang, Jingxiong (2)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, China; (2) Air Defense Forces Command Academy, Zhengzhou, China
Corresponding author: Huang, Jianjun(huangjin@szu.edu.cn)
Source title: Journal of Intelligent and Fuzzy Systems
Abbreviated source title: J. Intelligent Fuzzy Syst.
Volume: 29
Issue: 6
Issue date: November 21, 2015
Publication year: 2015
Pages: 2603-2609
Language: English
ISSN: 10641246
E-ISSN: 18758967
Document type: Conference article (CA)
Publisher: IOS Press, Nieuwe Hemweg 6B, Amsterdam, 1013 BG, Netherlands
Abstract: A fuzzy logic-based multi-factor aided multiple-model filter (FLMAMMF) for General aviation (GA) maneuvering target tracking (MTT) is presented. The target category and meteorological information are introduced into the interacting multiple model (IMM) filter to perform GA target tracking. Fuzzy logic inference is employed in the proposed algorithm to reflect the complicated relationship between these two factors and the transition probability matrix (TPM). Both the number of models in model set and the transition probabilities between models are adjusted through fuzzy inference. Simulation results show that the proposed method is efficient and effective. © 2015 - IOS Press and the authors. All rights reserved.
Number of references: 12
Main heading: Target tracking
Controlled terms: Civil aviation - Clutter (information theory) - Fuzzy filters - Fuzzy inference - Fuzzy logic - Genetic algorithms - Inference engines - Probability - Tracking (position)
Uncontrolled terms: General aviation - IMM algorithms - Interacting multiple model filter (IMM) - Maneuvering target tracking - Meteorological information - Model transition - Multi factors - Transition probability matrix
Classification code: 431.1 Air Transportation, General - 716.1 Information Theory and Signal Processing - 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 723 Computer Software, Data Handling and Applications - 723.4.1 Expert Systems - 922.1 Probability Theory
DOI: 10.3233/IFS-151963
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

64. Statistical Model of JPEG Noises and Its Application in Quantization Step Estimation

Accession number: 20151200654766
Authors: Li, Bin (1); Ng, Tian-Tsong (2); Li, Xiaolong (3); Tan, Shunquan (4); Huang, Jiwu (1, 5)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, China; (2) Institute for Infocomm Research, Agency for Science, Technology and Research, Singapore, Singapore; (3) Institute of Computer Science and Technology, Peking University, Beijing, China; (4) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (5) Shenzhen Key Laboratory of Media Security, Shenzhen University, Shenzhen, China
Source title: IEEE Transactions on Image Processing
Abbreviated source title: IEEE Trans Image Process
Volume: 24
Issue: 5
Issue date: May 1, 2015
Publication year: 2015
Pages: 1471-1484
Article number: 7045601
Language: English

Abstract: In this paper, we present a statistical analysis of JPEG noises, including the quantization noise and the rounding noise during a JPEG compression cycle. The JPEG noises in the first compression cycle have been well studied; however, so far less attention has been paid on the statistical model of JPEG noises in higher compression cycles. Our analysis reveals that the noise distributions in higher compression cycles are different from those in the first compression cycle, and they are dependent on the quantization parameters used between two successive cycles. To demonstrate the benefits from the analysis, we apply the statistical model in JPEG quantization step estimation. We construct a sufficient statistic by exploiting the derived noise distributions, and justify that the statistic has several special properties to reveal the ground-truth quantization step. Experimental results demonstrate that the proposed estimator can uncover JPEG compression history with a satisfactory performance. © 2015 IEEE.

Number of references: 40
Main heading: Audio signal processing
Controlled terms: Image coding - Image compression - Statistical methods - Statistics
Uncontrolled terms: Noise distribution - Quantization noise - Quantization parameters - rounding noise - Special properties - Statistical inference - Statistical modeling - Sufficient statistics
Classification code: 716.1 Information Theory and Signal Processing - 741 Light, Optics and Optical Devices - 922.2 Mathematical Statistics
DOI: 10.1109/TIP.2015.2405477
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

65. A Garbage Collection Aware Stripping method for Solid-State Drives

Accession number: 20151500728091
Authors: Huang, Min (1); Wang, Yi (2, 3); Liu, Zhaoqing (1); Qiao, Liyan (1); Shao, Zili (3)
Author affiliation: (1) School of Electrical Engineering and Automation, Harbin Institute of Technology, China; (2) College of Computer Science and Software Engineering, Shenzhen University, China; (3) Embedded Systems and CPS Laboratory, Department of Computing, Hong Kong Polytechnic University, China
Corresponding author: Shao, Zili
Source title: 20th Asia and South Pacific Design Automation Conference, ASP-DAC 2015
Abbreviated source title: Asia South Pac. Des. Autom. Conf., ASP-DAC
Part number: 1 of 1
Issue date: March 11, 2015
Publication year: 2015
Pages: 334-339
Article number: 7059027
Language: English
ISBN-13: 9781479977925
Document type: Conference article (CA)
Conference name: 2015 20th Asia and South Pacific Design Automation Conference, ASP-DAC 2015
Conference date: January 19, 2015 - January 22, 2015
Conference location: Chiba, Japan
Conference code: 111574
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: The stripping method has been widely used to serve the requests simultaneously in Solid-State Drive (SSD). Although most of the stripping methods can improve the I/O performance of SSD, they will also result in the asymmetric distribution of the requests between the logical space and physical space, This will induce extra garbage collection operations, and will affect both of the endurance and the I/O performance of SSDs. This paper presents Garbage Collection Aware Stripping (GCAS), a novel stripping method that considers the efficiency of garbage collection for NAND flash memory based SSDs. To the best of our knowledge, this is the first work that jointly optimizes garbage collection operation and the I/O performance of stripping methods in NAND flash memory based SSDs. We implemented GCAS on a real hardware platform. Experiments show that GCAS can achieve a 15.87% reduction in terms of the number of the block erase count and can reduce 47.6% worst-case response time compared with a representative stripping method. © 2015 IEEE.
Number of references: 26
Main heading: Flash-based SSDs

Controlled terms: Computer aided design - Flash memory - Monolithic microwave integrated circuits - NAND circuits - Refuse collection
Uncontrolled terms: Asymmetric distribution - Garbage collection - Hardware platform - NAND flash memory - Solid state drives - Solid state drives (SSD) - Stripping methods - Worst case response time
Classification code: 452 Municipal and Industrial Wastes; Waste Treatment and Disposal - 714.2 Semiconductor Devices and Integrated Circuits - 721.3 Computer Circuits - 722.1 Data Storage, Equipment and Techniques - 723.5 Computer Applications
DOI: 10.1109/ASPDAC.2015.7059027
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

66. Chaos control of the permanent magnet synchronous motor using an improved sliding mode controller

Accession number: 20150800537516
Authors: Li, Ling-Long (1); Huang, Su-Dan (1, 2); Wang, Yun (1); Cao, Guang-Zhong (1); Liu, Yan (3)
Author affiliation: (1) Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China; (2) College of Electrical Engineering, Southwest Jiaotong University, Chengdu, China; (3) Shenzhen Optomechatronics Key Lab, Research Institute of Tsinghua University in Shenzhen, Shenzhen, China
Source title: 2014 17th International Conference on Electrical Machines and Systems, ICEMS 2014
Abbreviated source title: Int. Conf. Electr. Mach. Syst., ICEMS
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Issue date: January 16, 2015
Publication year: 2015
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Article number: 7013998
Language: English
ISBN-13: 9781479951611
Document type: Conference article (CA)
Conference name: 2014 17th International Conference on Electrical Machines and Systems, ICEMS 2014
Conference date: October 22, 2014 - October 25, 2014
Conference location: Hangzhou, China
Conference code: 110191
Sponsor: China Electrotechnical Society (CES); Institute of Electrical Engineers of Japan - Industry Applications Society (IEEEJ-IAS); Korean Institute of Electrical Engineers (KIEE); Natural Science Foundation of China (NSFC)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Permanent magnet synchronous motors (PMSMs) have chaotic phenomena under specific operating state due to the uncertainty of their parameters. The chaotic phenomena result in the great degradation of performance of PMSMs. This paper presents the chaos control of a PMSM for eliminating the chaotic phenomena using an improved sliding mode controller. Based on the mathematical model of the PMSM, a Lorenz chaotic model of the PMSM is deduced by affine transformation and time-scale transform. With the Lorenz chaotic model, the chaotic phenomena of the PMSM are discussed under the specific parameters based on MATLAB. By the saturation function applying to the closer-rate, the improved sliding mode controller is developed to control the chaotic phenomena of the PMSM. Simulation of the PMSM with the chaos control is performed based on MATLAB. Simulation results show that the chaos control of the PMSM using the improved sliding mode controller is valid for erasing the chaotic phenomena. © 2014 IEEE.
Number of references: 11
Main heading: Permanent magnets
Controlled terms: Affine transforms - Controllers - Electric machine theory - Magnets - Mathematical transformations - MATLAB - Sliding mode control - Synchronous motors
Uncontrolled terms: Affine transformations - Chaos control - Chaotic phenomena - Operating state - Permanent Magnet Synchronous Motor - Permanentmagnet synchronous motor (PMSMs) - Saturation function - Sliding mode controller
Classification code: 704 Electric Components and Equipment - 704.1 Electric Components - 705.1 Electric Machinery, General - 705.3.1 AC Motors - 731.1 Control Systems - 732.1 Control Equipment - 921 Mathematics - 921.3 Mathematical Transformations
DOI: 10.1109/ICEMS.2014.7013998
Database: Compendex

67. Extraordinary reflection and transmission with direction dependent wavelength selectivity based on parity-time-symmetric multilayers

Accession number: 20150900589290
Authors: Ding, Shulin (1); Wang, Guo Ping (1, 2)
Author affiliation: (1) School of Physics and Technology, Wuhan University, Wuhan, China; (2) College of Electronic Science and Technology, Shenzhen University, Shenzhen, China
Corresponding author: Wang, Guo Ping
Source title: Journal of Applied Physics
Abbreviated source title: J Appl Phys
Volume: 117
Issue: 2
Issue date: January 14, 2015
Publication year: 2015
Article number: 023104
Language: English
ISSN: 00218979
E-ISSN: 10897550
CODEN: JAPIAU
Document type: Journal article (JA)
Publisher: American Institute of Physics Inc.
Abstract: In this paper, we present a kind of periodical ternary parity-time (PT) -symmetric multilayers to realize nearly 100% reflectance and transmittance simultaneously when light is incident from a certain direction. This extraordinary reflection and transmission is original from unidirectional Bragg reflection of PT-symmetric systems as the symmetry spontaneous breaking happens at PT thresholds. The extra energy involved in reflection and transmission lights is obtained from pumping light to the gain regions of the structure. Moreover, we find that our PT-symmetric structure shows direction dependent wavelength selectivity. When the illumination light is incident from two opposite directions into the multilayer structure, such extraordinary reflection and transmission appear at visible and near-infrared wavelengths, respectively. Such distinguishing properties may provide these structures with attractive applications as beam splitters, laser mirrors, narrow band filters, and multiband PT-symmetric optical devices. © 2015 AIP Publishing LLC.
Number of references: 26
Main heading: Light reflection
Controlled terms: Infrared devices - Laser mirrors - Laser optics - Multilayers - Optical beam splitters
Uncontrolled terms: Illumination light - Multilayer structures - Narrow band filter - Reflection and transmission - Symmetric structures - Symmetric systems - Visible and near infrared - Wavelength Selectivity
Classification code: 741.1 Light/Optics - 741.3 Optical Devices and Systems - 933.1 Crystalline Solids
DOI: 10.1063/1.4905319
Database: Compendex

68. Integration of a miniature quartz crystal microbalance with a microfluidic chip for amyloid beta-A#42quantitation

Accession number: 20154201395092
Authors: Tao, Wenyan (1, 2); Xie, Qingji (3); Wang, Hairui (1); Ke, Shanming (1); Lin, Peng (1); Zeng, Xierong (1, 2)
Author affiliation: (1) Shenzhen Key Laboratory of Special FunctionaEngineering Laboratory for Advance Technology of Ceramics, College of Materials Science and Engineering, Shenzhen University, Shenzhen, China; (2) College of Electronic Science and Technology, Shenzhen University, Shenzhen, China; (3) College of Chemistry and Chemical Engineering, Hunan Normal University, Changsha, China
Corresponding author: Lin, Peng
Source title: Sensors (Switzerland)
Abbreviated source title: Sensors
Volume: 15
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Publisher: MDPI AG, Postfach, Basel, CH-4005, Switzerland

Abstract: A miniature quartz crystal microbalance (mQCM) was integrated with a polydimethylsiloxane (PDMS) microfluidic device for on-chip determination of amyloid polypeptide–A#42. The integration techniques included photolithography and plasma coupling. A#42 antibody was immobilized on the mQCM surface using a cross-linker method, and the resonance frequency of mQCM shifted negatively due to antibody-antigen binding. A linear range from 0.1 µM to 3.2 µM was achieved. By using matrix elimination buffer, i.e., matrix phosphate buffer containing 500 µg/mL dextran and 0.5% Tween 20, A#42 could be successfully detected in the presence of 75% human serum. Additionally, high temperature treatments at 150 °C provided a valid method to recover mQCM, and PDMS-mQCM microfluidic device could be reused to some extent. Since the detectable A#42 concentration could be as low as 0.1 µM, which is close to cut-off value for Alzheimer patients, the PDMS-mQCM device could be applied in early Alzheimer's disease diagnosis. © 2015 by the authors.
Number of references: 32
Main heading: Silicones
Controlled terms: Antibodies - Diagnosis - Fluidic devices - Glycoproteins - Integration - Microchannels - Microfluidics - Photolithography - Polydimethylsiloxane - Quartz - Quartz crystal microbalances
Uncontrolled terms: Alzheimer patients - High temperature treatments - Integration techniques - Matrix elimination - Micro-fluidic devices - Phosphate buffers - Polydimethylsiloxane PDMS - Resonance frequencies
Classification code: 461 Bioengineering and Biology - 482.2 Minerals - 632.2 Hydraulic Equipment and Machinery - 632.5.1 Microfluidics - 815.1.1 Organic Polymers - 921.2 Calculus - 943.3 Special Purpose Instruments
DOI: 10.3390/s151025746
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

69. System utility maximization with interference processing for cognitive radio networks

Authors: Qian, Li Ping (1); Zhang, Shengli (2); Zhang, Wei (3); Zhang, Ying Jun (4)
Author affiliation: (1) College of Computer Science and Technology, Zhejiang University of Technology, Hangzhou, China; (2) College of Information Engineering, Shenzhen University, Shenzhen, China; (3) School of Electrical Engineering and Telecommunications, University of New South Wales, Sydney; NSW, Australia; (4) Department of Information Engineering, Chinese University of Hong Kong, Shenzhen Research Institute, Shatin, Hong Kong
Corresponding author: Zhang, Shengli

Abstract: In spectrum underlay cognitive radio networks, secondary users (SUs) are allowed to reuse the spectrum allocated to a primary system. The interference between SUs actually carries information and can potentially be exploited to improve the network performance through information-theoretic interference processing. In this paper, we design an optimal joint power and rate control algorithm that maximizes the secondary system utility subject to the interference temperature constraints of primary users based on the capacity-approaching interference processing scheme called as the Han-Kobayashi scheme. The optimal solution is difficult to achieve because the optimization problem is in general non-convex. To make the optimization problem tractable, this paper first transforms the problem into a monotonic optimization problem through exploiting its hidden monotonicity. We then devise an effective algorithm to obtain the global optimal solution to the joint power and rate control problem in the Han-Kobayashi scheme. The key idea behind the proposed algorithm is to construct a sequence of shrinking polyblocks that approximate the upper

boundary of the feasible region with increasing precision. Numerical results further show that the achieved utility of our scheme significantly outperforms the utility of conventional schemes which treat the interference between SUs as the noise. © 2015 IEEE.

Number of references: 33
Main heading: Cognitive radio
Controlled terms: Algorithms - Information theory - Joints (structural components) - Optimal systems - Optimization - Radio - Radio systems - Receivers (containers) - Vectors
Uncontrolled terms: Cognitive radio network - Interference channels - Joint power - Monotonic optimization - Noise - Utility maximizations
Classification code: 408.2 Structural Members and Shapes - 691 Bulk Handling and Unit Loads - 694 Packaging - 716.1 Information Theory and Signal Processing - 716.3 Radio Systems and Equipment - 723 Computer Software, Data Handling and Applications - 921 Mathematics
DOI: 10.1109/TCOMM.2015.2412541
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

70. Fuzzy Local Mean Discriminant Analysis for Dimensionality Reduction

Accession number: 20155001672171
Authors: Xu, Jie (1, 2); Gu, Zhenghong (3); Xie, Kan (1)
Author affiliation: (1) Faculty of Automation, Guangdong University of Technology, Guangzhou, China; (2) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (3) Faculty of information and engineering institute, Yangzhou University, Yangzhou, China
Corresponding author: Xu, Jie(njxujie@aliyun.com)
Source title: Neural Processing Letters
Abbreviated source title: Neural Process Letters
Issue date: December 8, 2015
Publication year: 2015
Pages: 1-18
Language: English
ISSN: 13704621
E-ISSN: 1573773X
CODEN: NPLEFG
Document type: Article in Press
Publisher: Springer New York LLC
Abstract: "Fuzzy set" theory can effectively manage the vagueness and ambiguity of the images being degraded by poor illumination component. In this study, we augment mechanism of "fuzzy set" into the algorithm design, and propose fuzzy local mean discriminant analysis (FLMDA) for dimensionality reduction. In FLMDA, the nearest neighborhoods are selected as the local patches. On each local patch, FLMDA redefines the fuzzy local class-means and then constructs the fuzzy local between-class and within-class scatters, respectively. By maximizing the difference of fuzzy local between-class scatter and fuzzy local within-class scatter, FLMDA finds the optimal transformed subspace, in which the local neighbor relationship is preserved while at the same time the compactness and separability are enhanced. The experimental results on the AR face database, Yale face database, UCI Wine dataset and PolyU palmprint database show that FLMDA outperforms the state-of-the-art algorithms. © 2015 Springer Science+Business Media New York
Main heading: Database systems
Controlled terms: Discriminant analysis - Fuzzy sets
Uncontrolled terms: Between class scatter - Dimensionality reduction - Illumination components - Locality - Nearest neighborhood - PolyU Palmprint Database - State-of-the-art algorithms - Within class scatter
Classification code: 723.3 Database Systems - 922 Statistical Methods
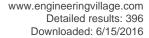**DOI:** 10.1007/s11063-015-9489-3
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

71. Combining MDL and BIC to build BNs for system reliability modeling

Accession number: 20161802337936
Authors: Zhong, Xiaopin (1); You, Weizhen (1)

Author affiliation: (1) Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China
Source title: 2015 IEEE 2nd International Conference on InformationScience and Security, ICISS 2015
Abbreviated source title: IEEE Int. Conf. Inf. Sci. Secur., ICISS
Monograph title: 2015 IEEE 2nd International Conference on InformationScience and Security, ICISS 2015
Issue date: January 4, 2016
Publication year: 2015
Article number: 7370987
Language: English
ISBN-13: 9781467386111
Document type: Conference article (CA)
Conference name: 2nd IEEE International Conference on Information Science and Security, ICISS 2015
Conference date: December 14, 2015 - December 16, 2015
Conference location: Seoul, Korea, Republic of
Conference code: 118953
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: Bayesian networks (BNs) is widely used for system reliability modeling because of its versatility. It is crucial to build BNs from reliability data without experts' intervene. However, the BNs structure learning is still an open problem. Traditional approaches always integrate a structure scoring metric with a particular heuristically searching method. This usually overfits or underfits the data. In this paper, we propose a new method that combines the Minimal Description Length principle (MDL) and Bayesian Information Criterion (BIC) to partially overcome the weakness of traditional mothods. Simula-Tions show that the proposed method can effectively reduce the overfitting and underfitting of the BN model, thus improving the accuracy of the reliability estimation results. © 2015 IEEE.
Number of references: 16
Main heading: Bayesian networks
Controlled terms: Information science - Knowledge based systems - Reliability
Uncontrolled terms: Bayesian information criterion - Bayesian Networks (bns) - Minimal description length - Reliability estimation - Structure-learning - System reliability - System reliability modeling - Traditional approaches
Classification code: 723.4.1 Expert Systems - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory
DOI: 10.1109/ICISSEC.2015.7370987
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

72. Pulse dynamics in carbon nanotube mode-locked fiber lasers near zero cavity dispersion

Accession number: 20154901641467
Authors: Wang, Jinzhang (1); Cai, Zhiping (2); Xu, Ping (3); Du, Geguo (3); Wang, Fengqiu (4); Ruan, Shuangchen (1); Sun, Zhipei (5); Hasan, Tawfique (6)
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Source title: Optics Express
Abbreviated source title: Opt. Express
Volume: 23
Issue: 8
Issue date: 2015
Publication year: 2015
Pages: 19947-19958
Language: English
E-ISSN: 10944087
Document type: Journal article (JA)
Publisher: OSA - The Optical Society

Abstract: We numerically and experimentally analyze the output characteristics and pulse dynamics of carbon nanotube mode-locked fiber lasers near zero cavity dispersion (from 0.02 to $\_\_$ 0.02 ps2). We focus on such near zero dispersion cavities to reveal the dispersion related transition between different mode-locking regimes (such as soliton-

like, stretchedpulse and self-similar regimes). Using our proposed model, we develop a nanotube-mode-locked fiber laser setup generating $\sim$97 fs pulse which operates in the stretched-pulse regime. The corresponding experimental results and pulse dynamics are in good agreement with the numerical results. Also, the experimental results from soliton-like and self-similar regimes exhibit the same trends with simulations. Our study will aid design of different mode-locking regimes based on other new saturable absorber materials to achieve ultra-short pulse duration. © 2015 Optical Society of America.

Number of references: 53
Main heading: Mode-locked fiber lasers
Controlled terms: Carbon nanotubes - Dynamics - Fiber lasers - Locks (fasteners) - Nanotubes - Saturable absorbers - Solitons - Ultrashort pulses - Yarn
Uncontrolled terms: Mode locking regime - Near-zero dispersions - Numerical results - Output characteristics - Pulse dynamics - Pulse regimes - Self-similar - Soliton-like
Classification code: 744.1 Lasers, General - 744.4 Solid State Lasers - 761 Nanotechnology - 819.4 Fiber Products
DOI: 10.1364/OE.23.009947
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

73. Magnetoelectric properties of lead-free Ni0.93Co0.02Mn0.05Fe1.95O4-Na0.5Bi0.5TiO3 multiferroic composites synthesized by spark plasma sintering

Authors: Ramana Mudinepalli, Venkata (1); Song, S.-H. (1); Li, J.-Q. (2); Murty, B.S. (3)
Author affiliation: (1) Department of Materials Science and Engineering, Shenzhen Graduate School, Harbin Institute of Technology, Shenzhen, China; (2) College of Materials Science and Engineering, Shenzhen University, Shenzhen, China; (3) Department of Metallurgical and Materials Engineering, Indian Institute of Technology, Madras, Chennai, India
Corresponding author: Song, S.-H.

Abstract: Lead-free multiferroic ceramic composites of x Ni0.93Co0.02Mn0.05Fe1.95O4-(1-x) Na0.5Bi0.5TiO3 (x NCMF-(1-x) NBT, where x=0.1, 0.2, 0.3, 0.4 and 0.5 mol fraction) were synthesized by spark plasma sintering (SPS) in conjunction with high-energy ball milling. The phases, dielectric, piezoelectric, ferroelectric, magnetic and magnetoelectric properties of the composites were analyzed. The composites were composed of a mixture of spinel and perovskite phases. All the composite samples exhibited both apparent ferroelectric and ferromagnetic characteristics as well as considerable magnetoelectric (ME) effects. The maximum value of the ME voltage coefficient of the composites was quite high, being up to ~670 mV cm-1 Oe-1 for the 0.5 NCMF-0.5 NBT composite. Overall, the synthesized composites were promising in terms of electrical, magnetic and magnetoelectric properties, indicating that the SPS is a promising method of fabricating ME composite materials. © 2015 Elsevier B.V.All rights reserved.
Number of references: 41
Main heading: Magnetoplasma
Controlled terms: Ball milling - Electric sparks - Ferrite - Ferroelectricity - Gyrators - Magnetic properties - Magnetoelectric effects - Manganese - Nickel - Sintering - Sodium - Spark plasma sintering
Uncontrolled terms: Composite samples - Ferroelectric property - High-energy ball milling - Magnetoelectric properties - ME voltage coefficients - Multiferroic ceramics - Multiferroic composites - Perovskite phasis
Classification code: 533.1 Ore Treatment - 536.1 Powder Metallurgy Operations - 543.2 Manganese and Alloys - 545.3 Steel - 548.1 Nickel - 549.1 Alkali Metals - 701.1 Electricity: Basic Concepts and Phenomena - 701.2 Magnetism: Basic Concepts and Phenomena - 708.4 Magnetic Materials - 933.1 Crystalline Solids
DOI: 10.1016/j.jmmm.2015.03.059
Database: Compendex

74. Preparation and properties of a high refractive index optical resin prepared via click chemistry method

Authors: Luo, Chaoyun (1); Zuo, Jiandong (2); Yuan, Yanchao (3); Lin, Xuechun (1); Lin, Feng (1); Zhao, Jianqing (3)
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Corresponding author: Zuo, Jiandong

Abstract: PETTA/PETTG optical resin, a kind of LED encapsulating resin with high refractive index, was prepared via click chemistry method in this study. Optical and thermal properties of this resin were investigated with UV-Vis scanning spectrophotometer, Abbe refractometer and thermogravimetric analyses (TGA), respectively. The results show that the light transmitance of this resin can arrive up to 93% and its refractive index is 1.556, which is higher than those of silicone resins. Meanwhile, the cured PETTA/PETTG resin demonstrates the equal thermal stability to silicone resins, and its 5% weight loss temperature was about 350 °C. Therefore, the cured PETTA/PETTG resin could be used as an alternate of expensive silicone resins in LED encapsulation. © 2015 Optical Society of America.

Number of references: 18
Main heading: Refractive index
Controlled terms: Curing - Resins - Silicones - Spectrophotometers - Synthesis (chemical) - Thermogravimetric analysis
Uncontrolled terms: Abbe refractometers - Click chemistry - High refractive index - Optical and thermal properties - Scanning spectrophotometers - Transmitance - Weight loss temperatures
Classification code: 741.1 Light/Optics - 801 Chemistry - 802.2 Chemical Reactions - 815.1.1 Organic Polymers
DOI: 10.1364/OME.5.000462
Database: Compendex

75. Shadow removal method for phase-shifting profilometry

Authors: Lu, Lei (1); Xi, Jiangtao (1); Yu, Yanguang (1); Guo, Qinghua (1); Yin, Yongkai (1, 2); Song, Limei (3)
Author affiliation: (1) School of Electrical Computer and Telecommunications Engineering, University of Wollongong, Wollongong; NSW, Australia; (2) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (3) Computer Technic and Automatization College, Tianjin Polytechnic University, Tianjin, China
Corresponding author: Xi, Jiangtao

Publisher: OSA - The Optical Society

Abstract: In a typical phase-shifting profilometry system for the three-dimensional (3D) shape measurement, shadows often exist in the captured images as the camera and projector probe the object from different directions. The shadow areas do not reflect the fringe patterns which will cause errors in the measurement results. This paper proposed a new method to remove the shadow areas from taking part in the 3D measurement. With the system calibrated and the object reconstructed, the 3D results are mapped on a point-by-point basis into the corresponding positions on the digital micro-mirror device (DMD) of the projector. A set of roles are presented to detect the shadow points based on their mapped positions on the DMD plane. Experimental results are presented to verify the effectiveness of the proposed method. © 2015 Optical Society of America.

Number of references: 13
Main heading: Phase shift
Controlled terms: Measurement errors - Profilometry
Uncontrolled terms: 3-D measurement - Digital micro-mirror device - Fringe pattern - Phase-shifting - Shadow removal - Three dimensional (3 D) shape measurement
Classification code: 922 Statistical Methods - 942.2 Electric Variables Measurements - 943.3 Special Purpose Instruments
DOI: 10.1364/AO.54.006059
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

76. THz wave transmission within the metal film coated double-dielectric-slab waveguides and the tunable filter application

Accession number: 20151900818943
Authors: Liu, Jiamin (1, 2, 3); Liang, Huawei (2, 3); Zhang, Min (2, 3); Su, Hong (2, 3)
Author affiliation: (1) College of Electronic Science and Technology, Shenzhen University, Shenzhen, China; (2) Shenzhen Key Laboratory of Laser Engineering, Shenzhen University, Shenzhen, China; (3) Key Laboratory of Advanced Optical Precision Manufacturing Technology of Guangdong Higher Education Institutes, Shenzhen University, Shenzhen, China
Corresponding author: Liang, Huawei
Source title: Optics Communications
Abbreviated source title: Opt Commun
Volume: 351
Issue date: October 1, 2015
Publication year: 2015
Pages: 103-108
Article number: 20100
Language: English
ISSN: 00304018
CODEN: OPCOB8
Document type: Journal article (JA)
Publisher: Elsevier

Abstract: Abstract We propose a metal film coated double-dielectric-slab waveguide for guiding THz wave. Detailed comparisons of transmission characteristics of the coated and uncoated double-dielectric-slab waveguides are given. The comparisons of different slab materials are also given. We put forward using the measureable cut-off frequency of the coated waveguides for tunable filter. The tunable sensitivities to the thickness of the slab t and the air interval w are discussed. We find that for Polystyrene slab at t=0.0380 mm, the theoretical tunable sensitivity of cut-off frequency on w can be 7.65 THz/mm. © 2015 Elsevier B.V. All rights reserved.

Number of references: 31
Main heading: Waveguide filters
Controlled terms: Dielectric materials - Metallic films - Planar waveguides - Terahertz waves - Wave transmission - Waveguides
Uncontrolled terms: Dielectric slab waveguides - Far infrared - THz waves - Transmission characteristics - Tunable filters
Classification code: 531 Metallurgy and Metallography - 539 Metals Corrosion and Protection; Metal Plating - 708.1 Dielectric Materials - 711 Electromagnetic Waves - 714.3 Waveguides
DOI: 10.1016/j.optcom.2015.04.049
Compendex references: YES

77. Healable, Transparent, Roomerature Electronic Sensors Based on Carbon Nanotube Network-Coated Polyelectrolyte Multilayers

Accession number: 20160301829505

Authors: Bai, Shouli (1); Sun, Chaozheng (1); Yan, Hong (1); Sun, Xiaoming (1); Zhang, Han (2); Luo, Liang (1); Lei, Xiaodong (1); Wan, Pengbo (1); Chen, Xiaodong (3)
Author affiliation: (1) State Key Laboratory of Chemical Resource Engineering, Beijing University of Chemical Technology, P.O. Box 98, Beijing, China; (2) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (3) School of Materials Science and Engineering, Nanyang Technological University, 50 Nanyang Avenue, Singapore, Singapore
Corresponding author: Sun, Xiaoming(sunxm@mail.buct.edu.cn)

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Language: English
ISSN: 16136810
E-ISSN: 16136829
CODEN: SMALBC
Document type: Journal article (JA)
Publisher: Wiley-VCH Verlag

Abstract: Transparent and conductive film based electronics have attracted substantial research interest in various wearable and integrated display devices in recent years. The breakdown of transparent electronics prompts the development of transparent electronics integrated with healability. A healable transparent chemical gas sensor device is assembled from layer-by-layer-assembled transparent healable polyelectrolyte multilayer films by developing effective methods to cast transparent carbon nanotube (CNT) networks on healable substrates. The healable CNT network-containing film with transparency and superior network structures on self-healing substrate is obtained by the lateral movement of the underlying self-healing layer to bring the separated areas of the CNT layer back into contact. The as-prepared healable transparent film is assembled into healable transparent chemical gas sensor device for flexible, healable gas sensing at room temperature, due to the 1D confined network structure, relatively high carrier mobility, and large surface-to-volume ratio. The healable transparent chemical gas sensor demonstrates excellent sensing performance, robust healability, reliable flexibility, and good transparency, providing promising opportunities for developing flexible, healable transparent optoelectronic devices with the reduced raw material consumption, decreased maintenance costs, improved lifetime, and robust functional reliability. © 2015 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim.

Number of references: 64
Main heading: Carbon nanotubes
Controlled terms: Carbon films - Chemical sensors - Conductive films - Display devices - Films - Gas detectors - Gases - Multilayer films - Multilayers - Nanotubes - Optoelectronic devices - Polyelectrolytes - Self-healing materials - Substrates - Transparency - Yarn
Uncontrolled terms: Carbonnanotube network (CNT) - Layer-by-layer assemblies - Polyelectrolyte multilayer - Polyelectrolyte multilayer film - Raw material consumption - Self-healing - Supramolecular materials - Transparent conducting films
Classification code: 415 Metals, Plastics, Wood and Other Structural Materials - 708.2 Conducting Materials - 722.2 Computer Peripheral Equipment - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 761 Nanotechnology - 801 Chemistry - 813.2 Coating Materials - 815.1.1 Organic Polymers - 819.4 Fiber Products - 914.1 Accidents and Accident Prevention
DOI: 10.1002/smll.201502169
Compendex references: YES

78. Optimal selection of cut-on wavelength in soliton self-frequency shift for nonlinear optical microscopy

Accession number: 20151800803420
Authors: Wang, Ke (1); Wang, Yuxin (1); Qiu, Ping (2)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (2) College of Physics Science and Technology, Shenzhen University, China
Source title: Progress in Biomedical Optics and Imaging - Proceedings of SPIE
Abbreviated source title: Progr. Biomed. Opt. Imaging Proc. SPIE
Volume: 9315
Volume title: Design and Quality for Biomedical Technologies VIII
Part number: 1 of 1
Issue date: 2015
Publication year: 2015
Article number: 93150L
Language: English
ISSN: 16057422
ISBN-13: 9781628414059
Document type: Conference article (CA)
Conference name: Design and Quality for Biomedical Technologies VIII
Conference date: February 7, 2015 - February 8, 2015
Conference location: San Francisco, CA, United states
Conference code: 111936
Sponsor: The Society of Photo-Optical Instrumentation Engineers (SPIE)
Publisher: SPIE
Abstract: Soliton self-frequency shift (SSFS) is a versatile technique for generating ultrashort optical pulses with customized wavelengths suitable for nonlinear optical microscopy. However, spectral overlapping of the soliton with the residual sometimes causes extra power deposition onto the biological samples, which may further induce optical damage. Consequently, how to choose the optimal optical filter is of vital importance for increasing signal level and minimizing damage. Here we propose maximizing the ratio between multi-photon signal and the nth power of the excitation pulse energy as a criterion for optimal spectral filtering in SSFS. This optimization is based on most efficient signal generation and entirely depends on physical quantities that can be easily measured experimentally. © 2015 SPIE.
Number of references: 15
Main heading: Nonlinear optics
Controlled terms: Biomedical signal processing - Frequency shift keying - Optical data storage - Optical microscopy - Photons - Solitons
Uncontrolled terms: Biological samples - Multi-photon microscopy - Nonlinear optical microscopy - Optical soliton - Physical quantities - Soliton self-frequency shift - Spectral filtering - Ultrashort optical pulse
Classification code: 716 Telecommunication; Radar, Radio and Television - 717 Optical Communication - 718 Telephone Systems and Related Technologies; Line Communications - 741 Light, Optics and Optical Devices - 931.3 Atomic and Molecular Physics
DOI: 10.1117/12.2075422
Database: Compendex
Data Provider: Engineering Village

79. Theoretical research of time focus and time collimation system for electron bunch

Accession number: 20161502223268
Authors: Zhao, Xin (1, 3, 4); Cai, Houzhi (1, 2); Liu, Jinyuan (1); Xie, Weixin (2)
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Source title: Zhongguo Jiguang/Chinese Journal of Lasers
Abbreviated source title: Zhongguo Jiguang
Volume: 42

Issue date: September 10, 2015
Publication year: 2015
Article number: s117001
Language: Chinese
ISSN: 02587025
CODEN: ZHJIDO
Document type: Journal article (JA)
Publisher: Science Press
Abstract: In order to compensate the time dispersion between photocathode and anode in the streak tube, a time focus and time collimation system for electron bunch is presented. The time focus system is used to compensate the time dispersion in the process of accelerating. Then, the compensated electron pulse traverses the time collimation system. The energies of the electrons are equal as they emerge from the time collimation system. Therefore, the pulse width of the electron bunch is invariable in the latter transmission process. The system is simulated by using the Monte Carlo method and the finite difference method. The electron pulse with width of 500 fs is generated at the photocathode. The width of the electron pulse is shortened to 131 fs by using the time focus system. The time compression ratio is 3.8:1. Then, the pulse width maintains 131 fs by using the time collimation system. The time collimation ratio is 16.8%. © 2016, Chinese Lasers Press. All right reserved.
Number of references: 15
Page count: 7
Main heading: Electrons
Controlled terms: Compression ratio (machinery) - Dispersions - Electrodes - Finite difference method - Monte Carlo methods - Particle beam bunching - Streak cameras - X ray optics
Uncontrolled terms: Collimation system - Electron bunch - Electron pulse - Streak tubes - Temporal resolution - Theoretical research - Time collimation - Time dispersion
Classification code: 742.2 Photographic Equipment - 921.6 Numerical Methods - 922.2 Mathematical Statistics - 932.1 High Energy Physics - 951 Materials Science
DOI: 10.3788/CJL201542.s117001
Compendex references: YES
Database: Compendex
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80. 3D Wideband Non-Stationary Geometry-Based Stochastic Models for Non-Isotropic MIMO Vehicle-to-Vehicle Channels

Accession number: 20161302171726
Authors: Yuan, Yi (1); Wang, Cheng-Xiang (1, 2, 3); He, Yejun (4); Alwakeel, Mohammed M. (2); Aggoune, El-Hadi M. (2)
Author affiliation: (1) Institute of Sensors, Signals and Systems, School of Engineering and Physical Sciences, Heriot-Watt University, Edinburgh, United Kingdom; (2) SNCS Research Center, University of Tabuk, Tabuk, Saudi Arabia; (3) School of Information Science and Engineering, Shandong University, Jinan, China; (4) College of Information Engineering, Shenzhen University, Shenzhen, China
Source title: IEEE Transactions on Wireless Communications
Abbreviated source title: IEEE Trans. Wireless Commun.
Volume: 14
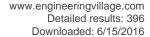**Issue:** 12
Issue date: December 2015
Publication year: 2015
Pages: 6883-6895
Article number: 7169607
Language: English
ISSN: 15361276
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Actual vehicle-to-vehicle (V2V) channel measurements have shown that the wide-sense stationary (WSS) modeling assumption is valid only for very short time intervals. This fact motivates us to develop non-WSS V2V channel models. In this paper, we propose a novel three-dimensional (3D) theoretical non-WSS regular-shaped geometry-based stochastic model (RS-GBSM) and the corresponding sum-of-sinusoids (SoS) simulation model for non-isotropic scattering wideband multiple-input multiple-output (MIMO) V2V fading channels. The movements of the transmitter (Tx), scatterers, and receiver (Rx) result in the time-varying angles of departure (AoDs) and angles of arrival

(AoAs) that make our models non-stationary. The proposed RS-GBSMs, combining line-of-sight (LoS) components, a two-sphere model, and multiple confocal elliptic-cylinder models, have the ability to study the impacts of vehicular traffic density (VTD) and non-stationarity on channel statistics, and jointly consider the azimuth and elevation angles by using the von Mises Fisher (VMF) distribution. The proposed RS-GBSMs are sufficiently generic and adaptable to model various V2V scenarios. Based on the proposed 3D non-WSS RS-GBSMs, important local channel statistical properties are derived and thoroughly investigated. The impacts of VTD and non-stationarity on these channel statistical properties are investigated by comparing them with those of the corresponding WSS model. The proposed non-WSS RS-GBSMs are validated by measurements in terms of the channel stationary time. Finally, numerical and simulation results demonstrate that the 3D non-WSS model is more practical to characterize real V2V channels. © 2015 IEEE.

Number of references: 40
Main heading: Stochastic models
Controlled terms: Communication channels (information theory) - Crashworthiness - Fading channels - MIMO systems - Rayleigh fading - Stochastic systems - Vehicles
Uncontrolled terms: Azimuth and elevation angles - Geometry-based stochastic models - MIMO channel models - Non-isotropic scatterings - Vehicle to vehicles - Von Mises-Fisher (vMF) distribution - Wide-sense stationaries - Wideband channel
Classification code: 711.2 Electromagnetic Waves in Relation to Various Structures - 716.1 Information Theory and Signal Processing - 716.3 Radio Systems and Equipment - 914.1 Accidents and Accident Prevention - 922.1 Probability Theory - 961 Systems Science
DOI: 10.1109/TWC.2015.2461679
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

81. Customized transportation, equity participation, and cooperation performance within logistics supply chains

Accession number: 20150600504363
Authors: Lin, Xudong (1); Ma, Lijun (1); Zheng, Zunxin (2, 3)
Author affiliation: (1) College of Management, Shenzhen University, Shenzhen, China; (2) College of Economics, Shenzhen University, Shenzhen, China; (3) Shenzhen Key Laboratory of Urban Planning and Decision Making, Shenzhen Graduate School, Harbin Institute of Technology, Shenzhen, China
Corresponding author: Zheng, Zunxin
Source title: Mathematical Problems in Engineering
Abbreviated source title: Math. Probl. Eng.
Volume: 2015
Issue date: January 22, 2015
Publication year: 2015
Article number: 792792
Language: English
ISSN: 1024123X
E-ISSN: 15635147
Document type: Journal article (JA)
Publisher: Hindawi Publishing Corporation, 410 Park Avenue, 15th Floor, 287 pmb, New York, NY 10022, United States

Abstract: Customized transportation has received growing concerns by researchers and practitioners in recent years. Despite the fact that one consignor often holds partial ownership of its carrier within a supply chain, the existing interpretations behind them remain relatively unexplored. Based on the game models, we find that a simple take-or-pay contract is not likely to solve the low-efficient customized production problem, and equity participation mechanism plus simple contract may improve the cooperation performance of customized transportation. In the case of the owner-managed carrier, only when purchasing at par can it be ensured to obtain the socially optimal customization investment, but when purchasing at premium or discount, the optimal partial ownership selected by consignor cannot motivate the carrier to make the most efficient customization investment. With the optimal solutions, we also provide a theoretic foundation for calculating the optimal partial ownership and for interpreting why the interfirm share-holding ratios of the member-firms within the familial-type logistic supply chains are much larger than the ratios within the public-type logistic supply chains. Finally, our results show that the familial-type logistic supply chains may choose more efficient customized production level than public-type logistic supply chains. © 2015 Xudong Lin et al.
Number of references: 28

Main heading: Chains
Controlled terms: Investments - Supply chains
Uncontrolled terms: Cooperation performance - Game models - Logistics supply chains - Optimal solutions - Production level - Production problems
Classification code: 602.1 Mechanical Drives - 911.2 Industrial Economics - 912 Industrial Engineering and Management - 913 Production Planning and Control; Manufacturing
DOI: 10.1155/2015/792792
Database: Compendex

Data Provider: Engineering Village

82. Three dimensional multi-molecule tracking in thick samples with extended depth-of-field

Accession number: 20150500471207
Authors: Li, Heng (1, 2, 3); Chen, Danni (1, 2, 3, 4); Xu, Gaixia (1, 2, 3); Yu, Bin (1, 2, 3); Niu, Hanben (1, 2, 3)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (2) Shenzhen Key Laboratory of Biomedicine Engineering, Shenzhen University, Shenzhen, China; (3) Shenzhen Key Laboratory of Micro-Nano Measuring and Imaging in Biomedical Optics, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (4) State Key Laboratory of Precision Measurement Technology and Instruments, Tsinghua University, Beijing, China
Source title: Optics Express
Abbreviated source title: Opt. Express
Volume: 23
Issue: 2
Issue date: January 26, 2015
Publication year: 2015
Pages: 787-794
Language: English
E-ISSN: 10944087
Document type: Journal article (JA)
Publisher: Optical Society of American (OSA)
Abstract: We present a non-z-scanning multi-molecule tracking system with nano-resolution in all three dimensions and extended depth of field (DOF), which based on distorted grating (DG) and double-helix point spread function (DH-PSF) combination microscopy (DDCM). The critical component in DDCM is a custom designed composite phase mask (PM) combining the functions of DG and DH-PSF. The localization precision and the effective DOF of the home-built DDCM system based on the designed PM were tested. Our experimental results show that the three-dimensional (3D) localization precision for the three diffraction orders of the grating are #-1st(x, y, z) = (6.5 nm, 9.2nm, 23.4 nm), #0th(x, y, z) = (3.7 nm, 2.8nm, 10.3 nm), and $_\sigma$+1st(x, y, z) = (5.8 nm, 6.9 nm, 18.4 nm), respectively. Furthermore, the total effective DOF of the DDCM system is extended to 14 μm. Tracking experiment demonstrated that beads separated over 12 μm along the axial direction at some instants can be localized and tracked successfully. © 2015 Optical Society of America.
Number of references: 26
Main heading: Molecules
Controlled terms: Diffraction gratings - Optical design - Optical transfer function
Uncontrolled terms: Axial direction - Critical component - Diffraction orders - Distorted gratings - Double-helix point-spread functions - Extended depth of field - Three dimensions - Three-dimensional (3D) localization
Classification code: 741.1 Light/Optics - 741.3 Optical Devices and Systems - 931.3 Atomic and Molecular Physics
DOI: 10.1364/OE.23.000787
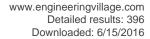**Database:** Compendex

Data Provider: Engineering Village

83. In-fiber grating fabricated by femtosecond laser direct writing for strain sensing

Accession number: 20152100859460
Authors: Huang, Quandong (1); Yu, Yongqin (2); Ruan, Shuangchen (1); Li, Xuejin (2); Chen, Xue (1); Zhang, Yufeng (3); Zhou, Wen (1); Du, Chenlin (1)
Author affiliation: (1) College of Electronic Science and Technology, Shenzhen University, Shenzhen, China; (2) College of Physics Science and Technology, Shenzhen University, Shenzhen, China; (3) College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China

Source title: IEEE Photonics Technology Letters
Abbreviated source title: IEEE Photonics Technol Lett
Volume: 27
Issue: 11
Issue date: June 1, 2015
Publication year: 2015
Pages: 1216-1219
Article number: 2414944
Language: English
ISSN: 10411135
CODEN: IPTLEL
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: In this letter, we reported long period fiber gratings (LPFGs) fabricated by femtosecond laser pulses direct writing in grapefruit microstructured fiber. The mode field distribution and dispersion property of this fiber was analyzed by finite-element method. Two LPFGs were fabricated with different periods of 230 and 250 μm, the resonant dips appeared at the wavelengths of 1325.8 and 1449.4 nm, respectively. In addition, sensing characteristics of the LPFG with the period of 250 μm were investigated in theory and experiment. The experimental results show that the strain and temperature sensitivities are 1.88 pm/$_{\mu E}$ and 0.267 pm/°C, respectively. It indicates that the temperature cross sensitivity is as low as 0.142 $_{\mu E/}$°C. © 2015 IEEE.

Number of references: 25
Main heading: Ultrashort pulses
Controlled terms: Diffraction gratings - Fabrication - Fiber optic sensors - Fibers - Finite element method - Laser pulses - Optical waveguides - Ultrafast lasers
Uncontrolled terms: Dispersion properties - Grapefruit microstructured fibers - Long period fiber grating - Microstructured fibers - Mode field distribution - Sensing characteristics - Temperature cross-sensitivity - Temperature sensitivity
Classification code: 741.1.2 Fiber Optics - 741.3 Optical Devices and Systems - 744.1 Lasers, General - 812 Ceramics, Refractories and Glass - 817 Plastics and Other Polymers: Products and Applications - 913.4 Manufacturing - 921.6 Numerical Methods
DOI: 10.1109/LPT.2015.2414944
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

84. TLV: Abstraction through testing, learning, and validation

Accession number: 20161102102320
Authors: Sun, Jun (1); Xiao, Hao (2); Liu, Yang (2); Lin, Shang-Wei (1, 2); Qin, Shengchao (3, 4)
Author affiliation: (1) ISTD Pillar, Singapore University of Technology and Design, Singapore; (2) School of Computer Engineering, Nanyang Technological University, Singapore; (3) School of Computing, Teesside University, United Kingdom; (4) College of Computer Science and Software Engineering, Shenzhen University, China
Source title: 2015 10th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering, ESEC/FSE 2015 - Proceedings
Abbreviated source title: Jt. Meet. Eur. Softw. Eng. Conf. ACM SIGSOFT Symp. Found. Softw. Eng., ESEC/FSE - Proc.
Monograph title: 2015 10th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering, ESEC/FSE 2015 - Proceedings
Issue date: August 30, 2015
Publication year: 2015
Pages: 698-709
Language: English
ISBN-13: 9781450336758
Document type: Conference article (CA)
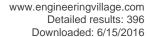**Conference name:** 10th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering, ESEC/FSE 2015
Conference date: August 30, 2015 - September 4, 2015
Conference location: Bergamo, Italy
Conference code: 118131
Sponsor: Association for Computing Machinery Special Interest Group on Software Engineering (ACM SIGSOFT)

Publisher: Association for Computing Machinery, Inc

Abstract: A (Java) class provides a service to its clients (i.e., programs which use the class). The service must satisfy certain specifications. Different specifications might be expected at different levels of abstraction depending on the client's objective. In order to effectively contrast the class against its specifications, whether manually or automatically, one essential step is to automatically construct an abstraction of the given class at a proper level of abstraction. The abstraction should be correct (i.e., over-approximating) and accurate (i.e., with few spurious traces). We present an automatic approach, which combines testing, learning, and validation, to constructing an abstraction. Our approach is designed such that a large part of the abstraction is generated based on testing and learning so as to minimize the use of heavy-weight techniques like symbolic execution. The abstraction is generated through a process of abstraction/ refinement, with no user input, and converges to a specific level of abstraction depending on the usage context. The generated abstraction is guaranteed to be correct and accurate. We have implemented the proposed approach in a toolkit named TLV and evaluated TLV with a number of benchmark programs as well as three real-world ones. The results show that TLV generates abstraction for program analysis and verification more efficiently. © 2015 ACM.

Number of references: 55
Main heading: Abstracting
Controlled terms: Computer software - Human computer interaction - Java programming language - Model checking - Software engineering - Specifications
Uncontrolled terms: Automata learning - Automatic approaches - Behavior model - Benchmark programs - Level of abstraction - Levels of abstraction - Program abstraction - Symbolic execution
Classification code: 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 723 Computer Software, Data Handling and Applications - 902.2 Codes and Standards - 903.1 Information Sources and Analysis
DOI: 10.1145/2786805.2786817
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

85. Direction finding in MIMO radar with unknown transmitter and/or receiver gains and phases

Accession number: 20154401451706

Authors: Liao, Bin (1); Chan, Shing-Chow (2)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, China; (2) Department of Electrical and Electronic Engineering, The University of Hong Kong, Pokfulam Road, Pokfulam, Hong Kong
Corresponding author: Liao, Bin

Source title: Multidimensional Systems and Signal Processing
Abbreviated source title: Multidimens Syst Signal Proc
Issue date: October 23, 2015
Publication year: 2015
Language: English
ISSN: 09236082
CODEN: MUSPE5
Document type: Article in Press
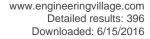**Publisher:** Kluwer Academic Publishers

Abstract: This paper addresses the problem of direction finding in multiple-input multiple-output radars with unknown transmitter and/or receiver gains and phases. Three different cases are considered and the corresponding methods for determining the direction-of-arrivals (DOAs) of multiple targets are presented. In the first case, the transmitter is well calibrated, but the receiver is uncalibrated with unknown gains and phases. On the contrary, the second case assumes that the receiver is well calibrated, whereas the transmitter is not. In the third case, the transmitter is uncalibrated, and the receiver is partly calibrated, i.e. only a portion of the receiver array is well calibrated and the remaining sensor elements have gain and phase uncertainties. For the first two cases, it is shown that a type of determinant-based or eigenvalue-based spectral can be utilized to determine the DOAs. For the third one, an ESPRIT-like algorithm is developed. Numerical examples are provided to validate the proposed methods and the results show that these methods are insensitive to the unknown gains and phases. © 2015 Springer Science+Business Media New York

Page count: 17
Main heading: MIMO systems
Controlled terms: Calibration - Codes (symbols) - Direction of arrival - Eigenvalues and eigenfunctions - Feedback control - MIMO radar - Numerical methods - Radar - Radar signal processing - Telecommunication repeaters - Transmitters

Uncontrolled terms: Direction finding - Eigen-value - Multiple input multiple output (MIMO) radars - Multiple targets - Phase uncertainties - Receiver array - Sensor elements - Uncalibrated
Classification code: 716.1 Information Theory and Signal Processing - 716.2 Radar Systems and Equipment - 723.2 Data Processing and Image Processing - 731.1 Control Systems - 921.6 Numerical Methods
DOI: 10.1007/s11045-015-0368-x
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

86. Development of zwitterionic copolymers with multi-shape memory effects and moisture-sensitive shape memory effects

Accession number: 20153201124171
Authors: Chen, Shaojun (1); Mo, Funian (1); Stadler, Florian J. (1); Chen, Shiguo (1); Ge, Zaochuan (1); Zhuo, Haitao (2)
Author affiliation: (1) Shenzhen Key Laboratory of Special Functional Materials, Nanshan District Key Lab for Biopolymers and Safety Evaluation, College of Materials Science and Engineering, Shenzhen University, Shenzhen, China; (2) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Chen, Shaojun
Abstract: Shape memory polymers (SMP) and zwitterionic polymers both have great applications in biomedical fields. This works successfully combines functionalities of zwitterionic polymers and SMP, developing new kind of zwitterionic copolymers having a multi-shape memory effect (SME) and a moisture-sensitive SME. The results demonstrate that a series of zwitterionic multi-SMPs, coded as p(DMAPS-co-AA), were synthesized from DMAPS and acrylic acid (AA). A micro-phase separated structure is formed in the resulting p(DMAPS-co-AA). The strong hydrogen bonding between AA segments serves as a reversible switch, while the strong electrostatic forces among DMAPS segments serve as physical crosslinkers. Therefore, shape memory testing demonstrates that p(DMAPS-co-AA) shows not only dual-SME, but also triple-SME and quadruple-sSME. Moreover, in addition to the thermally-induced SME, p(DMAPS-co-AA) also shows moisture-sensitive SME. It is thus proposed that this zwitterionic multi-SMP could find great potential applications in smart biomedical fields. © 2015 The Royal Society of Chemistry.
Number of references: 71
Main heading: Shape memory effect
Controlled terms: Ascorbic acid - Functional polymers - Hydrogen bonds - Moisture - Polymers
Uncontrolled terms: Acrylic acids - Biomedical fields - Physical cross-linkers - Reversible switches - Shape memory polymers - Thermally induced - Zwitterionic copolymers - Zwitterionic polymers
Classification code: 801.4 Physical Chemistry - 804.1 Organic Compounds - 815.1 Polymeric Materials - 951 Materials Science
DOI: 10.1039/c5tb01075f
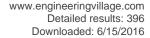**Database:** Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

87. Evaluation of the comprehensive strength of the listed companies in China's cultural media industry

Accession number: 20154801624808
Authors: Wang, Yi (1); Bi, Ying (2); Xie, Ting (2); Liu, Jing (2)

Author affiliation: (1) Institute for Cultural Industry, College of Design, Shenzhen University, Shenzhen, China; (2) College of Management, Shenzhen University, Shenzhen, China
Corresponding author: Bi, Ying(yingbi.szu@gmail.com)
Source title: 2015 12th International Conference on Service Systems and Service Management, ICSSSM 2015
Abbreviated source title: Int. Conf. Serv. Syst. Serv. Manag., ICSSSM
Monograph title: 2015 12th International Conference on Service Systems and Service Management, ICSSSM 2015
Issue date: July 28, 2015
Publication year: 2015
Article number: 7170306
Language: English
ISBN-13: 9781479983285
Document type: Conference article (CA)
Conference name: 12th International Conference on Service Systems and Service Management, ICSSSM 2015
Conference date: June 22, 2015 - June 24, 2015
Conference location: Guangzhou, China
Conference code: 115762
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: The rapid development of cultural media industry has become a new economic growth point of the national China's economy. This paper utilizes multivariate statistical method, and carried carries out the factor analysis of 14 key financial indicators for 39 listed companies in 2013 of the China's cultural media industry. Four common factors are extracted as: company scale merit factor, company profitability ability factor, company solvency factor, and company asset growth ability factor. According to the scores of each factor, this study calculates the comprehensive score ranking and other factor score ranking of the 39 listed companies, the obtained results are analyzed in detail. On this basis, the cluster analysis is conducted according to the listed companies' comprehensive scores, these - the 39 companies can be divided into four categories, and each category is performed in deep analysis. Finally, this paper puts forward corresponding conclusions and recommendations. © 2015 IEEE.

Number of references: 13
Main heading: Factor analysis
Controlled terms: Cluster analysis - Economics - Industrial economics - Multivariant analysis - Statistical methods
Uncontrolled terms: Company assets - Comprehensive strength - Corresponding conclusions - Culture media - Economic growths - Financial indicator - Media industry - Multivariate statistical method
Classification code: 723 Computer Software, Data Handling and Applications - 911.2 Industrial Economics - 922 Statistical Methods - 922.2 Mathematical Statistics - 971 Social Sciences
DOI: 10.1109/ICSSSM.2015.7170306
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

88. Observation of photonic spin Hall effect with phase singularity at dielectric metasurfaces

Accession number: 20150500470981
Authors: Li, Ying (1); Liu, Yachao (2); Ling, Xiaohui (1); Yi, Xunong (1); Zhou, Xinxing (2); Ke, Yougang (2); Luo, Hailu (1, 2); Wen, Shuangchun (2); Fan, Dianyuan (1)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (2) Laboratory for Spin Photonics, College of Physics and Electronic Science, Hunan University, Changsha, China
Source title: Optics Express
Abbreviated source title: Opt. Express
Volume: 23
Issue: 2
Issue date: January 26, 2015
Publication year: 2015
Pages: 1767-1774
Language: English
E-ISSN: 10944087
Document type: Journal article (JA)
Publisher: Optical Society of American (OSA)

Abstract: Observation of photonic spin Hall effect (SHE) near the phase singularity at dielectric metasurfaces is presented. The structured metasurface works as a space-variant Pancharatnam-Berry phase element and produces a vortex beam with phase singularity. The dynamical vortex phase is introduced to eliminate or enhance the phase singularity, thus realizing the manipulation of spin-dependent Pancharatnam-Berry phase. The spin-orbit coupling near the singularity of the Pancharatnam-Berry phase leads to the observation of the photonic SHE which manifests itself as spin-dependent splitting. The underlying mechanism is significantly different from previously reported cases. It thereby provides an alternative way to manipulate the spin states of photons. © 2015 Optical Society of America.
Number of references: 35
Main heading: Spin Hall effect
Controlled terms: Crystal symmetry - Fruits - Vortex flow
Uncontrolled terms: Metasurface - Metasurfaces - Pancharatnam-Berry phase - Phase singularities - Space variants - Spin state - Spin-orbit couplings - Vortex beams
Classification code: 631.1 Fluid Flow, General - 701.2 Magnetism: Basic Concepts and Phenomena - 821.4 Agricultural Products - 933.1.1 Crystal Lattice
DOI: 10.1364/OE.23.001767
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

89. Erratum: Enhancement of charge photo-generation and transport via an internal network of Sb2Se3/Cu2GeSe3 heterojunctions(J. Mater. Chem. A(2015)3(1168)10.1039/c5ta90109j)

Accession number: 20152200896953
Authors: Zhang, Xianghua (1); Xu, Yang (1); Shen, Qianhong (2); Fan, Bo (1, 3); Qiao, Xusheng (2); Fan, Xianping (2); Yang, Hui (2); Luo, Qun (2); Calvez, Laurent (1); Ma, Hongli (1); Cathelinaud, Michel (1); Simon, Jean-Jacques (4)
Author affiliation: (1) Laboratory of Glasses and Ceramics, Institute of Chemical Science UMR CNRS 6226, University of Rennes 1, Rennes, France; (2) Department of Materials Science and Engineering, Zhejiang University, Hangzhou, China; (3) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, China; (4) Aix Marseille Université, IM2NP UMR CNRS 7334, Marseille Cedex 20, France
Corresponding author: Fan, Bo
Source title: Journal of Materials Chemistry A
Abbreviated source title: J. Mater. Chem. A
Volume: 3
Issue: 21
Issue date: June 7, 2015
Publication year: 2015
Pages: 11668
Language: English
ISSN: 20507488
E-ISSN: 20507496
CODEN: JMCAET
Document type: Journal article (JA)
Publisher: Royal Society of Chemistry
DOI: 10.1039/c5ta90109j
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

90. A novel discriminant criterion based on feature fusion strategy for face recognition

Accession number: 20151100621181
Authors: Chen, Wen-Sheng (1, 2, 3); Dai, Xiuli (1); Pan, Binbin (1, 3); Huang, Taiquan (2)
Author affiliation: (1) College of Mathematics and Computational Science, Shenzhen University, Shenzhen, China; (2) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (3) Shenzhen Key Laboratory of Media Security, Shenzhen University, Shenzhen, China
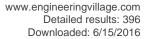**Corresponding author:** Pan, Binbin
Source title: Neurocomputing
Abbreviated source title: Neurocomputing
Volume: 159
Issue: 1
Issue date: 2015

Publication year: 2015
Pages: 67-77
Language: English
ISSN: 09252312
E-ISSN: 18728286
CODEN: NRCGEO
Document type: Journal article (JA)
Publisher: Elsevier

Abstract: Feature extraction is an important problem in face recognition. There are two kinds of structural features, namely the Euclidean structure and the manifold structure. However, the single-structural feature extraction methods cannot fully utilize the advantages of global feature and local feature simultaneously. Thus their performances will be degraded. To overcome the limitations of the single-structural feature based face recognition schemes, this paper proposes a novel discriminant criterion using Feature Fusion Strategy (FFS), which nonlinearly combines both Euclidean and manifold structures in the face pattern space. The proposed discriminant criterion is suitable to develop an iterative algorithm. It is able to automatically determine the optimal parameters and balance the tradeoff between Euclidean structure and manifold structure. The proposed FFS algorithm is successfully applied to face recognition. Three publicly available face databases, ORL, FERET and CMU PIE, are selected for evaluation. Compared with Linear Discriminant Analysis (LDA), Locality Preserving Projection (LPP), Unsupervised Discriminant Projection (UDP) and Semi-Supervised LDA (SSLDA), the experimental results show that the proposed method gives superior performance. © 2015 Elsevier B.V.

Number of references: 30
Main heading: Face recognition
Controlled terms: Algorithms - Discriminant analysis - Extraction - Feature extraction - Iterative methods
Uncontrolled terms: Discriminant criteria - Euclidean structure - Iterative algorithm - Linear discriminant analysis - Locality preserving projections - Manifold structures - Structural feature - Unsupervised discriminant projection (UDP)
DOI: 10.1016/j.neucom.2015.02.019
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

91. Capsule endoscopy video segmentation by spectral clustering

Accession number: 20152600978129
Authors: Li, Baopu (1, 2, 3); Yang, Can (2); Wang, Tianfu (1); Xu, Guoqing (2, 3); Zhang, Qi (2); Meng, Max Q.-H. (3); Hu, Chao (4)
Author affiliation: (1) Shenzhen University, Shenzhen, China; (2) Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China; (3) Chinese University of Hong Kong, Hong Kong; (4) Ningbo Institute of Technology, Zhejiang University, Zhejiang Province, China
Corresponding author: Zhang, Qi
Source title: Proceedings of the World Congress on Intelligent Control and Automation (WCICA)
Abbreviated source title: Proc. World Congr. Intelligent Control Autom. WCICA
Volume: 2015-March
Part number: 1 of 1
Issue: March
Monograph title: Proceeding of the 11th World Congress on Intelligent Control and Automation, WCICA 2014
Issue date: March 2, 2015
Publication year: 2015
Pages: 976-979
Article number: 7052848
Language: English
Document type: Conference article (CA)
Conference name: 2014 11th World Congress on Intelligent Control and Automation, WCICA 2014
Conference date: June 29, 2014 - July 4, 2014
Conference location: Shenyang, China
Conference code: 112312
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Capsule endoscopy is a new imaging technology for small intestine due to its breakthrough for direct visualization of small intestine for the first time. However, the video data produced for each patient costs a physician much time to inspect. Aiming for reducing the burden of a physician, video scene analysis is indispensable. In this paper, we propose a new video segmentation method to analyze a CE video data since video segmentation is the first

step in video scene analysis. A novel color textural feature is utilized to describe the content of the frame in a CE video, then spectral clustering method is applied to segment a CE video into meaningful parts via shot boundary detection. Preliminary experiments on ten short CE videos demonstrate a promising performance of the proposed scheme. © 2014 IEEE.
Number of references: 25
DOI: 10.1109/WCICA.2014.7052848
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

92. Identification of AMR decompressed audio

Accession number: 20150700514110
Authors: Luo, Da (1, 2); Yang, Rui (3); Huang, Jiwu (1, 2)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, China; (2) Shenzhen Key Laboratory of Media Security, Shenzhen, China; (3) School of Information Management, Sun Yat-sen University, Guangzhou, China
Source title: Digital Signal Processing: A Review Journal
Abbreviated source title: Digital Signal Process Rev J
Volume: 37
Issue: 1
Issue date: 2015
Publication year: 2015
Pages: 85-91
Language: English
ISSN: 10512004
CODEN: DSPREJ
Document type: Journal article (JA)
Publisher: Elsevier Inc.
Abstract: More and more conversation recordings from phone calls are used as forensic evidence. To decide whether an unknown speech recording comes from mobile phone or not becomes an important issue in digital audio forensics. The communicating conversation recorded by mobile phones is encoded by Adaptive Multi-Rate (AMR) audio codec, which was adopted as the standard speech codec by 3GPP and widely used in GSM and UMTS. Therefore, AMR decompressed audio detection can be used to identify the source of the digital audio recording. Furthermore, it is helpful to locate the forgery position of the splicing AMR decompressed audio for forensic purposes. In this article, we focus on the identification of AMR decompressed audio, namely, given the waveform of an audio, we wish to identify whether it has been previously compressed by AMR codec or not. The artifacts introduced by the AMR codec will help to detect the source of the recordings. Based on our analysis, we find that the sample repetition rate of the AMR decompressed waveform is significantly greater than the regular waveform. Therefore, we employ the sample repetition rate as a feature to identify the AMR decompressed audio. The experimental results show that this feature is robust and effective. © 2014 Elsevier Inc. All rights reserved.
Number of references: 19
Main heading: Audio recordings
Controlled terms: Cellular telephones - Global system for mobile communications - Mobile phones - Mobile telecommunication systems - Telephone sets
Uncontrolled terms: Adaptive multi rates - AMR - Audio forensics - Audio identification - Digital audio recordings - Forensic evidence - Repetition rate - Speech recording
Classification code: 716 Telecommunication; Radar, Radio and Television - 717 Optical Communication - 718 Telephone Systems and Related Technologies; Line Communications - 718.1 Telephone Systems and Equipment - 752.3 Sound Reproduction
DOI: 10.1016/j.dsp.2014.11.003
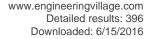**Database:** Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

93. Noise analysis of the Vernier anode

Accession number: 20153801297421
Authors: Zhao, Airong (1, 2); Ni, Qiliang (1); Yu, Weixing (3)

Author affiliation: (1) Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences, Changchun, China; (2) University of Chinese Academy of Sciences, Beijing, China; (3) Shenzhen University, Shenzhen, China
Corresponding author: Ni, Qiliang

Abstract: In this work, the partition noise and the electronic noise of the Vernier anode are thoroughly analyzed based on the theory of statistical variation and error analysis. A new method calculating the inter-electrode capacitance of the Vernier anode is proposed, and the electronic noise's effect is discussed in detail, which is useful for the optimal design of a Vernier anode in the induced charge mode. The calculated results of the inter-electrode capacitance for a 0.891 mm period Vernier anode are in good agreement with the measured results. © 2015 Optical Society of America.

Number of references: 17
Main heading: Electrodes
Controlled terms: Capacitance
Uncontrolled terms: Electrode capacitance - Electronic noise - Induced charges - Measured results - Noise analysis - Optimal design - Statistical variations
Classification code: 701.1 Electricity: Basic Concepts and Phenomena - 704.1 Electric Components
DOI: 10.1364/AO.54.006904
Compendex references: YES
Database: Compendex

Data Provider: Engineering Village

94. Iteratively reweighted sparse reconstruction in impulsive noise

Accession number: 20160701912223
Authors: He, Zhen-Qing (1); Shi, Zhi-Ping (1); Huang, Lei (2); So, H.C. (3)
Author affiliation: (1) National Key Lab of Communications, University of Electronic Science and Technology of China, China; (2) College of Information Engineering, Shenzhen University, China; (3) Department of Electronic Engineering, City University of Hong Kong, Hong Kong, Hong Kong
Abstract: Most of the existing sparse recovery methods are based on the squared error criterion, i.e., 2-norm metric, by appropriately adding to a sparsity-promoting regularizer. This criterion is, however, statistically optimal only when the noise are Gaussian distributed. In fact, non-Gaussian impulsive noise with heavy tailed distribution has been

reported in a variety of practical applications. To guarantee outlier-resistant sparse reconstruction for impulsive noise, in this paper we instead employ the generalized p-norm (1 $\leq$ p p-0sparse recovery problem, where the reweighted matrices constructed from the previous iterative solution are considered both for pand 0metrics. Simulation results demonstrate the efficiency and robustness of the proposed algorithms. © 2015 IEEE.

Number of references: 19
Main heading: Gaussian noise (electronic)
Controlled terms: Compressed sensing - Impulse noise - Information science - Iterative methods
Uncontrolled terms: Gaussian distributed - Heavy-tailed distribution - Iterative solutions - Residual error - Separable approximation - Sparse reconstruction - Sparse recovery - Squared errors
Classification code: 716.1 Information Theory and Signal Processing - 921.6 Numerical Methods
DOI: 10.1109/ChinaSIP.2015.7230503
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

95. Dual loop position control of a linear hybrid switched reluctance machine with zero cogging force

Accession number: 20154001321734
Authors: Zhang, B. (1); Zou, Y. (1, 2)
Author affiliation: (1) Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China; (2) Electrical Engineering, Hong Kong Polytechnic University, Hong Kong
Source title: 2015 IEEE International Magnetics Conference, INTERMAG 2015
Abbreviated source title: IEEE Int. Magn. Conf., INTERMAG
Monograph title: 2015 IEEE International Magnetics Conference, INTERMAG 2015
Issue date: July 14, 2015
Publication year: 2015
Article number: 7156802
Language: English
ISBN-13: 9781479973224
Document type: Conference article (CA)
Conference name: 2015 IEEE International Magnetics Conference, INTERMAG 2015
Conference date: May 11, 2015 - May 15, 2015
Conference location: Beijing, China
Conference code: 113931
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Linear motors, as direct-drive actuators, have been quickly developed within recent years and now they are widely applied in the industrial production area, such as automatic soldering, carving and embroidery machines, etc [1]. At present, linear permanent magnetic motors (LPMMs) are the mainstream of market due to their considerable force output performance with high power density and efficiency [2]. However, high cost of the permanent magnets (PMs) restricts the widespread use of LPMMs for certain control applications. On the other hand, the characteristics of the PMs are readily influenced by temperature variations and vibrations. Pure linear switched reluctance motors (LSRMs) intrigue the researchers' interests by their simple structure, high robustness, low cost without PMs, etc. Nevertheless, they have the disadvantages of low force output and efficiency. In order to increase the efficiency and force output of the LSRMs, some machines that are combined with PMs have been investigated in recent years [3, 4]. Most of the PMs are embedded into the main magnetic circuits of the motors, however, this inevitably increases the reluctance of the motors and deteriorates the continuity of flux lines, thus reducing the efficiency of the motors. In addition, cogging force is another defect that deteriorates the accuracy of position control applications based on such linear hybrid motors. © 2015 IEEE.

Number of references: 5
DOI: 10.1109/INTMAG.2015.7156802
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

96. A unified picture of hard-soft segmental development along olefin chain shuttling copolymerization

Engineering Village

Authors: Saeb, Mohammad Reza (1); Khorasani, Mohammad Mehdi (2); Ahmadi, Mostafa (3); Mohammadi, Yousef (2); Stadler, Florian J. (4, 5, 6, 7)
Author affiliation: (1) Department of Resin and Additives, Institute for Color Science and Technology, P.O. Box 16765-654, Tehran, Iran; (2) Petrochemical Research and Technology Company (NPC-rt), National Petrochemical Company (NPC), P.O. Box 14358-84711, Tehran, Iran; (3) Department of Polymer Engineering and Color Technology, Amirkabir University of Technology, Tehran, Iran; (4) College of Materials Science and Engineering, Shenzhen University, Shenzhen, China; (5) Shenzhen Key Laboratory of Special Functional Materials, Shenzhen, China; (6) Shenzhen Engineering Laboratory for Advanced Technology of Ceramics, Shenzhen, China; (7) Nanshan District Key Lab for Biopolymers and Safety Evaluation, Shenzhen, China
Corresponding author: Saeb, Mohammad Reza
Abstract: It is the dual nature of chain shuttling polymerization (CSP) that makes control of olefin block copolymer (OBC) composition difficult and difficult, but at the same time, stimulating. Although recent investigations on OBCs brought some insights to the kinetics and microstructure of block copolymers differentiating from ethylene and α_olefins, some crucial features of these systems are not uncovered because of experimental difficulties. Thus, attention is still placed upon theoretical concepts that enable deeper understanding of behavior of end-of-batch OBCs. Extending the predictability of a well-developed Monte Carlo algorithm, we present for the first time an explicit image of hard-soft segmental growth at the course of CSP process. The stochastically tailored ethylene/1-octene copolymers with diverse architectural characteristics were simulated and characterized in terms of mole fraction of soft and hard segments, block length distribution, sequence length distribution, longest ethylene sequence distribution, and the distribution of the number of blocks per growing copolymer chain to be used as unique signatures of this reaction mechanism. © 2015 Elsevier Ltd. All rights reserved.
Data Provider: Engineering Village

97. Termination and non-termination specification inference

Authors: Le, Ton Chanh (1); Qin, Shengchao (2, 3); Chin, Wei-Ngan (1)
Author affiliation: (1) Department of Computer Science, National University of Singapore, Singapore, Singapore; (2) School of Computing, Teesside University, United Kingdom; (3) Shenzhen University, China

Document type: Conference article (CA)
Publisher: Association for Computing Machinery

Abstract: Techniques for proving termination and non-termination of imperative programs are usually considered as orthogonal mechanisms. In this paper, we propose a novel mechanism that analyzes and proves both program termination and non-termination at the same time. We first introduce the concept of second-order termination constraints and accumulate a set of relational assumptions on them via a Hoare-style verification. We then solve these assumptions with case analysis to determine the (conditional) termination and nontermination scenarios expressed in some specification logic form. In contrast to current approaches, our technique can construct a summary of terminating and non-terminating behaviors for each method. This enables modularity and reuse for our termination and non-termination proving processes. We have tested our tool on sample programs from a recent termination competition, and compared favorably against state-of-the-art termination analyzers. © 2015 ACM.

Number of references: 47
Main heading: Specifications
Controlled terms: Formal logic
Uncontrolled terms: Biabductive inference - Hoare Logic - Imperative programs - Non terminations - Program termination - Specification inferences - Specification logic - Style verifications
Classification code: 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 902.2 Codes and Standards
DOI: 10.1145/2737924.2737993
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

98. Global path planning of wheeled robots using multi-objective memetic algorithms

Authors: Zhu, Zexuan (1); Xiao, Jun (1); Li, Jian-Qiang (1); Wang, Fangxiao (1); Zhang, Qingfu (2, 3)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen; Guangdong, China; (2) Department of Computer Science, City University of Hong Kong, Hong Kong, China; (3) School of Computer Science and Electronic Engineering, University of Essex, Essex, United Kingdom
Corresponding author: Zhu, Zexuan(zhuzx@szu.edu.cn)

Document type: Journal article (JA)
Publisher: IOS Press, Nieuwe Hemweg 6B, Amsterdam, 1013 BG, Netherlands

Abstract: Global path planning is a fundamental problem of mobile robotics. The majority of global path planning methods are designed to find a collision-free path from a start location to a target location while optimizing one or more objectives like path length, smoothness, and safety at a time. It is noted that providing multiple tradeoff path solutions of different objectives is much more beneficial to the user's choice than giving a single optimal solution in terms of some specific criterion. This paper proposes a global path planning of wheeled robots using multi-objective memetic algorithms (MOMAs). Particularly, two MOMAs are implemented based on conventional multi-objective genetic algorithms with elitist non-dominated sorting and decomposition strategies respectively to optimize the path length and smoothness simultaneously. Novel path encoding scheme, path refinement, and specific evolutionary operators are designed and introduced to the MOMAs to enhance the search ability of the algorithms as well as guarantee the safety of the candidate paths obtained in complex environments. Experimental results on both simulated and real environments show that the proposed MOMAs are efficient in planning a set of valid tradeoff paths in complex environments. © IOS Press and the authors. All rights reserved.

Number of references: 88
Main heading: Evolutionary algorithms
Controlled terms: Algorithms - Genetic algorithms - Motion planning - Multiobjective optimization - Optimization - Robot programming - Robots

Uncontrolled terms: Collision-free paths - Decomposition strategy - Elitist non-dominated sorting - Evolutionary operators - Global path planning - Memetic algorithms - Multi-objective genetic algorithm - Wheeled robot
Classification code: 731.5 Robotics - 921.5 Optimization Techniques
DOI: 10.3233/ICA-150498
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

99. Temperature-aware data allocation for embedded systems with cache and scratchpad memory

Accession number: 20151800796059
Authors: Jia, Zhiping (1); Li, Yang (1); Wang, Yi (2); Wang, Meng (3); Shao, Zili (3)
Author affiliation: (1) School of Computer Science and Technology, Shandong University, Jinan, China; (2) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (3) Embedded Systems and CPS Lab, Department of Computing, Hong Kong Polytechnic University, Hong Kong, Hong Kong
Corresponding author: Shao, Zili
Source title: ACM Transactions on Embedded Computing Systems
Abbreviated source title: ACM Trans. Embedded Comput. Syst.
Volume: 14
Issue: 2
Issue date: May 1, 2015
Publication year: 2015
Article number: 30
Language: English
ISSN: 15399087
E-ISSN: 15583465
Document type: Journal article (JA)
Publisher: Association for Computing Machinery
Abstract: The hybrid memory architecture that contains both on-chip cache and scratchpad memory (SPM) has been widely used in embedded systems. In this article, we explore this hybrid memory architecture by jointly optimizing time performance and temperature for embedded systems with loops. Our basic idea is to adaptively adjust the workload distribution between cache and SPM based on the current temperature. For a problem in which the workload can be estimated a priori, we present a nonlinear programming formulation to optimally minimize the total execution time of a loop under the constraints of SPM size and temperature. To solve a problem in which the workload is not known a priori, we propose a temperature-aware adaptive loop scheduling algorithm called TALS to dynamically allocate data to cache and SPM at runtime. The experimental results show that our algorithms can effectively achieve both performance and temperature optimization for embedded systems with cache and SPM.
Number of references: 50
Main heading: Cache memory
Controlled terms: Algorithms - Design - Embedded systems - Memory architecture - Nonlinear programming - Scheduling - Scheduling algorithms
Uncontrolled terms: Adaptive loops - Data allocation - On-chip cache - Performance - Scratch pad memory - Temperature aware - Temperature optimization - Work-load distribution
Classification code: 408 Structural Design - 722 Computer Systems and Equipment - 722.1 Data Storage, Equipment and Techniques - 723 Computer Software, Data Handling and Applications - 912.2 Management - 921 Mathematics - 922 Statistical Methods
DOI: 10.1145/2629650
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

100. Improvement of radiation resistance of Er-doped photonic crystal fiber source by spectrum trimming

Accession number: 20153301175808
Authors: Liu, Chengxiang (1); Zhu, Jianhui (1); Wu, Xu (1); Zhang, Li (2); Ruan, Shuangchen (1)

Author affiliation: (1) Shenzhen Key Laboratory of Laser Engineering, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (2) College of Information Engineering, Shenzhen University, Shenzhen, China

Corresponding author: Liu, Chengxiang
Source title: Proceedings of SPIE - The International Society for Optical Engineering
Abbreviated source title: Proc SPIE Int Soc Opt Eng
Volume: 9655
Part number: 1 of 1
Monograph title: Fifth Asia-Pacific Optical Sensors Conference, APOS 2015
Issue date: 2015
Publication year: 2015
Article number: 96552O
Language: English
ISSN: 0277786X
E-ISSN: 1996756X
CODEN: PSISDG
ISBN-13: 9781628418651
Document type: Conference article (CA)
Conference name: 5th Asia-Pacific Optical Sensors Conference, APOS 2015
Conference date: May 20, 2015 - May 22, 2015
Conference location: Jeju, Korea, Republic of
Conference code: 113227
Sponsor: et al.; FIBERPRO, Inc.; JT, Inc.; NineOne Co., Ltd.; SeongKyeong Photonics; Taihan Fiberoptics Co., Ltd.
Publisher: SPIE

Abstract: The radiation resistance effect of two superfluorescent fiber sources using Er-doped photonic crystal fiber is studied under 500 Gy gamma-ray irradiation. One is trimmed into a quasi-Gaussian spectrum by a filter and the other is not trimmed. The results show that the SFS with spectrum trimming has a smaller radiation induced attenuation and a higher mean wavelength stability (2.616 dB and 24.803 ppm) than that of the SFS without spectrum trimming (3.187 dB and 611.766 ppm). Therefore, this method has practical use for improving radiation resistance in space environment. © 2015 Copyright SPIE.

Number of references: 7
Main heading: Photonic crystal fibers
Controlled terms: Crystal whiskers - Erbium - Fibers - Gamma rays - Irradiation - Optical sensors - Radiation - Trimming
Uncontrolled terms: Er-doped - Gamma-ray irradiation - Gaussian spectra - Mean wavelength - Radiation resistance - Radiation-induced attenuation - Space environment - Superfluorescent fiber sources
Classification code: 535.1.2 Rolling Mill Practice - 547.2 Rare Earth Metals - 711 Electromagnetic Waves - 711.1 Electromagnetic Waves in Different Media - 801 Chemistry - 801.4 Physical Chemistry - 812 Ceramics, Refractories and Glass - 817 Plastics and Other Polymers: Products and Applications - 932.1 High Energy Physics - 951 Materials Science
DOI: 10.1117/12.2185226
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

101. Platinum-tin nanowires anchored on a nitrogen-doped nanotube composite embedded with iron/iron carbide particles as an ethanol oxidation electrocatalyst

Accession number: 20150900588034
Authors: Wang, Hui (1); Ma, Yanjiao (1); Lv, Weizhong (2); Ji, Shan (2); Key, Julian (3); Wang, Rongfang (1)
Author affiliation: (1) College of Chemistry and Chemical Engineering, Northwest Normal University, Lanzhou, China; (2) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, China; (3) South African Institute for Advanced Materials Chemistry, University of the Western Cape, Cape Town, South Africa
Source title: Journal of the Electrochemical Society
Abbreviated source title: J Electrochem Soc
Volume: 162
Issue: 1
Issue date: 2015
Publication year: 2015
Pages: H79-H85

Language: English
ISSN: 00134651
E-ISSN: 19457111
CODEN: JESOAN
Document type: Journal article (JA)
Publisher: Electrochemical Society Inc.

Abstract: One-pot synthesis of Fe/Fe_3C particles embedded within nitrogen-doped nanotube composite (Fe-C) is achieved by pyrolyzing a mixture of melamine and iron (III) chloride. PtSn alloys with atomic ratios of 3:1, 1:1, and 1:3 supported on Fe-C are formed using an ethylene glycol reduction method. PtSn alloys exhibit a wire-like morphology when supported on Fe-C (PtSn/Fe-C) as opposed to spherical morphology of PtSn nanoparticles formed on commercial carbon nanotubes (CNTs). The length of the PtSn nanowires is inversely proportional to the Pt:Sn atomic ratio. All three PtSn/Fe-C catalysts have higher ethanol oxidation activity and durability than the PtSn/CNT catalyst, and the highest activity is produced by a 1:1 Pt:Sn ratio. We conclude that Fe/Fe_3C particles embedded within the N-doped carbon composite offers a promising PtSn suppport for direct ethanol fuel cells. © 2014 The Electrochemical Society.

Number of references: 44
Main heading: Doping (additives)
Controlled terms: Carbides - Carbon - Carbon carbon composites - Carbon nanotubes - Catalysts - Chlorine compounds - Direct ethanol fuel cells (DEFC) - Electrocatalysts - Ethanol - Ethanol fuels - Ethylene - Ethylene glycol - Fuel cells - Iron alloys - Morphology - Nanowires - Nitrogen - Platinum - Platinum alloys - Tin - Tin alloys - Yarn
Uncontrolled terms: Carbide particles - Ethanol oxidation - Iron chlorides - Nanotube composites - Nitrogen-doped - One-pot synthesis - Reduction method - Spherical morphologies
Classification code: 415.4 Structural Materials Other Than Metal, Plastics or Wood - 545.3 Steel - 546.2 Tin and Alloys - 547.1 Precious Metals - 702.2 Fuel Cells - 761 Nanotechnology - 801 Chemistry - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 819.4 Fiber Products - 933 Solid State Physics - 951 Materials Science
DOI: 10.1149/2.1031501jes
Database: Compendex

Data Provider: Engineering Village

102. Application of quaternions in error analysis of flexible CMMs

Accession number: 20154701571469

Authors: Tang, Q.J. (1, 2, 3); Yang, Q. (3); Wang, X.J. (2); Liu, C.Y. (3, 4); Ma, C.Y. (2)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (2) MOEMS Education Ministry Key Laboratory, Tianjin University, Tianjin, China; (3) College of Engineering, Design and Physical Science, Brunel University, London, United Kingdom; (4) Metrology and Calibration Unit, First Crust Deformation Monitoring and Application Center, CEA, Tianjin, China

Source title: Laser Metrology and Machine Performance XI - 11th International Conference and Exhibition on Laser Metrology, Machine Tool, CMM and Robotic Performance, LAMDAMAP 2015
Abbreviated source title: Laser Metrol. Mach. Perform. - Int. Conf. Exhib. Laser Metrol., Mach. Tool, CMM Robot. Perform., LAMDAMAP
Monograph title: Laser Metrology and Machine Performance XI - 11th International Conference and Exhibition on Laser Metrology, Machine Tool, CMM and Robotic Performance, LAMDAMAP 2015
Issue date: 2015
Publication year: 2015
Pages: 234-243
Language: English
ISBN-13: 9780956679055
Document type: Conference article (CA)
Conference name: 11th International Conference and Exhibition on Laser Metrology, Coordinate Measuring Machine and Machine Tool Performance, LAMDAMAP 2015
Conference date: March 17, 2015 - March 18, 2015
Conference location: Queensgate, West Yorkshire, United kingdom
Conference code: 115977
Sponsor: Cranfield Precision
Publisher: euspen

Abstract: Flexible coordinate measuring machine (CMM) is a type of CMM with rotational joints and flexible arms, where linear measurements are replaced by angular measurements. Due to its large measuring range, small size and

low weight, it has been widely used in many applications. Denavit-Hartenberg parametric method is often employed to describe the measuring equations and error models of flexible CMMs. On the other hand, it is well known the quaternions can be used to speed up calculations involving rotations. A quaternion is represented by just four scalars, compared with a 3×3 rotation matrix which has nine scalar entries. Since invented by W.R. Hamilton, quaternions have found applications in situations involving rotations. In this paper, we will present the detailed error analysis of flexible CMMs by means of quaternions and discuss the results in comparison with rotational matrix approaches.
Number of references: 8
Main heading: Coordinate measuring machines
Controlled terms: Angle measurement - Error analysis - Errors - Machine tools - Units of measurement
Uncontrolled terms: Flexible arm - Linear measurements - Measuring equation - Measuring ranges - Parametric method - Rotation matrices - Rotational joint - Rotational matrices
Classification code: 603.1 Machine Tools, General - 902.2 Codes and Standards - 943.2 Mechanical Variables Measurements - 943.3 Special Purpose Instruments
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

103. Inclusion of CdS quantum DoT into beta-cyclodextrin crystal by simple rapid crystallization

Accession number: 20144500158658
Authors: Shao, Ke (1); Wang, Hao (2); Peng, Aidong (2)
Author affiliation: (1) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen; Guangdong Province, China; (2) Institute of Chemistry, Chinese Academy of Sciences, Beijing, China
Corresponding author: Shao, Ke
Source title: Journal of Crystal Growth
Abbreviated source title: J Cryst Growth
Volume: 409
Issue date: January 2015
Publication year: 2015
Pages: 10-13
Language: English
ISSN: 00220248
CODEN: JCRGAE
Document type: Journal article (JA)
Publisher: Elsevier
Abstract: Inorganic molecules have seldom been included into cyclodextrin crystal. Here in this paper we report the first example of including CdS quantum dots into cyclodextrin crystal by simple rapid crystallization. A CdS quantum dot/cyclodextrin composite has been obtained, in which quantum dots of CdS are embedded in β-cyclodextrin (β-CD) crystal. Experiments have proven that it is the rapid crystallization of cyclodextrin in acetone that results in the formation of abundant cyclodextrin nuclei, which include CdS dots into them forming the CdS quantum dot/cyclodextrin compostie. This research opens the new research field of inorganic species/cyclodextrin inclusion complex. © 2014 Elsevier B.V. All rights reserved.
Number of references: 18
Main heading: Semiconductor quantum dots
Controlled terms: Acetone - Cadmium sulfide - Cyclodextrins
Uncontrolled terms: Beta-cyclodextrin - CdS quantum dots - Growth from solution - Inclusion complex - Inorganic molecules - Inorganic species - Low dimensional structure - Rapid crystallization
Classification code: 714.2 Semiconductor Devices and Integrated Circuits - 804 Chemical Products Generally - 804.1 Organic Compounds
DOI: 10.1016/j.jcrysgro.2014.09.022
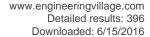**Compendex references:** YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

104. Q-switched self-Raman third-Stokes laser at 1487 nm

Accession number: 20161502223283

Authors: Wang, Dongdong (1, 2, 3); Du, Chenlin (1, 2, 3); Ren, Xikui (1, 2, 3); Li, Chunbo (1, 2, 3); Ruan, Shuangchen (1, 2, 3)
Author affiliation: (1) College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (2) Shenzhen Key Laboratory of Laser Engineering, Shenzhen, China; (3) Key Laboratory of Advanced Optical Precision Manufacturing Technology of Guangdong Higher Education Institutes, Shenzhen University, Shenzhen, China
Corresponding author: Du, Chenlin(cldu@szu.edu.cn)
Source title: Chinese Optics Letters
Abbreviated source title: Chin. Opt. Lett.
Volume: 13
Issue date: October 30, 2015
Publication year: 2015
Article number: S21403
Language: English
ISSN: 16717694
Document type: Journal article (JA)
Publisher: Science Press
Abstract: We report a Q-switched self-Raman third-Stokes laser at a wavelength of 1487 nm, with a YVO4/ Nd:YVO4/ YVO4composite crystal and a high-power fiber-coupled diode laser array at 808 nm. The maximal average output power at 1487 nm is measured to be 506 mW, at an incident pump power of 34 W and a pulse repetition frequency (PRF) of 30 kHz. The corresponding optical conversion efficiency is 1.49%. To our knowledge, our Q-switched self-Raman third-Stokes laser at 1487 nm on a YVO4/Nd:YVO4/YVO4composite crystal is reported for the first time. © 2015 Chinese Optics Letters.
Number of references: 13
Page count: 3
Main heading: Q switching
Controlled terms: Optical pumping
Uncontrolled terms: Average output power - Composite crystal - Fiber-coupled diode lasers - High power - Incident pump power - Optical conversion efficiency - Pulse repetition frequencies - Third stokes
Classification code: 744.8 Laser Beam Interactions
DOI: 10.3788/COL201513.S21403
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

105. The impact of filler interface on online users' perceived waiting time

Accession number: 20154801624850
Authors: Luo, Hanyang (1); Wang, Jingjing (1); Han, Xinwei (1); Zeng, Dandan (1)
Author affiliation: (1) College of Management, Shenzhen University, Shenzhen, China
Source title: 2015 12th International Conference on Service Systems and Service Management, ICSSSM 2015
Abbreviated source title: Int. Conf. Serv. Syst. Serv. Manag., ICSSSM
Monograph title: 2015 12th International Conference on Service Systems and Service Management, ICSSSM 2015
Issue date: July 28, 2015
Publication year: 2015
Article number: 7170198
Language: English
ISBN-13: 9781479983285
Document type: Conference article (CA)
Conference name: 12th International Conference on Service Systems and Service Management, ICSSSM 2015
Conference date: June 22, 2015 - June 24, 2015
Conference location: Guangzhou, China
Conference code: 115762
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Download delay, as a commonly experienced problem on the Internet, has become a significant impediment to the rapid development of online business. Extant researches focus on how such delays can be decreased and how much delay online users could put up with, but sparse study has adopted a theoretically grounded approach to managing the perception of the online wait. Some research results show that the reduction of perceived waiting time (PWT) involves filler interface, which includes diverse Web design components such as images, music, text, progress bar, background color, or multimedia and so on. Based on resource allocation theory, cognitive absorption theory, we propose a conceptual model, design two different filler interfaces (pictures and music) and investigate their effects on

antecedents of PWT. The research model considers cognitive absorption factors such as focused immersion, temporal dissociation, and heightened enjoyment as antecedents of PWT, which in turn affect users' evaluations of Web sites. © 2015 IEEE.

Number of references: 34
Main heading: Fillers
Controlled terms: Resource allocation - Websites
Uncontrolled terms: Cognitive absorptions - Conceptual model - Design Component - Filler interface - Online business - Perceived waiting time - Research models - Research results
Classification code: 912.2 Management
DOI: 10.1109/ICSSSM.2015.7170198
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

106. Light-weight reference-based compression of FASTQ data

Accession number: 20152500952166
Authors: Zhang, Yongpeng (1); Li, Linsen (1); Yang, Yanli (1); Yang, Xiao (2); He, Shan (3); Zhu, Zexuan (1)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (2) The Broad Institute, Cambridge; MA, United States; (3) School of Computer Science, University of Birmingham, Birmingham, United Kingdom
Corresponding author: Zhu, Zexuan
Source title: BMC Bioinformatics
Abbreviated source title: BMC Bioinform.
Volume: 16
Issue: 1
Issue date: June 09, 2015
Publication year: 2015
Article number: 188
Language: English
E-ISSN: 14712105
CODEN: BBMIC4
Document type: Journal article (JA)
Publisher: BioMed Central Ltd.
Abstract: Background: The exponential growth of next generation sequencing (NGS) data has posed big challenges to data storage, management and archive. Data compression is one of the effective solutions, where reference-based compression strategies can typically achieve superior compression ratios compared to the ones not relying on any reference. Results: This paper presents a lossless light-weight reference-based compression algorithm namely LW-FQZip to compress FASTQ data. The three components of any given input, i.e., metadata, short reads and quality score strings, are first parsed into three data streams in which the redundancy information are identified and eliminated independently. Particularly, well-designed incremental and run-length-limited encoding schemes are utilized to compress the metadata and quality score streams, respectively. To handle the short reads, LW-FQZip uses a novel light-weight mapping model to fast map them against external reference sequence(s) and produce concise alignment results for storage. The three processed data streams are then packed together with some general purpose compression algorithms like LZMA. LW-FQZip was evaluated on eight real-world NGS data sets and achieved compression ratios in the range of 0.111-0.201. This is comparable or superior to other state-of-the-art lossless NGS data compression algorithms. Conclusions: LW-FQZip is a program that enables efficient lossless FASTQ data compression. It contributes to the state of art applications for NGS data storage and transmission. LW-FQZip is freely available online at: http://csse.szu.edu.cn/staff/zhuzx/LWFQZip. © 2015 Zhang et al.
Number of references: 31
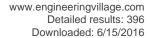**Main heading:** Data compression
Controlled terms: Algorithms - Data communication systems - Data compression ratio - Data storage equipment - Digital storage - Information management - Metadata - Quality control
Uncontrolled terms: Compression algorithms - Compression strategies - Data compression algorithms - Effective solution - Exponential growth - Next-generation sequencing - Redundancy information - Run length limiteds
DOI: 10.1186/s12859-015-0628-7
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

107. A novel method for ergodic sum rate analysis of spatial modulation systems with maximum likelihood receiver

Accession number: 20155001675909

Authors: Wu, Shangbin (1, 2); Patcharamaneepakorn, Piya (1); Wang, Cheng-Xiang (1, 2, 3); Aggoune, El-Hadi (2); Alwakeel, Mohammed M. (2); He, Yejun (4)
Author affiliation: (1) Institute of Sensors, Signals and Systems, School of Engineering and Physical Sciences, Heriot-Watt University, Edinburgh, United Kingdom; (2) Sensor Networks and Cellular Systems (SNCS) Research Center, University of Tabuk, Tabuk, Saudi Arabia; (3) School of Information Science and Engineering, Shandong University, Jinan, China; (4) College of Information Engineering, Shenzhen University, Shenzhen, China

Source title: IWCMC 2015 - 11th International Wireless Communications and Mobile Computing Conference
Abbreviated source title: Int. Wirel. Commun. Mob. Comput. Conf., IWCMC
Monograph title: IWCMC 2015 - 11th International Wireless Communications and Mobile Computing Conference
Issue date: October 2, 2015
Publication year: 2015
Pages: 32-36
Article number: 7289053
Language: English
ISBN-13: 9781479953448
Document type: Conference article (CA)
Conference name: 11th International Wireless Communications and Mobile Computing Conference, IWCMC 2015
Conference date: August 24, 2015 - August 28, 2015
Conference location: Dubrovnik, Croatia
Conference code: 116342
Sponsor: University of Dubrovnik
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: This paper proposes a novel method for ergodic sum rate analysis of spatial modulation (SM) systems with maximum likelihood receiver. This method is developed based on the MT-ary symmetric channel, where MT is the number of transmit antennas. The probability of antenna detection error is approximated by the pair-wise error probability. Then, an approximation to the ergodic sum rate of information transmission via SM with maximum likelihood receiver is computed. It is demonstrated via simulation that the proposed analysis method is able to provide an excellent approximation to the ergodic sum rate of SM. © 2015 IEEE.

Number of references: 20
Main heading: Maximum likelihood estimation
Controlled terms: Antennas - Error statistics - Maximum likelihood - Mobile computing - Modulation - Spatial variables measurement - Wireless telecommunication systems
Uncontrolled terms: Detection error - Information transmission - Maximum-likelihood receivers - Pair-wise error probability - Spatial modulations - Sum-rate - Symmetric channels - Transmit antenna
Classification code: 922 Statistical Methods - 943.2 Mechanical Variables Measurements
DOI: 10.1109/IWCMC.2015.7289053
Compendex references: YES
Database: Compendex

Data Provider: Engineering Village

108. Distributing very-large content from cloud to smart home hubs: Measurement and implications

Accession number: 20160201791194

Authors: Chen, Liang (1); Guo, Suiming (2); Zhang, Guoqiang (3)
Author affiliation: (1) College of Information Engineering, Shenzhen University, China; (2) Department of Information Engineering, Chinese University of Hong Kong, China; (3) Xunlei Research Center, Xunlei Networking Technologies, Shenzhen, China
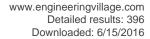**Corresponding author:** Guo, Suiming

Source title: IEEE International Conference on Communications
Abbreviated source title: IEEE Int Conf Commun
Volume: 2015-September
Monograph title: 2015 IEEE International Conference on Communications, ICC 2015
Issue date: September 9, 2015

Publication year: 2015
Pages: 364-369
Article number: 7248348
Language: English
ISSN: 15503607
ISBN-13: 9781467364324
Document type: Conference article (CA)
Conference name: IEEE International Conference on Communications, ICC 2015
Conference date: June 8, 2015 - June 12, 2015
Conference location: London, United kingdom
Conference code: 116103
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: With recent proliferation of smart home hubs, public cloud storage service is facing a significant challenge of distributing very large content to end users. In these services, many delivered files are of size of tens of GB (even up to hundreds of GB for 4K resolution videos), and the fraction of very-large files keeps increasing. By observing a commercial cloud storage and distribution service, we notice the issue of excessive intra-datacenter network traffic for distributing very-large files, which seriously affects the quality of service and scalability. Based on the measurement results and the analysis of the issue, we propose cache-based methods (in both static and dynamic schemes) to help reduce the large volume of intra-datacenter traffic. Our proposals are evaluated on the chunk-level traces from one of the biggest commercial cloud storage and distribution service providers in China. The cache-based approach can reduce the maximum intra-datacenter traffic significantly in a cost-effective manner. © 2015 IEEE.

Number of references: 15
DOI: 10.1109/ICC.2015.7248348
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

109. Locally densest subgraph discovery

Accession number: 20160301811662
Authors: Qin, Lu (1); Li, Rong-Hua (2); Chang, Lijun (3); Zhang, Chengqi (1)
Author affiliation: (1) Centre for Quantum Computation and Intelligent Systems, University of Technology, Sydney, Australia; (2) Shenzhen University, China; (3) University of New South Wales, Australia
Source title: Proceedings of the ACM SIGKDD International Conference on Knowledge Discovery and Data Mining
Abbreviated source title: Proc. ACM SIGKDD Int. Conf. Knowl. Discov. Data Min.
Volume: 2015-August
Monograph title: KDD 2015 - Proceedings of the 21st ACM SIGKDD Conference on Knowledge Discovery and Data Mining
Issue date: August 10, 2015
Publication year: 2015
Pages: 965-974
Language: English
ISBN-13: 9781450336642
Document type: Conference article (CA)
Conference name: 21st ACM SIGKDD Conference on Knowledge Discovery and Data Mining, KDD 2015
Conference date: August 10, 2015 - August 13, 2015
Conference location: Sydney, NSW, Australia
Conference code: 117401
Sponsor: ACM SIGKDD; ACM SIGMOD
Publisher: Association for Computing Machinery

Abstract: Mining dense subgraphs from a large graph is a fundamental graph mining task and can be widely applied in a variety of application domains such as network science, biology, graph database, web mining, graph compression, and micro-blogging systems. Here a dense subgraph is defined as a subgraph with high density (#.edge/#.node). Existing studies of this problem either focus on finding the densest subgraph or identifying an optimal clique-like dense subgraph, and they adopt a simple greedy approach to find the top-k dense subgraphs. However, their identified subgraphs cannot be used to represent the dense regions of the graph. Intuitively, to represent a dense region, the subgraph identified should be the subgraph with highest density in its local region in the graph. However, it is non-trivial to formally model a locally densest subgraph. In this paper, we aim to discover top-k such representative locally densest subgraphs of a graph. We provide an elegant parameter-free definition of a locally densest subgraph. The definition not only fits well with the intuition, but is also associated with several nice structural properties. We show

that the set of locally densest subgraphs in a graph can be computed in polynomial time. We further propose three novel pruning strategies to largely reduce the search space of the algorithm. In our experiments, we use several real datasets with various graph properties to evaluate the effectiveness of our model using four quality measures and a case study. We also test our algorithms on several real web-scale graphs, one of which contains 118.14 million nodes and 1.02 billion edges, to demonstrate the high efficiency of the proposed algorithms. © 2015 ACM.
Number of references: 39
Main heading: Graph theory
Controlled terms: Big data - Data mining - Polynomial approximation
Uncontrolled terms: Dense subgraph - Densest subgraphs - Graph - Graph compressions - Graph properties - Greedy approaches - Pruning strategy - Quality measures
Classification code: 723.2 Data Processing and Image Processing - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 921.6 Numerical Methods
DOI: 10.1145/2783258.2783299
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

110. Research on the influence of charge sharing for SEE locations based on 65nm CMOS technology

Accession number: 20162002401909
Authors: Zhun, Zhang (1, 2); Wei, He (2, 3); Sheng, Luo (1); Cao, Jianmin (1); Wu, Qingyang (1)
Author affiliation: (1) College of Optoelectronic Engineering, Shenzhen University, Shenzhen; 518060, China; (2) Shenzhen Key Laboratory of Micro-Nano Photonic Information Technology, China; (3) College of Electronic Science and Technology, Shenzhen University, Shenzhen; 518060, China
Source title: 2015 IEEE International Conference on Communication Problem-Solving, ICCP 2015
Abbreviated source title: IEEE Int. Conf. Commun. Probl.-Solving, ICCP
Monograph title: 2015 IEEE International Conference on Communication Problem-Solving, ICCP 2015
Issue date: April 15, 2016
Publication year: 2015
Pages: 257-260
Article number: 7454144
Language: English
ISBN-13: 9781467365437
Document type: Conference article (CA)
Conference name: IEEE International Conference on Communication Problem-Solving, ICCP 2015
Conference date: October 16, 2015 - October 18, 2015
Conference location: Guilin, Guangxi, China
Conference code: 121262
Sponsor: et al.; Guangxi University of Science and Technology; IEEE Beijing Section; IEEE Chengdu Section; IEEE Nanjing Section; University of Electronic Science and Technology of China
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: This paper investigates a heavy ion impacts different locations dependency of charge sharing in 65nm CMOS technology. Three new types structures of charge sharing mechanism (NMOS-NMOS, PMOS-PMOS and NMOS-PMOS) are designed to evaluate the influence of single event effect, and TCAD simulation results reveal that the device sensitive node can collect a large number of charges when the heavy ion impacting location is closer to drain contact for NMOS, and when the location is closer to source contact for PMOS, the PMOS transistor sensitive node can collect much more charges. And the charge sharing will affect the reliability when the ion strikes the center between the two transistors no matter to PMOS or NMOS. The charge sharing influences of three types structures are compared, and it can be a guidance to improve the reliability of devices. © 2015 IEEE.
Number of references: 8
Main heading: Problem solving
Controlled terms: CMOS integrated circuits - Computer aided design - Electronic design automation - Heavy ions - Ion bombardment - Location
Uncontrolled terms: 65nm cmos - 65nm CMOS technology - Charge sharing - Drain contacts - pMOS transistors - Single event effects - TCAD simulation - Technology computer aided design
Classification code: 714.2 Semiconductor Devices and Integrated Circuits - 723.5 Computer Applications - 932.1 High Energy Physics
DOI: 10.1109/ICCPS.2015.7454144

111. Objective reduction with sparse feature selection for many objective optimization problem

Accession number: 20153501219706
Authors: Chen, Xiao-Hong (1, 2); Li, Xia (1, 2); Wang, Na (1, 2)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen; Guangdong, China; (2) Shenzhen Key Lab of Advanced Communications and Information Processing, Shenzhen; Guangdong, China
Source title: Tien Tzu Hsueh Pao/Acta Electronica Sinica
Abbreviated source title: Tien Tzu Hsueh Pao
Volume: 43
Issue: 7
Issue date: July 1, 2015
Publication year: 2015
Pages: 1300-1307
Language: Chinese
ISSN: 03722112
CODEN: TTHPAG
Document type: Journal article (JA)
Publisher: Chinese Institute of Electronics
Abstract: Objective reduction approach is an effective means for many-objective optimization problems by eliminating redundant objectives with respect to the original objective set. The geometrical structural characteristics and Pareto-dominance relation of approximation set can represent the characteristics of the original problem in different aspects. This paper proposed a new algorithm based on sparse feature selection. It used the geometrical structural characteristics to construct a graph representing the original problem. A sparse projection matrix mapping the high dimensional data into low dimensional space was then learned by a sparse regression model, which was used to measure the importance of each objective. The change of Pareto-dominance relation induced by reduced set was also adopted to identify a minimum set with error not exceeding threshold value. By comparing with other algorithms, the experimental results show that the accuracy of the new algorithm outperforms other dimension reduction techniques, and is scarcely effected by the quality of approximation set. ©, 2015, Chinese Institute of Electronics. All right reserved.
Number of references: 19
Main heading: Feature extraction
Controlled terms: Algorithms - Approximation algorithms - Clustering algorithms - Optimization - Pareto principle - Regression analysis
Uncontrolled terms: Approximation set - Dimension reduction techniques - High dimensional data - Low-dimensional spaces - Many-objective optimizations - Projection matrix - Sparse regression - Structural characteristics
Classification code: 716 Telecommunication; Radar, Radio and Television - 721 Computer Circuits and Logic Elements - 911 Cost and Value Engineering; Industrial Economics - 912 Industrial Engineering and Management - 921 Mathematics - 921.5 Optimization Techniques - 922.2 Mathematical Statistics
DOI: 10.3969/j.issn.0372-2112.2015.07.008
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

112. DOA estimation under the coexistence of nonuniform noise and mutual coupling

Accession number: 20160701912221
Authors: Liao, Bin (1); Huang, Lei (1); Chan, S.C. (2)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, China; (2) Department of Electrical and Electronic Engineering, University of Hong Kong, Hong Kong, Hong Kong
Source title: 2015 IEEE China Summit and International Conference on Signal and Information Processing, ChinaSIP 2015 - Proceedings
Abbreviated source title: IEEE China Summit Int. Conf. Signal Inf. Process., ChinaSIP - Proc.
Monograph title: 2015 IEEE China Summit and International Conference on Signal and Information Processing, ChinaSIP 2015 - Proceedings
Issue date: August 31, 2015

Publication year: 2015
Pages: 731-735
Article number: 7230501
Language: English
ISBN-13: 9781479919482
Document type: Conference article (CA)
Conference name: IEEE China Summit and International Conference on Signal and Information Processing, ChinaSIP 2015
Conference date: July 12, 2015 - July 15, 2015
Conference location: Chengdu, China
Conference code: 117267
Sponsor: Institute of Electrical and Electronics Engineers Signal Processing Society (SPS)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: This paper investigates the problem of direction-of-Arrival (DOA) estimation under the coexistence of nonuniform noise and mutual coupling. Though either the issue of nonuniform noise or mutual coupling has been widely discussed in the literature, the problem of DOA estimation in the specific scenario where these two issues coexist still remain open. As far as we know, the existing algorithms for mutual coupling calibration require a uniform white noise environment in general, and on the other hand, the techniques for nonuniform noise environments are proposed for well-calibrated arrays (i.e., without unknown mutual coupling and other errors). In this work, we attempt to estimate the DOAs in the coexistence case. Towards this end, a two-stage least squares (LS)-based approach is developed. In particular, the signal and noise subspaces are estimated by solving an LS minimization problem in the first stage. Next, the DOAs are estimated through a subspace-based approach taking into account the special structure of the mutual coupling matrix (MCM). Numerical examples are provided to illustrate the performance of the proposed method. © 2015 IEEE.
Number of references: 25
Main heading: Direction of arrival
Controlled terms: Calibration - Information science - Numerical methods - White noise
Uncontrolled terms: Direction of arrivalestimation(DOA) - Minimization problems - Mutual coupling - Mutual coupling calibrations - Mutual coupling matrix - Nonuniform noise - Subspace estimation - Two stage least squares
Classification code: 716.1 Information Theory and Signal Processing - 921.6 Numerical Methods
DOI: 10.1109/ChinaSIP.2015.7230501
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

113. 110 W all fiber actively Q-switched thulium-doped fiber laser

Accession number: 20150800541260
Authors: Ouyang, De-Qin (1, 2); Zhao, Jun-Qing (3); Zheng, Zhi-Jian (1); Ruan, Shuang-Chen (1); Guo, Chun-Yu (1); Yan, Pei-Guang (1); Xie, Wei-Xin (3)
Author affiliation: (1) Shenzhen Key Laboratory of Laser Engineering, College of Electronic Science and Technology, Shenzhen University, Shenzhen, China; (2) College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (3) College of Information Technology, Shenzhen University, Shenzhen, China
Corresponding author: Ruan, Shuang-Chen
Source title: IEEE Photonics Journal
Abbreviated source title: IEEE Photon. J.
Volume: 7
Issue: 1
Issue date: February 1, 2015
Publication year: 2015
Article number: 7015547
Language: English
ISSN: 19430655
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: We report a 100-W-level, repetition rate and pulsewidth tunable, all-fiber, thulium-doped master oscillator power amplifier system. The master oscillator was actively Q-switched by a fiber-coupled acousto-optic modulator. The generated pulsewidth could be tuned from 1.16 µm to 46.3 ns by adjusting modulation repetition rate from 1 kHz to 2 MHz, and the pulse repetition rate (PRR) can also be tuned from 1 kHz to 2 MHz, correspondingly. The maximum output power could be boosted to > 110 W (slope efficiency of $\sim 55\%$) through three-stage thulium-doped fiber (TDF)

amplifiers at PRR from 100 kHz to 2 MHz. The spectrum bandwidth was about 0.8 nm at the maximum output power without obvious indication of nonlinear effects. To the best of our knowledge, this is the first demonstration of > 110-W, all-fiber, actively Q-switched TDF laser, and it has realized the largest tuning ranges both with the pulsewidth and the PRR. © 2009-2012 IEEE.

Number of references: 19
Main heading: Fiber amplifiers
Controlled terms: Fiber lasers - Fibers - Laser tuning - Power amplifiers - Pulse generators - Pulse repetition rate - Q switched lasers - Q switching - Thulium
Uncontrolled terms: Acousto-optic modulator - Actively Q-switched - Master oscillator power amplifier systems - Master oscillators - Maximum output power - Slope efficiencies - Spectrum bandwidth - Thulium-doped fibers
Classification code: 547.2 Rare Earth Metals - 713.1 Amplifiers - 713.4 Pulse Circuits - 744 Lasers - 812 Ceramics, Refractories and Glass - 817 Plastics and Other Polymers: Products and Applications
DOI: 10.1109/JPHOT.2015.2394308
Database: Compendex

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Data Provider: Engineering Village

114. Parameter estimation and identifiability in bistatic multiple-input multiple-output radar

Accession number: 20154001344147
Authors: Chan, Frankie K.W. (1); So, H.C. (2); Huang, Lei (1); Huang, Long-Ting (2)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, China; (2) Department of Electronic Engineering, City University of Hong Kong, Tat Chee Avenue, Kowloon, Hong Kong
Corresponding author: Huang, Lei
Source title: IEEE Transactions on Aerospace and Electronic Systems
Abbreviated source title: IEEE Trans. Aerosp. Electron. Syst.
Volume: 51
Issue: 3
Issue date: July 1, 2015
Publication year: 2015
Pages: 2047-2056
Article number: 7272851
Language: English
ISSN: 00189251
CODEN: IEARAX
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: An iterative ESPRIT-like algorithm is devised for direction-of-departure (DOD) and direction-of-arrival (DOA) estimation in multiple-input multiple-output radar. Our proposal can handle identical DODs and DOAs, and provides autopairing of the angle parameters. Furthermore, it is proved that the multiple signal classification methodology cannot identify (MN - 1) targets, where M and N are the element numbers in the transmit and receive antennas, respectively. Simulation results are included to evaluate the performance of the proposed algorithm. © 1965-2011 IEEE.
Number of references: 21
Main heading: Direction of arrival
Controlled terms: Algorithms - Codes (symbols) - Feedback control - Iterative methods - Manganese - MIMO radar - MIMO systems - Polynomials - Radar - Receiving antennas - Telecommunication repeaters - Wavelet analysis
Uncontrolled terms: Direction of arrival estimation - Direction of arrivalestimation(DOA) - Direction of departure - Element numbers - Multiple input multiple output (MIMO) radars - Multiple signal classification - Receive antenna - US Department of Defense
Classification code: 543.2 Manganese and Alloys - 716.1 Information Theory and Signal Processing - 716.2 Radar Systems and Equipment - 723.2 Data Processing and Image Processing - 731.1 Control Systems - 921 Mathematics
DOI: 10.1109/TAES.2015.130502
Compendex references: YES
Database: Compendex

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Data Provider: Engineering Village

115. DST: Leveraging delay-insensitive workload in cloud storage for smart home network

Accession number: 20161002050719
Authors: Guo, Suiming (1, 2); Chen, Liang (1); Chiu, Dah Ming (2)

Author affiliation: (1) College of Information Engineering, Shenzhen University, China; (2) Department of Information Engineering, Chinese University of Hong Kong, Hong Kong
Corresponding author: Chen, Liang(lchen@szu.edu.cn)
Source title: Proceedings - International Conference on Computer Communications and Networks, ICCCN
Abbreviated source title: Proc Int Conf Comput Commun Networks ICCCN
Volume: 2015-October
Monograph title: 24th International Conference on Computer Communications and Networks, ICCCN 2015
Issue date: October 2, 2015
Publication year: 2015
Article number: 7288401
Language: English
ISSN: 10952055
ISBN-13: 9781479999644
Document type: Conference article (CA)
Conference name: 24th International Conference on Computer Communications and Networks, ICCCN 2015
Conference date: August 3, 2015 - August 6, 2015
Conference location: Las Vegas, NV, United states
Conference code: 118344
Sponsor: IEEE Communications Society; NSF
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: We study the problem of how to manage the high intra-datacenter traffic in a chunk-based public cloud storage service serving primarily smart home devices. The large volume of traffic is introduced by delivering very large content during busy hours in the cloud. Measurement of a commercial cloud service shows that the peak traffic volume (at its edge servers) overwhelms the network interface cards (NICs), resulting in serious congestion and packet losses. Since it can be expected the large content downloading requests in smart home environment could be delay-insensitive, we propose DST to keep the peak load under a specified upper bound, by delaying users' requests when necessary. By modelling DST as a queueing system, we derive the relation between the mean delay and the traffic upper bound. With trace-driven simulations, we evaluate the system performance and validate the analysis results. For the commercial cloud service we study, we show that it is possible to keep the traffic upper bound to about 80% of peak traffic rate by introducing a mean delay of around 48 minutes. © 2015 IEEE.
Number of references: 18
Main heading: Traffic congestion
Controlled terms: Automation - Computer networks - Distributed database systems - Home networks - Intelligent buildings - Interfaces (computer) - Personal communication systems
Uncontrolled terms: Cloud services - Cloud storages - Large volumes - Network interface cards - Public clouds - Queueing system - Trace driven simulation - Traffic volumes
Classification code: 402 Buildings and Towers - 716 Telecommunication; Radar, Radio and Television - 717 Optical Communication - 718 Telephone Systems and Related Technologies; Line Communications - 722.2 Computer Peripheral Equipment - 723.3 Database Systems - 731 Automatic Control Principles and Applications
DOI: 10.1109/ICCCN.2015.7288401
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

116. Nanopower CMOS voltage reference circuit with 16 ppm/°C from 0°C to 150°C without resistors

Accession number: 20161002071784
Authors: Yang, Zhi (1); Jiang, Mei (1)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, China
Source title: 2015 IEEE International Conference on Consumer Electronics - Taiwan, ICCE-TW 2015
Abbreviated source title: IEEE Int. Conf. Consum. Electron. - Taiwan, ICCE-TW
Monograph title: 2015 IEEE International Conference on Consumer Electronics - Taiwan, ICCE-TW 2015
Issue date: August 20, 2015
Publication year: 2015
Pages: 424-425
Article number: 7216978
Language: English
ISBN-13: 9781479987443

Document type: Conference article (CA)
Conference name: 2nd IEEE International Conference on Consumer Electronics - Taiwan, ICCE-TW 2015
Conference date: June 6, 2015 - June 8, 2015
Conference location: No. 43, Sec. 4, Keelung Rd., Da'an Dist., Taipei, Taiwan
Conference code: 116941
Sponsor: IEEE Consumer Electronics Society
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: A voltage reference circuit providing a mean voltage of 281mV is proposed in this work. All transistors are biased in weak inversion region, and the 0.18um mix signal process is used in the simulation. This design is based on the weighted different threshold voltage between two devices, which has ultra low-power consumption of 1.5nW on 1V at room temperature. Besides, the temperature coefficient of voltage is as low as 16 ppm/°C at best@1V and 40 ppm/°C on average in a range from 0°C to 150 °C. The supply voltage of the proposed voltage circuit is from 0.65 to 5 V, and the power supply rejection ratio (PSRR) is -54dB@100Hz. The active area of circuit is 0.0013 mm2. © 2015 IEEE.
Number of references: 5
Main heading: CMOS integrated circuits
Controlled terms: Consumer electronics - Electric power utilization - Gas generators - Integrated circuits - Power supply circuits - Reconfigurable hardware - Signal processing - Temperature - Threshold voltage - Voltage measurement
Uncontrolled terms: CMOS voltage reference - Integrated circuit modeling - MOS-FET - Power demands - Power supply rejection ratio - Temperature coefficient - Ultra-low power consumption - Weak inversion region
Classification code: 522 Gas Fuels - 641.1 Thermodynamics - 701.1 Electricity: Basic Concepts and Phenomena - 706.1 Electric Power Systems - 714.2 Semiconductor Devices and Integrated Circuits - 716.1 Information Theory and Signal Processing - 721.3 Computer Circuits - 942.2 Electric Variables Measurements
DOI: 10.1109/ICCE-TW.2015.7216978
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

117. Development of the three-dimensional scanning system based on monocular vision

Accession number: 20161702297974
Authors: Liang, Yu-Xin (1); Cao, Guang-Zhong (1); Qiu, Hong (1); Huang, Su-Dan (1, 2); Zhou, Shou-Qin (3)
Author affiliation: (1) Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China; (2) College of Electrical Engineering, Southwest Jiaotong University, Chengdu, China; (3) China International Marine Containers Intelligent Technology CO.,LTD., Shenzhen, China
Source title: 2015 6th International Conference on Power Electronics Systems and Applications: Electric Transportation - Automotive, Vessel and Aircraft, PESA 2015
Abbreviated source title: Int. Conf. Power Electron. Syst. Appl., PESA
Monograph title: 2015 6th International Conference on Power Electronics Systems and Applications: Electric Transportation - Automotive, Vessel and Aircraft, PESA 2015
Issue date: February 3, 2016
Publication year: 2015
Article number: 7398908
Language: English
ISBN-13: 9781509000623
Document type: Conference article (CA)
Conference name: 6th International Conference on Power Electronics Systems and Applications, PESA 2015
Conference date: December 15, 2015 - December 17, 2015
Conference location: Hong Kong, Hong kong
Conference code: 119372
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: The emerging three-dimensional (3D) scanning technology based on computer vision is attracting more and more attention in industrial applications such as the 3D modeling of motors and automobiles. This paper develops a 3D scanning system using monocular vision to rapidly and automatically obtain the 3D dimension of the scanned object. The principle of the 3D scanning system is firstly introduced. The structure is then presented. The system consists of a camera, a line laser generator, and a rotation platform with a direct-current motor. The software of the system is developed based on C # and EmguCV library functions to realize image processing. Additionally, experiments are carried out through a fabricated prototype. Experimental results demonstrate that the developed system achieves the rapid acquisition for the 3D dimension of the scanned object and features simple structure, low cost, easy to extend, and rapid 3D reconstruction. © 2015 IEEE.

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Number of references: 8
Main heading: Three dimensional computer graphics
Controlled terms: Computer vision - DC motors - Image processing - Imaging systems - Power electronics - Scanning - Vision
Uncontrolled terms: 3-D scanner - 3D reconstruction - Direct current motors - Linear lasers - Monocular vision - Three dimensional (3D) scanning - Three-dimensional (3-D) reconstruction - Three-dimensional scanning
Classification code: 705.3.2 DC Motors - 723.2 Data Processing and Image Processing - 723.5 Computer Applications - 746 Imaging Techniques
DOI: 10.1109/PESA.2015.7398908
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

118. Cutting down the travel distance of put systems at Kunming International Flower Auction Market

Accession number: 20144700218264
Authors: Qin, Kaida (1); Chen, Frank Youhua (2); Ma, Lijun (3)
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Corresponding author: Ma, Lijun
Source title: International Journal of Production Research
Abbreviated source title: Int J Prod Res
Volume: 53
Issue: 12
Issue date: June 18, 2015
Publication year: 2015
Pages: 3573-3585
Language: English
ISSN: 00207543
E-ISSN: 1366588X
CODEN: IJPRB8
Document type: Journal article (JA)
Publisher: Taylor and Francis Ltd.
Abstract: At Kunming International Flower Auction Market (KIFA), about 2.5 million cut flowers traded in 10,000 transactions need to be distributed daily to buyers in its distribution area. Small lots and many buyers per trolley are two distinctive features at KIFA and the identities of the buyers and their demands are not known in advance. The growing transaction volume has recently increased the distribution workforce and the buyers waiting time. In this paper, we introduce a modified class-based location policy using KIFAs historical data to improve its current put system performance. We use the closest-open location method in each class area, which improves the put system performance at KIFA. We examine the effects of the distribution area shape and the number of blocks in each class area on performance measures, and find that KIFAs put system performance can be further improved. © 2014 Taylor and Francis.
Number of references: 16
Main heading: Commerce
Controlled terms: Digital storage - Sales
Uncontrolled terms: Class-based - Distribution area - Location method - Location policies - Number of blocks - Performance measure - put system - Storage location
DOI: 10.1080/00207543.2014.980013
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

119. Stimulating the comfort of textile electrodes in wearable neuromuscular electrical stimulation

Accession number: 20153501212608

Authors: Zhou, Hui (1, 2); Lu, Yi (3); Chen, Wanzhen (1, 2, 4); Wu, Zhen (1, 2, 5); Zou, Haiqing (6); Krundel, Ludovic (1, 2, 7); Li, Guanglin (1, 2)
Author affiliation: (1) Key Laboratory of Human-Machine Intelligence-Synergy Systems of Chinese Academy of Sciences, Shenzhen, China; (2) Institute of Biomedical and Health Engineering, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China; (3) Shenzhen Engineering Lab for Brain Activity Mapping Technologies, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China; (4) Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China; (5) Nanshan Hospital of Guangdong Medical College, Shenzhen, China; (6) Shenzhen Yingda Strong Technology Co.Ltd, Shenzhen, China; (7) Electronic Systems Design Laboratory School of Electronic, Electrical and Systems Engineering, Loughborough University, Loughborough, United Kingdom
Corresponding author: Li, Guanglin
Abstract: Textile electrodes are becoming an attractive means in the facilitation of surface electrical stimulation. However, the stimulation comfort of textile electrodes and the mechanism behind stimulation discomfort is still unknown. In this study, a textile stimulation electrode was developed using conductive fabrics and then its impedance spectroscopy, stimulation thresholds, and stimulation comfort were quantitatively assessed and compared with those of a wet textile electrode and a hydrogel electrode on healthy subjects. The equivalent circuit models and the finite element models of different types of electrode were built based on the measured impedance data of the electrodes to reveal the possible mechanism of electrical stimulation pain. Our results showed that the wet textile electrode could achieve similar stimulation performance as the hydrogel electrode in motor threshold and stimulation comfort. However, the dry textile electrode was found to have very low pain threshold and induced obvious cutaneous painful sensations during stimulation, in comparison to the wet and hydrogel electrodes. Indeed, the finite element modeling results showed that the activation function along the z direction at the depth of dermis epidermis junction of the dry textile electrode was significantly larger than that of the wet and hydrogel electrodes, thus resulting in stronger activation of pain sensing fibers. Future work will be done to make textile electrodes have similar stimulation performance and comfort as hydrogel electrodes. © 2015 by the authors; licensee MDPI, Basel, Switzerland.
Number of references: 34
Main heading: Electrodes
Controlled terms: Chemical activation - Finite element method - Health - Hydrogels - Textiles - Wearable technology
Uncontrolled terms: Dermis-Epidermis junctions - Electrical stimulations - Electrode-electrolyte interfaces - Equivalent circuit model - Neuromuscular electrical stimulation - Stimulating comfort - Stimulation thresholds - Textile electrodes
Classification code: 704.1 Electric Components - 804 Chemical Products Generally - 819 Synthetic and Natural Fibers; Textile Technology - 914.3 Industrial Hygiene - 921.6 Numerical Methods
DOI: 10.3390/s150717241
Database: Compendex
Data Provider: Engineering Village

120. A double-module immune algorithm for multi-objective optimization problems

Accession number: 20152801028009
Authors: Liang, Zhengping (1); Song, Ruizhen (1); Lin, Qiuzhen (1); Du, Zhihua (1); Chen, Jianyong (1); Ming, Zhong (1); Yu, Jianping (1)
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Corresponding author: Lin, Qiuzhen

Pages: 161-174
Article number: 3016
Language: English
ISSN: 15684946
Document type: Journal article (JA)
Publisher: Elsevier Ltd

Abstract: Abstract Multi-objective optimization problems (MOPs) have become a research hotspot, as they are commonly encountered in scientific and engineering applications. When solving some complex MOPs, it is quite difficult to locate the entire Pareto-optimal front. To better settle this problem, a novel double-module immune algorithm named DMMO is presented, where two evolutionary modules are embedded to simultaneously improve the convergence speed and population diversity. The first module is designed to optimize each objective independently by using a sub-population composed with the competitive individuals in this objective. Differential evolution crossover is performed here to enhance the corresponding objective. The second one follows the traditional procedures of immune algorithm, where proportional cloning, recombination and hyper-mutation operators are operated to concurrently strengthen the multiple objectives. The performance of DMMO is validated by 16 benchmark problems, and further compared with several multi-objective algorithms, such as NSGA-II, SPEA2, SMSEMOA, MOEA/D, SMPSO, NNIA and MIMO. Experimental studies indicate that DMMO performs better than the compared targets on most of test problems and the advantages of double modules in DMMO are also analyzed. © 2015 Elsevier B.V.

Number of references: 59
Main heading: Multiobjective optimization
Controlled terms: Algorithms - Benchmarking - Evolutionary algorithms - Optimization - Pareto principle
Uncontrolled terms: Differential Evolution - Double-module framework - Immune algorithms - Multi objective algorithm - Multi-objective optimization problem - Multiobjective optimization problems (MOPs) - Pareto-optimal front - Scientific and engineering applications
Classification code: 723 Computer Software, Data Handling and Applications - 911 Cost and Value Engineering; Industrial Economics - 912 Industrial Engineering and Management - 913 Production Planning and Control; Manufacturing - 921 Mathematics - 921.5 Optimization Techniques
DOI: 10.1016/j.asoc.2015.06.022
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

121. Ionic liquids improve the biotransformation of isoeugenol to vanillin by Bacillus fusiformis CGMCC1347

Accession number: 20153601247061
Authors: Zhao, Li-Qing (1, 2, 3); Chen, Rou-Xuan (2); Chen, Yu-Lin (2); Fang, Jia-Mao (3); Chen, Wei-Bin (3); Wang, Ju-Fang (1)
Author affiliation: (1) School of Bioscience and Bioengineering, South China University of Technology, Guangzhou, China; (2) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen; Guangdong, China; (3) Guangdong Huanxi Biological Technology CO., LTD, Puning; Guangdong, China
Corresponding author: Wang, Ju-Fang
Source title: Medicine Sciences and Bioengineering - Proceedings of the 2014 International Conference on Medicine Sciences and Bioengineering, ICMSB 2014
Abbreviated source title: Medicine Sciences and Bioengineering - Proceedings of the 2014 International Conference on Medicine Sciences and Bioengineering, ICMSB 2014
Part number: 1 of 1
Issue date: 2015
Publication year: 2015
Pages: 811-816
Language: English
ISBN-13: 9781138026841
Document type: Conference article (CA)
Conference name: Proceedings of the 2014 International Conference on Medicine Sciences and Bioengineering, ICMSB 2014
Conference date: August 16, 2014 - August 17, 2014
Conference location: Kunming, Yunnan, China
Conference code: 118459
Publisher: CRC Press/Balkema

Abstract: An ionic liquid (IL)-containing buffer system was first applied in the conversion of isoeugenol to vanillin by Bacillus fusiformis CGMCC1347. High substrate solubility was achieved to enhance the efficiency of the reaction. Nine ILs were selected as co-solvents to assist catalytic reactions in this biotransformation process. 1-ethyl-3-methylimidazolium methylsulfate [C_2mim][MetSO_4] was the suitable ionic liquid to be tested for this biotransformation. The optimal biotransformation conditions were as follows: Ionic liquid 40 μ L, isoeugenol 400 μ L for 10 mL reaction liquid in 50-mL flask, phosphate buffer (pH 7.0) 50 mM, 37° C, 180 r/min for 60 h. The Maximum vanillin concentration reached 1.38 g/L. © 2015 Taylor & Francis Group, London.
Number of references: 13
Main heading: Ionic liquids
Controlled terms: Bacteriology - Bioconversion - Catalysis - Liquids
Uncontrolled terms: Bacillus fusiformis - Biotransformation process - Buffer system - Catalytic reactions - Cosolvents - Phosphate buffers - Reaction liquid - Substrate solubilities
Classification code: 461.9 Biology - 802.2 Chemical Reactions - 804 Chemical Products Generally - 931.2 Physical Properties of Gases, Liquids and Solids
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

122. SRBFOs for solving the heterogeneous fixed fleet vehicle routing problem

Accession number: 20154301446904
Authors: Gan, Xiaobing (1); Liu, Lijiao (1); Niu, Ben (1, 2, 3); Tan, L.J. (4); Zhang, F.F. (1); Liu, J. (1)
Author affiliation: (1) College of Management, Shenzhen University, Shenzhen, China; (2) Hefei Institute of Intelligent Machine, Chinese Academy of Science, Hefei, China; (3) Department of Industrial and System Engineering, Hong Kong Polytechnic University, Kowloon, Hong Kong; (4) Department of Business Management, Shenzhen Institute of Information Technology, Shenzhen, China
Corresponding author: Niu, Ben
Source title: Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)
Abbreviated source title: Lect. Notes Comput. Sci.
Volume: 9226
Monograph title: Intelligent Computing Theories and Methodologies - 11th International Conference, ICIC 2015, Proceedings
Issue date: 2015
Publication year: 2015
Pages: 725-732
Language: English
ISSN: 03029743
E-ISSN: 16113349
ISBN-13: 9783319221854
Document type: Conference article (CA)
Conference name: 11th International Conference on Intelligent Computing, ICIC 2015
Conference date: August 20, 2015 - August 23, 2015
Conference location: Fuzhou, China
Conference code: 139689
Sponsor: International Neural Network Society; National Science Foundation of China
Publisher: Springer Verlag
Abstract: The purpose of this paper is to present a new method to solve the heterogeneous fixed fleet vehicle routing problem (HFFVRP) based on structureredesign- based bacterial foraging optimization (SRBFO). The HFFVRP is a special case of the heterogeneous vehicle routing problem (HVRP), in which the number of each type of vehicles is fixed. To deal with this combinatorial optimization problem, two improved SRBFOs (SRBFOLDC and SRBFONDC) are presented by integrating the same time decreasing chemotaxis step size mechanism of BFOLDC and BFONDC into the optimization process of SRBFO. SRBFOLDC and SRBFONDC are successfully applied though encoding the position of bacteria by 2N dimensions. The first N dimensional vectors indicate the corresponding vehicle, and the next N dimensional vectors present the execution order of the corresponding vehicle routing. In the simulation experiments, it is demonstrated that SRBFONDC and SRBFOLDC are efficient to solve the heterogeneous fixed fleet vehicle routing problem with lower transportation cost and get better vehicle routing. Besides, SRBFONDC performs best compared with other five bacterial foraging optimization algorithms. © Springer International Publishing Switzerland 2015.
Number of references: 17
Main heading: Fleet operations

Controlled terms: Algorithms - Biochemistry - Combinatorial optimization - Computation theory - Intelligent computing - Network routing - Optimization - Routing algorithms - Vehicles
Uncontrolled terms: Bacterial foraging optimization - Bacterial foraging optimization algorithms - Chemotaxis steps - Combinatorial optimization problems - Dimensional vectors - Heterogeneous vehicles - Transportation cost - Vehicle Routing Problems
Classification code: 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 723 Computer Software, Data Handling and Applications - 723.4 Artificial Intelligence - 801.2 Biochemistry - 921.5 Optimization Techniques
DOI: 10.1007/978-3-319-22186-1_72
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

123. Passively harmonic mode-locked fiber laser with a high signal-to-noise ratio via Evanescent-light deposition of Bismuth Telluride (Bi2Te3) topological insulator based saturable absorber

Accession number: 20151000613088
Authors: Duan, L.N. (1); Wang, Y.G. (1); Xu, C.W. (2); Li, L. (1); Wang, Y.S. (1)
Author affiliation: (1) State Key Laboratory of Transient Optics and Photonics, Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences, Xi'an, China; (2) College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Wang, Y.G.
Source title: IEEE Photonics Journal
Abbreviated source title: IEEE Photon. J.
Volume: 7
Issue: 2
Issue date: April 1, 2015
Publication year: 2015
Article number: 7051323
Language: English
ISSN: 19430655
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Passively harmonic mode locking (HML) operation had been demonstrated in an erbium-doped fiber laser with a microfiber-based topological insulator (TI) Bi2Te3 saturable absorber (SA). It was found that the pulse train possessed different orders of HML (with a tunable repetition rate from 232 to 390 MHz) due to different incident pump powers. The spectra exhibited typical features of conventional solitons (perfect Gaussian profile with Kelly sidebands) with no continuous wave component. The measured signal-to-noise ratio (SNR) reached 60 dB, whereas the pulse duration was kept around 1.32 ps without significant change. The experimental observation revealed that the microfiber-based TI device could indeed be employed as a high-performance SA for further applications in ultrafast photonics. © 2009-2012 IEEE.
Number of references: 23
Main heading: Signal to noise ratio
Controlled terms: Electric insulators - Fiber lasers - Laser mode locking - Locks (fasteners) - Mode-locked fiber lasers - Optical pumping - Pulse repetition rate - Q switched lasers - Saturable absorbers - Solitons
Uncontrolled terms: Bismuth telluride - Erbium doped fiber laser - Gaussian profiles - Harmonic mode locking - High signal-to-noise ratio - Micro-fiber - Topological insulators - Ultra-fast photonics
Classification code: 601.3 Mechanisms - 704 Electric Components and Equipment - 716.1 Information Theory and Signal Processing - 741.1 Light/Optics - 741.1.2 Fiber Optics - 744.1 Lasers, General - 744.4 Solid State Lasers - 931.3 Atomic and Molecular Physics
DOI: 10.1109/JPHOT.2015.2404315
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
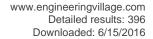**Data Provider:** Engineering Village

124. IP traceback algorithm based on deterministic linear network coding

Accession number: 20150800546554
Authors: Yan, Qiao (1); Lu, Nan (1); Ning, Tu-Wen (2); Yao, Xi-Yan (1); Li, Bao-Guang (1)

Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (2) College of Information Engineering, Shenzhen University, Shenzhen, China
Source title: Proceedings - 2014 10th International Conference on Computational Intelligence and Security, CIS 2014
Abbreviated source title: Proc. - Int. Conf. Comput. Intell. Secur., CIS
Part number: 1 of 1
Issue date: January 20, 2015
Publication year: 2015
Pages: 397-401
Article number: 7016925
Language: English
ISBN-13: 9781479974344
Document type: Conference article (CA)
Conference name: 10th International Conference on Computational Intelligence and Security, CIS 2014
Conference date: November 15, 2014 - November 16, 2014
Conference location: Kunming, Yunnan, China
Conference code: 110202
Sponsor: Aviation Key Laboratory of Science and Technology on Airborne and Missileborne Computer; Beijing Normal University; Guangdong University of Technology; IEEE CPS; Shenzhen University; Xidian University
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: A new algorithm, IP traceback algorithm based on deterministic linear network coding (DLNC) is proposed. The new algorithm applies the deterministic linear network coding to the probabilistic packet marking algorithm. Theoretical analysis and simulation in NS2 environment show that the new algorithm reduces the amount of packet needed to reconstruct the attack path, improves the computational complexity of reconstruction and false alarm rate. © 2014 IEEE.
Number of references: 10
Main heading: Network coding
Controlled terms: Algorithms - Artificial intelligence - Codes (symbols) - Complex networks - Linear networks - Network security
Uncontrolled terms: Analysis and simulation - Attack path - DDoS - False alarm rate - IP Traceback - Probabilistic packet marking
Classification code: 703.1 Electric Networks - 716.1 Information Theory and Signal Processing - 722 Computer Systems and Equipment - 723 Computer Software, Data Handling and Applications
DOI: 10.1109/CIS.2014.51
Database: Compendex

Data Provider: Engineering Village

125. Minimization of delay and travel time of yard trucks in container terminals using an improved GA with guidance search

Accession number: 20151100639859
Authors: Wang, Z.X. (1); Chan, Felix T. S. (1); Chung, S.H. (1); Niu, Ben (2)
Author affiliation: (1) Department of Industrial and Systems Engineering, Hong Kong Polytechnic University, Hung Hom, Hong Kong; (2) College of Management, Shenzhen University, Shenzhen, China
Corresponding author: Niu, Ben
Source title: Mathematical Problems in Engineering
Abbreviated source title: Math. Probl. Eng.
Volume: 2015
Issue date: February 23, 2015
Publication year: 2015
Article number: 710565
Language: English
ISSN: 1024123X
E-ISSN: 15635147
Document type: Journal article (JA)
Publisher: Hindawi Publishing Corporation, 410 Park Avenue, 15th Floor, 287 pmb, New York, NY 10022, United States

Abstract: Yard truck scheduling and storage allocation problems (YTS-SAP) are two important issues that influence the efficiency of a container terminal. These two problems aim to determine the routing of trucks and proper storage locations for discharging containers from incoming vessels. This paper integrates YTS and SAP as a whole and tries to

minimize the weighted summation of total delay and total yard trucks travel time. A genetic algorithm (GA) is proposed to deal with the problem. In the proposed GA, guidance mutation approach and exhaustive heuristic for local searching are used in order to force the GA to converge faster and be steadier. To test the performance of the proposed GA, both small scale and large scale cases are studied. The results of these cases are compared with CPLEX for the small scale cases. Since this problem is an NP-hard problem, which CPLEX cannot solve, a simple GA is studied for comparison in large scale cases. The comparison demonstrates that the proposed GA can obtain near optimal solutions in much shorter computational time for small scale cases. In addition, the proposed GA can obtain better results than other methods in reasonable time for large scale cases. © 2015 Z. X. Wang et al.
Number of references: 60
Main heading: Genetic algorithms
Controlled terms: Automobiles - Computational complexity - Containers - Port terminals - Railroad yards and terminals - Scheduling - Travel time - Trucks
Uncontrolled terms: Allocation problems - Computational time - Container terminal - Local searching - Near-optimal solutions - Storage location - Truck scheduling - Weighted summations
Classification code: 402.1 Industrial and Agricultural Buildings - 407.1 Maritime Structures - 431 Air Transportation - 432 Highway Transportation - 433 Railroad Transportation - 434 Waterway Transportation - 662.1 Automobiles - 663.1 Heavy Duty Motor Vehicles - 691 Bulk Handling and Unit Loads - 694 Packaging - 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 723 Computer Software, Data Handling and Applications - 912.2 Management - 921 Mathematics
DOI: 10.1155/2015/710565
Database: Compendex

Data Provider: Engineering Village

126. A Perspective on Modeling and Characterization of Transformations in the Blocky Nature of Olefin Block Copolymers

Accession number: 20153801291951
Authors: Ahmadi, Mostafa (1); Saeb, Mohammad Reza (2); Mohammadi, Yousef (3); Khorasani, Mohammad Mehdi (3); Stadler, Florian J. (4, 5, 6, 7)
Author affiliation: (1) Department of Polymer Engineering and Color Technology, Amirkabir University of Technology, Tehran, Iran; (2) Department of Resin and Additives, Institute for Color Science and Technology, P.O. Box 16765-654, Tehran, Iran; (3) Petrochemical Research and Technology Company (NPC-rt), National Petrochemical Company (NPC), P.O. Box 14358-84711, Tehran, Iran; (4) College of Materials Science and Engineering, Shenzhen University, Shenzhen, China; (5) Shenzhen Key Laboratory of Special Functional Materials, Shenzhen University, Shenzhen, China; (6) Shenzhen Engineering Laboratory for Advanced Technology of Ceramics, Shenzhen University, Shenzhen, China; (7) Nanshan District Key Lab for Biopolymers and Safety Evaluation, Shenzhen University, Shenzhen, China
Corresponding author: Saeb, Mohammad Reza
Source title: Industrial and Engineering Chemistry Research
Abbreviated source title: Ind. Eng. Chem. Res.
Volume: 54
Issue: 36
Issue date: September 16, 2015
Publication year: 2015
Pages: 8867-8873
Language: English
ISSN: 08885885
E-ISSN: 15205045
CODEN: IECRED
Document type: Journal article (JA)
Publisher: American Chemical Society
Abstract: Traditional characterization methods are still unable to reveal the block structure of olefin block copolymers (OBCs). Therefore, when the predictability of our well-developed computer code (Mohammadi et al. Macromolecules, 2014, 47, 4778-4789) is extended, the blocky nature of OBCs is modeled and characterized. The expanded model could produce a diversity of macromolecules varying in the concentration of chain-shuttling agent, catalyst ratio, and monomer composition as key processing variables. The OBCs were screened and distinguished in view of chain-related specifics, i.e., chain length and chemical composition distribution, as well as block-related characteristics, i.e., number, length, and chemical composition of hard and soft blocks. A detailed picture of the blockiness was captured and visualized tracing transitions in the microstructure of copolymers, from the case corresponding to a blend

copolymer (without any shuttling) to an OBC (with considerable shuttling) and then to random copolymers, reflecting the significance of the chosen parameters in determining the blockiness of OBCs. © 2015 American Chemical Society.
Number of references: 29
Main heading: Block copolymers
Controlled terms: Blending - Chains - Macromolecules - Olefins
Uncontrolled terms: Block structures - Characterization methods - Chemical composition distributions - Chemical compositions - Monomer compositions - Olefin block copolymers - Processing variables - Random copolymer
Classification code: 602.1 Mechanical Drives - 802.3 Chemical Operations - 804.1 Organic Compounds - 815.1 Polymeric Materials
DOI: 10.1021/acs.iecr.5b01180
Database: Compendex
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Data Provider: Engineering Village

127. Large-area color controllable remote carbon white-light light-emitting diodes

Authors: Zhang, Wenfei (1, 2); Yu, Siu Fung (1, 2); Fei, Linfeng (2); Jin, Limin (1, 2); Pan, Shusheng (3); Lin, Peng (4)
Author affiliation: (1) Shenzhen Research Institute, Hong Kong Polytechnic University, Shenzhen, China; (2) Department of Applied Physics, Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong; (3) Key Laboratory of Materials Physics, Institute of Solid State Physics, Chinese Academy of Science, Hefei, Anhui, China; (4) College of Materials Science and Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Yu, Siu Fung
Abstract: We disperse carbon nanodots (C-dots), which can be achieved by decomposing organic acid in silane coupling agent, in epoxy oligomer to realize large-area C-dots film on any transparent substrate. Due to the similarity in solubility parameters between C-dots and epoxy resin, aggregation of C-dots in epoxy resin is suppressed. It is found that the C-dots films can support high conversion efficiency (>60%) white-light emission under 460 nm illumination. In addition, the corresponding correlated color temperature can be varied between 2500 and 10,000 K by controlling the thickness of the C-dots film. We also verify that the absolute performance of C-dots film is compatible with that of the commercial available phosphor film. © 2015 Elsevier Ltd. All rights reserved.
Number of references: 25
Main heading: Light emitting diodes
Controlled terms: Carbon - Coupling agents - Epoxy resins - Light emission
Uncontrolled terms: Absolute performance - Correlated color temperature - Epoxy oligomers - High conversion efficiency - Silane coupling agent - Solubility parameters - Transparent substrate - White light emission
Classification code: 741.1 Light/Optics - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 815.1.1 Organic Polymers
DOI: 10.1016/j.carbon.2014.12.107
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

128. Vector Laguerre-Gaussian soliton in strong nonlocal nonlinear media

Authors: Wang, Qing (1, 2); Zhen Li, Jing (1)
Author affiliation: (1) Shenzhen Key Laboratory of Micro-Nano Photonic Information Technology, College of Electronic Science and Technology, Shenzhen University, Guangdong, China; (2) College of Optoelectronic Engineering, Shenzhen University, Guangdong, China
Corresponding author: Wang, Qing

Abstract: In this paper, the analytical vector Laguerre-Gaussian (LG) solutions are obtained in strongly nonlocal nonlinear media by variational approach. The comparisons of analytical solutions with numerical results show that the analytical vector LG solutions are in good agreement with the numerical simulations. Furthermore, we numerically proved that the completely stationary vector LG soliton, scalar LG soliton and even (odd) LG soliton can be obtained only in strong nonlocal media. For the general and weakly nonlocal cases, the single LG beam breaks up and the single even LG beam expands during propagation, only the LG beam pairs can reduce to a quasistable soliton due to the stabilizing mutual attraction between its components. © 2015 Elsevier B.V. All rights reserved.

Number of references: 21
Main heading: Solitons
Controlled terms: Gaussian beams - Nonlinear optics - Nonlinear systems - Vectors
Uncontrolled terms: Laguerre-Gaussian - LG beams - Nonlocal - Nonlocal nonlinear media - Numerical results - Stationary vectors - Variational approaches - Vector soliton
Classification code: 711 Electromagnetic Waves - 741.1.1 Nonlinear Optics - 921 Mathematics - 921.1 Algebra - 961 Systems Science
DOI: 10.1016/j.optcom.2015.05.065
Database: Compendex

Data Provider: Engineering Village

129. Microfiber-based WS2-film saturable absorber for ultra-fast photonics

Accession number: 20151200662107

Authors: Yan, Peiguang (1); Liu, Aijiang (1); Chen, Yushan (1); Chen, Hao (1); Ruan, Shuangchen (1); Guo, Chunyu (1); Chen, Sifan (1); Li, Irene Ling (1); Yang, Haipeng (2); Hu, Juguang (3); Cao, Guangzhong (4)
Author affiliation: (1) Shenzhen key laboratory of laser engineering, Key Lab. of Advanced Optical Precision Manufacturing Technology of Guangdong Higher Education Inst., College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (2) College of Materials Science and Engineering, Shenzhen University, ShenZhen, China; (3) College of Physics Science and Technology, Shenzhen University, ShenZhen, China; (4) Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, ShenZhen, China
Corresponding author: Ruan, Shuangchen

Abstract: In this paper, we demonstrated a passively mode-locked erbium-doped fiber (EDF) laser by incorporating a tungsten disulfide (WS2) film SA fabricated by pulsed laser deposition (PLD) method. The WS2 film was thickness-dependent, which had two different states: the bulk WS2 [faced to plasma plume] and tiny WS2 flakes [in the shadow of plasma plume]. This SA device demonstrated low insertion loss (IL) and high power tolerance ability. Interestingly, the SA device possessed different nonlinear absorption regimes related with the film states. By employing this new type of SA, we obtained stable fundamental mode-locking (FML) at pump power of 54 mW, and the generated soliton pulse had pulse duration of 675 fs and signal-to-noise ratio (SNR) of 65 dB. At the maximum pump power of 395 mW, we also obtained up to 1 GHz repetition rate of harmonic mode-locking (HML) with pulse duration of 452 fs and SNR

131. A survey of energy harvesting communications: Models and offline optimal policies

Accession number: 20152700986399
Authors: He, Yejun (1); Cheng, Xudong (1); Peng, Wei (2); Stüber, Gordon L. (3)
Author affiliation: (1) Shenzhen University, China; (2) Huazhong University of Science and Technology, China; (3) School of Electrical and Computer Engineering, Georgia Institute of Technology, United States
Source title: IEEE Communications Magazine
Abbreviated source title: IEEE Commun Mag
Volume: 53
Issue: 6
Issue date: June 1, 2015
Publication year: 2015
Pages: 79-85
Article number: 7120021
Language: English
ISSN: 01636804
CODEN: ICOMD9
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: As people pay more attention to environmental protection and energy conservation issues, energy consumption in communications have become a hot research field. In wireless communications networks such as wireless sensor networks, traditional battery-operated devices or nodes have a short lifetime and die after the batteries are depleted, and replacing the batteries may be very costly and sometimes will be impossible. Therefore, energy harvesting (EH) communications have become a good means to solve this problem. EH communications mean the nodes can continue working by harvesting ambient energy. EH communications are different from the traditional battery-operated communications, so we need new models and optimal transmission policies to maximize the throughput. In this article we review different methods of harvesting the ambient energy in EH communications and the models of EH communications. We focus on offline optimal policies, then compare different policies and classify them into certain types. Finally, we propose several open research challenges and directions for future work. © 2015 IEEE.
Number of references: 15
Main heading: Wireless sensor networks
Controlled terms: Electric batteries - Energy harvesting - Energy utilization - Sensor nodes - Wireless telecommunication systems
Uncontrolled terms: Battery operated devices - Offline - Optimal policies - Optimal transmission policy - Research challenges - Research fields - Wireless communications networks
Classification code: 525.3 Energy Utilization - 525.5 Energy Conversion Issues - 702.1 Electric Batteries - 716 Telecommunication; Radar, Radio and Television - 717 Optical Communication - 722 Computer Systems and Equipment - 732 Control Devices
DOI: 10.1109/MCOM.2015.7120021
Database: Compendex

132. Multi-objective PSO based on grid strategy

Accession number: 20154301446903
Authors: Liu, Yanmin (1); Niu, Ben (2); Chan, Felix T.S. (3); Liu, Rui (1); Sui, Changling (4)
Author affiliation: (1) School of Mathematics and Computer Science, Zunyi Normal College, Zunyi, China; (2) College of Management, Shenzhen University, Shenzhen, China; (3) Department of Industrial and System Engineering, Hong Kong Polytechnic University, Kowloon, Hong Kong; (4) College of Life Science, Zunyi Normal College, Zunyi, China
Corresponding author: Liu, Yanmin
Source title: Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)
Abbreviated source title: Lect. Notes Comput. Sci.
Volume: 9226
Monograph title: Intelligent Computing Theories and Methodologies - 11th International Conference, ICIC 2015, Proceedings

Abstract: In multi-objective optimization problem (MOP), keeping solution diversity is key case for solution quality. To improve the MOP quality, the diversity maintenance threshold value $_{(\lambda\alpha)}$ is proposed to keep solutions diversity based on adaptive grid strategy. These strategies can adaptive maintain the non-inferior diversity to improve swarm individual fly to the global optimal. Four test problems are selected to test the proposed strategy compared with other classical methods, and three performance metrics are chosen to explore the algorithm effectiveness. © Springer International Publishing Switzerland 2015.

Data Provider: Engineering Village

133. Intensity modulated refractive index sensor based on optical fiber Michelson interferometer

Accession number: 20144800260934
Authors: Zhou, Jiangtao (1); Wang, Yiping (1); Liao, Changrui (1); Sun, Bing (1); He, Jun (1); Yin, Guolu (1); Liu, Shen (1); Li, Zhengyong (1); Wang, Guanjun (1); Zhong, Xiaoyong (1); Zhao, Jing (1)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Wang, Yiping

Abstract: We demonstrated a refractive index (RI) sensor based on optical fiber Michelson interferometer (MI), which was fabricated by splicing a section of thin core fiber (TCF) to a standard single mode fiber with a core offset. Experimentally, such a MI-based RI sensor with a core offset of 8 μm and a TCF length of 3 mm exhibits a high resolution of 4.9×10^{-6} RIU and sensitivity of -202.46 dB/RIU, which is two or three times higher than that of intensity-modulated RI sensors reported previously. In contrast, our MI-based RI sensor is insensitive to temperature, thus overcoming the cross-sensitivity problem between surrounding RI and temperature. Moreover, intensity modulation, rather than wavelength modulation, was used in the proposed MI-based RI sensor, and the sensor also has the advantages of compact size (8 mm), simple structure, easy fabrication, and good repeatability.

Number of references: 25
Main heading: Refractive index
Controlled terms: Fibers - Michelson interferometers - Modulation - Optical fiber fabrication - Refractometers - Single mode fibers
Uncontrolled terms: Fresnel reflections - Michelson interferences - Optical fiber sensor - Reflective index - Temperature insensitivity
Classification code: 716 Telecommunication; Radar, Radio and Television - 717 Optical Communication - 718 Telephone Systems and Related Technologies; Line Communications - 741.1 Light/Optics - 741.1.2 Fiber Optics - 812 Ceramics, Refractories and Glass - 817 Plastics and Other Polymers: Products and Applications - 941.3 Optical Instruments
DOI: 10.1016/j.snb.2014.11.014
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

134. Non-contact human machine interface based on bio-interaction with wireless power transfer features

Accession number: 20161002066979
Authors: Xiao, Zhiming (1); Genschow, Dieter (2); Liu, Chenhui (3); Li, Yan (1); Li, Changzhi (3)
Author affiliation: (1) Shenzhen University, Shenzhen, China; (2) Innovations for High Performance Microelectronics, Germany; (3) Department of ECE, Texas Tech University, Lubbock; TX, United States
Source title: 2015 IEEE MTT-S International Microwave Workshop Series on RF and Wireless Technologies for Biomedical and Healthcare Applications, IMWS-BIO 2015 - Proceedings
Abbreviated source title: IEEE MTT-S Int. Microw. Workshop Ser. RF Wirel. Technol. Biomed. Healthc. Appl., IMWS-BIO - Proc.
Monograph title: 2015 IEEE MTT-S International Microwave Workshop Series on RF and Wireless Technologies for Biomedical and Healthcare Applications, IMWS-BIO 2015 - Proceedings
Issue date: October 21, 2015
Publication year: 2015
Pages: 167-168
Article number: 7303831
Language: English
ISBN-13: 9781479985432
Document type: Conference article (CA)
Conference name: IEEE MTT-S International Microwave Workshop Series on RF and Wireless Technologies for Biomedical and Healthcare Applications, IMWS-BIO 2015
Conference date: September 21, 2015 - September 23, 2015
Conference location: Taipei, Taiwan
Conference code: 117307
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: This paper presents a non-contact human machine interface to sense the position or bio-activity of human body. Based on the electrical response of power transferring coil to the physical shapes, impedance, and dielectric constant of human body, the proposed architecture can be easily integrated and allows the smart devices to read information including physical position or cardiorespiratory activity of human body. A commercial WPT/NFC coils incorporated in an LC resonate tank senses the human activities and changes the oscillating frequency accordingly. High sensitivity is achieved by utilizing a mixer that down converts the resonant frequency to baseband from a carrier frequency of several MHz. Experiment was carried out by correlating the frequency shifts to the hand-coil distance. As an example, the result shows good indication of hand position when the distance is below 10mm. By proper arrangement of multiple coils, the information of hand position can be easily extracted through further processing by smart devices. © 2015 IEEE.
Number of references: 4
Main heading: Man machine systems
Controlled terms: Health care - Inductive power transmission - Natural frequencies - Wireless telecommunication systems
Uncontrolled terms: bio-interaction - Carrier frequency - Electrical response - Human activities - Human Machine Interface - Oscillating frequencies - Proposed architectures - Wireless power transfer
Classification code: 461.7 Health Care - 706.1.1 Electric Power Transmission
DOI: 10.1109/IMWS-BIO.2015.7303831
Compendex references: YES

135. Facial memorability prediction fusing geometric and texture features

Accession number: 20161102093125
Authors: Dai, Ziyi (1, 2); Pan, Zehua (1, 2); Wu, Yewei (1, 3); Shen, Linlin (1, 3); Hou, Qibin (1, 3)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, ShenZhen, GuangDong, China; (2) School of Mathematics and Statics, Wuhan University, Wuhan, Hubei, China; (3) Ningbo Augvision Digital Tech Ltd., China
Source title: 2015 IEEE International Conference on Information and Automation, ICIA 2015 - In conjunction with 2015 IEEE International Conference on Automation and Logistics
Abbreviated source title: IEEE Int. Conf. Inf. Autom., ICIA - conjunction IEEE Int. Conf. Autom. Logist.
Monograph title: 2015 IEEE International Conference on Information and Automation, ICIA 2015 - In conjunction with 2015 IEEE International Conference on Automation and Logistics
Issue date: September 28, 2015
Publication year: 2015
Pages: 998-1002
Article number: 7279432
Language: English
ISBN-13: 9781467391047
Document type: Conference article (CA)
Conference name: 2015 IEEE International Conference on Information and Automation, ICIA 2015 - In conjunction with 2015 IEEE International Conference on Automation and Logistics
Conference date: August 8, 2015 - August 10, 2015
Conference location: Yunnan, China
Conference code: 116345
Sponsor: CAS Shenzhen Institute of Advanced Technology; Harbin Institute of Technology Shenzhen Graduate School; HIT State Key Laboratory of Robotics and Systems; IEEE Robotics and Automation Society; Shanghai Gaitech Scientific Instruments Co., Ltd.; The Chinese University of Hong Kong
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: As different faces have different features, the degree of memorability of faces are different, which are named memorability in this paper. We mainly study the relation between the memorability and different features such as the geometrical features of the faces, the location of eyes, the size of mouth and eyes and the Histogram of Oriented Gradient (HOG). We use SVR model to regress the features of face images, and predict the memorability score. Finally, we use the spearman rank correlation coefficient and residual sumof- squares error to analyze the correlation and error of the predicted memorability score with ground truth. © 2015 IEEE.
Number of references: 17
Main heading: Automation
Uncontrolled terms: Geometrical features - Ground truth - Histogram of oriented gradients (HOG) - memorability - Multiple features - Spearman rank correlation - Sum of squares - Texture features
Classification code: 731 Automatic Control Principles and Applications
DOI: 10.1109/ICInfA.2015.7279432
Compendex references: YES

136. A novel sense-amplifier based flip-flop with bulk-driven technique

Accession number: 20153701270147
Authors: Deng, Xiaoying (1); Mo, Yanyan (1); Tang, Xihui (1); Lin, Xin (1); Liu, Liu (1)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, Guangdong, China
Corresponding author: Deng, Xiaoying
Source title: China Semiconductor Technology International Conference 2015, CSTIC 2015
Abbreviated source title: China Semicond. Technol. Int. Conf., CSTIC
Part number: 1 of 1
Monograph title: China Semiconductor Technology International Conference 2015, CSTIC 2015
Issue date: July 8, 2015
Publication year: 2015

Article number: 7153485
Language: English
ISBN-13: 9781479972418
Document type: Conference article (CA)
Conference name: 2015 China Semiconductor Technology International Conference, CSTIC 2015
Conference date: March 15, 2015 - March 16, 2015
Conference location: Shanghai, China
Conference code: 113814
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: A new bulk-driven sense-amplifier based flip-flop (BDSAFF) is presented in this paper. Based on bulk-driven technique, this new flip-flop can reduce power dissipation by connecting control signals from the bulk terminal so as to control the substrate bias and generate current difference. The adopted pseudo-PMOS dynamic technology in the RS latch output stage can greatly reduce delay and improve driving capability. The simulation results, with respect to the recently proposed high-performance flip-flops, show advantages of high speed, low power dissipation, very small and balanced rise/fall delay. Under the same simulation conditions, the power dissipation, delay and PDP of the Strollo SAFF is 31μW, 107ps and 3.32fJ while that of the proposed BDSAFF is 29μW, 94ps and 2.73fJ. This new flip-flop can be used in memory cores and low-swing bus drivers to improve performance or reduce power dissipation. © 2015 IEEE.

Number of references: 5
Main heading: Flip flop circuits
Controlled terms: Amplifiers (electronic) - Bus drivers - Electric losses - Semiconductor device manufacture
Uncontrolled terms: Current difference - Driving capability - Dynamic technologies - Improve performance - Low-power dissipation - Rise/fall delays - Sense amplifier - Substrate bias
Classification code: 432.2 Passenger Highway Transportation - 701.1 Electricity: Basic Concepts and Phenomena - 713.1 Amplifiers - 713.4 Pulse Circuits - 714.2 Semiconductor Devices and Integrated Circuits
DOI: 10.1109/CSTIC.2015.7153485
Database: Compendex

Data Provider: Engineering Village

137. An Effective Error Correction Scheme for Arithmetic Coding

Accession number: 20153001072205
Authors: Lin, Qiuzhen (1, 2); Wong, Kwok-Wo (2); Li, Ming (3, 4); Chen, Jianyong (1)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (2) Department of Electronic Engineering, City University of Hong Kong, 83 Tat Chee Avenue, Kowloon Tong, Hong Kong; (3) Shanghai Key Laboratory of Multidimensional Information Processing, East China Normal University, Shanghai, China; (4) School of Information Science and Technology, East China Normal University, Shanghai, China
Corresponding author: Chen, Jianyong
Source title: Mathematical Problems in Engineering
Abbreviated source title: Math. Probl. Eng.
Volume: 2015
Issue date: 2015
Publication year: 2015
Article number: 861093
Language: English
ISSN: 1024123X
E-ISSN: 15635147
Document type: Journal article (JA)
Publisher: Hindawi Publishing Corporation, 410 Park Avenue, 15th Floor, 287 pmb, New York, NY 10022, United States

Abstract: We propose an effective error correction technique for arithmetic coding with forbidden symbol. By predicting the occurrence of the subsequent forbidden symbols, the forbidden region is actually expanded and theoretically, a better error correction performance can be achieved. Moreover, a generalized stack algorithm is exploited to detect the forbidden symbol beforehand. The proposed approach is combined with the maximum a posteriori (MAP) metric to keep the highly probable decoding paths in the stack. Simulation results justify that our scheme performs better than the existing MAP methods on the error correction performance, especially at a low coding rate. © 2015 Qiuzhen Lin et al.

Number of references: 34
Main heading: Errors
Controlled terms: Codes (symbols) - Digital arithmetic - Error correction

Uncontrolled terms: Arithmetic Coding - Correction performance - Correction techniques - Error-correction schemes - Forbidden region - Forbidden symbol - Maximum a posteriori - Stack algorithm
Classification code: 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 723.2 Data Processing and Image Processing - 731 Automatic Control Principles and Applications - 921 Mathematics
DOI: 10.1155/2015/861093
Database: Compendex

Data Provider: Engineering Village

138. Rail inspection meets big data: Methods and trends

Accession number: 20161902359241
Authors: Li, Qingyong (1); Zhong, Zhangdui (1); Liang, Zhengping (2); Liang, Yong (3)
Author affiliation: (1) Beijing Key Lab of Transportation Data Analysis and Mining, Beijing Jiaotong University, Beijing, China; (2) College of Computer Science and Software Engineering, Shenzhen University, China; (3) Communication and Power Utilization Technology Subcompany, State Grid Electric Power Research Institute, State Grid, Beijing, China
Source title: Proceedings - 2015 18th International Conference on Network-Based Information Systems, NBiS 2015
Abbreviated source title: Proc. - Int. Conf. Netw.-Based Inf. Syst., NBiS
Monograph title: Proceedings - 2015 18th International Conference on Network-Based Information Systems, NBiS 2015
Issue date: December 9, 2015
Publication year: 2015
Pages: 302-308
Article number: 7350636
Language: English
ISBN-13: 9781479999422
Document type: Conference article (CA)
Conference name: 18th International Conference on Network-Based Information Systems, NBiS 2015
Conference date: September 2, 2015 - September 4, 2015
Conference location: Taipei, Taiwan
Conference code: 118815
Sponsor: Tamkang University
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Rail inspection is one of the most important tasks for rail industry, in order to guarantee the safety of railway systems and control their cost. Rail are systematically inspected for defects using various non-destructive evaluation (NDE) techniques, which include ultrasonic inspection, visual detection, magnetic flux leakage method, acoustic emission inspection etc. The data obtained by these NDE devices are going to increase in both quality and quantity, therefore big data has emerged as a potential challenge for rail inspection. This paper reviews the advanced NDE techniques for rail inspection, and brings forward a new framework of rail inspection based on big data, according to the characteristics of inspection data. © 2015 IEEE.
Number of references: 22
Main heading: Ultrasonic testing
Controlled terms: Accident prevention - Acoustic emission testing - Big data - Defects - Information systems - Inspection - Leakage (fluid) - Magnetic leakage - Nondestructive examination - Quality control - Railroad transportation - Rails - Ultrasonic applications
Uncontrolled terms: Inspection datum - Magnetic flux leakage - Non destructive evaluation - Non-destructive evaluation techniques - Rail defects - Rail inspections - Ultrasonic inspections - Visual detection
Classification code: 433.1 Railroad Transportation, General - 681.1 Railway Plant and Structures, General - 701.2 Magnetism: Basic Concepts and Phenomena - 723.2 Data Processing and Image Processing - 751.2 Acoustic Properties of Materials - 753.3 Ultrasonic Applications - 903.2 Information Dissemination - 913.3 Quality Assurance and Control - 914.1 Accidents and Accident Prevention - 951 Materials Science
DOI: 10.1109/NBiS.2015.47
Compendex references: YES
Database: Compendex

Data Provider: Engineering Village

139. Modeling a regional emission trade market via computer simulation

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Detailed results: 396
Downloaded: 6/15/2016

Accession number: 20160301813752
Authors: Zhou, Ming (1); Zhou, Meirong (1); Pan, Yanchun (1); Chen, Zhimin (1)
Author affiliation: (1) College of Management, Shenzhen University, Nanhai Ave. 3688, Shenzhen, Guangdong, China
Corresponding author: Zhou, Ming(mzhou@szu.edu.cn)
Source title: Simulation Series
Abbreviated source title: Simul. Ser.
Volume: 47
Volume title: Symposium on Theory of Modeling and Simulation - DEVS Integrative M and S Symposium, DEVS 2015 - 2015 Spring Simulation Multi-Conference, SpringSim 2015
Issue: 10
Issue date: 2015
Publication year: 2015
Pages: 35-40
Language: English
ISSN: 07359276
Document type: Conference article (CA)
Conference name: 47th Summer Computer Simulation Conference, SCSC 2015, Part of the 2015 Summer Simulation Multi-Conference, SummerSim 2015
Conference date: July 26, 2015 - July 29, 2015
Conference location: Chicago, IL, United states
Conference code: 117510
Publisher: The Society for Modeling and Simulation International
Abstract: To control air pollution and promote green production, China has established regional emission trade markets (RETM) at several "trial cities". These systems operate under the conditions of "Cap and Trade". Participating companies are restricted in total greenhouse-gas-emission through initial allocation of emission quotes (EQ); but allowed to purchase EQ to satisfy additional needs via a market system. Alternatively they can conduct self-purification (SP) to reduce emission level to satisfy the over-emission needs and sell the surplus (e.g. in the form of certified-emission-quotes) to gain revenue via the market. There are various risks associated with these decisions, e.g. fluctuation of market EQ price and cost of making emission reduction. The companies' decisions are individually made (i.e. decentralized) and together they impact the market's overall behavior. The interaction between many decision makers and the market performance is dynamic and uncertain. The performance is highly influenced by policy design (e.g. agencies that create, run and regulate the market). The purpose of this paper is to verify the design of a multi-agent based simulation model, based on a study in Shenzhen, to analyze the emission market's performance under different risk profiles with respect to the criteria set by system designer and policy makers. © 2015 Society for Modeling & Simulation International (SCS).
Number of references: 26
Main heading: Commerce
Controlled terms: Air pollution control - Decision making - Emission control - Gas emissions - Greenhouse gases - Multi agent systems - Pollution control - Systems analysis
Uncontrolled terms: Cap-and-trade program - Emission reduction - Emission trades - Initial allocations - Market performance - Multi agent based simulations - Multi-Agent Model - System simulations
Classification code: 451.1 Air Pollution Sources - 451.2 Air Pollution Control - 912.2 Management - 961 Systems Science
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

140. Segment Based Decision Tree Induction with Continuous Valued Attributes

Accession number: 20152600983802
Authors: Wang, Ran (1, 2); Kwong, Sam (1); Wang, Xi-Zhao (3); Jiang, Qingshan (2)
Author affiliation: (1) Department of Computer Science, City University of Hong Kong, Hong Kong, Hong Kong; (2) Shenzhen Key Laboratory for High Performance Data Mining, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China; (3) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China
Source title: IEEE Transactions on Cybernetics
Abbreviated source title: IEEE Trans. Cybern.
Volume: 45
Issue: 7

Abstract: A key issue in decision tree (DT) induction with continuous valued attributes is to design an effective strategy for splitting nodes. The traditional approach to solving this problem is adopting the candidate cut point (CCP) with the highest discriminative ability, which is evaluated by some frequency based heuristic measures. However, such methods ignore the class permutation of examples in the node, and they cannot distinguish the CCPs with the same or similar frequency information, thus may fail to induce a better and smaller tree. In this paper, a new concept, i.e., segment of examples, is proposed to differentiate the CCPs with same frequency information. Then, a new hybrid scheme that combines the two heuristic measures, i.e., frequency and segment, is developed for splitting DT nodes. The relationship between frequency and the expected number of segments, which is regarded as a random variable, is also given. Experimental comparisons demonstrate that the proposed scheme is not only effective to improve the generalization capability, but also valid to reduce the size of the tree. © 2013 IEEE.

Number of references: 43
Main heading: Decision trees
Controlled terms: Classification (of information)
Uncontrolled terms: Continuous-valued attribute - Decision tree induction - Discriminative ability - Experimental comparison - Frequency information - Generalization capability - segment - Traditional approaches
Classification code: 716.1 Information Theory and Signal Processing - 922 Statistical Methods - 961 Systems Science
DOI: 10.1109/TCYB.2014.2348012
Database: Compendex

Data Provider: Engineering Village

141. Accurate direct georeferencing of aerial imagery in national coordinates

Accession number: 20151600755214
Authors: Shen, Xiang (1, 2, 3); Zhang, Yongjun (2); Li, Qingquan (3)
Author affiliation: (1) Key Lab. for Geo-Environment Monitoring of Coastal Zone of the National Administration of Surveying, Mapping and GeoInformation and Shenzhen Key Laboratory of Spatial Smart Sensing and Services, Shenzhen University, Nanhai Road 3688, Shenzhen, China; (2) School of Remote Sensing and Information Engineering, Wuhan University, Luoyu Road 129, Wuhan, China; (3) College of Information Engineering, Shenzhen University, Nanhai Road 3688, Shenzhen, China
Corresponding author: Zhang, Yongjun

Abstract: In aerial photogrammetry, data products are commonly needed in national coordinates, and, in practice, the georeferencing is often performed in the required national map projection frame directly. However, as a map projection frame is not Cartesian, some additional corrections are necessary in the georeferencing process to take account of various map projection distortions. This paper presents a new map projection correction method for the direct georeferencing of aerial images in national coordinates, which comprises of three consecutive steps: (1) a rough intersection to predict ground point coordinates in the Cartesian space; (2) calculating map projection corrections; and (3) a fine intersection. Benefiting from the explicit estimation of ground positions in the Cartesian space, our new method can directly adopt the accurate map projection distortion model that was previously developed for the direct georeferencing of airborne LiDAR data in national coordinates. Simulations show that the correction residuals of our new method are smaller by one order of magnitude than those of the previous best approach while their computational

costs are at the same level, and even in an extreme scenario of 8000. m flight height above ground, the maximum error of our method is only several centimeters, which can be safely neglected in practical applications. © 2015 International Society for Photogrammetry and Remote Sensing, Inc. (ISPRS).

Number of references: 18
Main heading: Mapping
Controlled terms: Aerial photography - Distortion (waves) - Electric power factor correction - Photogrammetry
Uncontrolled terms: Aerial photogrammetry - Airborne lidar data - Computational costs - Correction method - Direct georeferencing - Georeferencing - Height above ground - Map projection
Classification code: 405.3 Surveying - 706 Electric Transmission and Distribution - 711.1 Electromagnetic Waves in Different Media - 902.1 Engineering Graphics
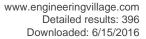**DOI:** 10.1016/j.isprsjprs.2015.03.008
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

142. A spatio-temporal decision support framework for large scale logistics distribution in the metropolitan area

Accession number: 20154701577152
Authors: Tu, Wei (1, 2, 3); Li, Qingquan (1, 2, 4); Chang, Xiaomeng (1, 2, 4); Yue, Yang (1, 2); Zhu, Jiasong (1, 2)
Author affiliation: (1) Shenzhen Key Laboratory of Spatial Smart Sensing and Services, College of Civil Engineering, Shenzhen University, Shenzhen, China; (2) Key Laboratory for Geo-Environment Monitoring of Coastal Zone, National Administration of Surveying, Mapping and GeoInformation, Shenzhen University, Shenzhen, China; (3) College of Information Engineering, Shenzhen University, Shenzhen, China; (4) State Key Laboratory, Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, 129 Luoyu Road, Wuhan, China
Corresponding author: Tu, Wei
Source title: Advances in Geographic Information Science
Abbreviated source title: Adv. Geogr. inf. Sci.
Volume: 19
Monograph title: Advances in Spatial Data Handling and Analysis - Select Papers from the 16th IGU Spatial Data Handling Symposium
Issue date: 2015
Publication year: 2015
Pages: 193-206
Language: English
ISSN: 18672434
E-ISSN: 18672442
ISBN-13: 9783319199498
Document type: Conference article (CA)
Conference name: 16th International Symposium on Spatial Data Handling, SDH 2014
Conference date: October 6, 2014 - October 8, 2014
Conference location: Toronto, ON, Canada
Conference code: 155859
Publisher: springer berlin
Abstract: Rapid growing urbanization and explosive e-business expect effective logistics distribution service in the metropolitan area. Because of traffic control, commuting peak and unpredictable traffic accidents, traffic states in the metropolitan area fluctuate sharply, leading to the unacceptable logistics service delay in our daily life. To overcome this problem, a spatio-temporal decision support (STDS) framework is developed to facilitate large scale logistics distribution in the metropolitan area. It consists of a traffic information database, a spatio-temporal heuristic algorithm module, many intelligent mobile apps and a cloud geographical information science (GIS) based logistics server. The spatio-temporal heuristics algorithm is to optimize logistics vehicle routing with the historical traffic information. The mobile apps guide the deliverymen in the real-time logistics. The cloud GIS based logistics server integrates traffic information, client demands, vehicle information, the optimization of vehicle routing and the monitoring of logistics processes. The STDS framework has been implemented in a GIS environment. Its performance is evaluated with large scale logistics cases in Guangzhou, China. Results demonstrates the effectiveness and the efficiency of the developed STDS framework. The STDS framework could be widely used in the logistics distribution in metropolitan area, such as the express delivery, e-business, and so on. © Springer International Publishing Switzerland 2015.
Number of references: 33
Main heading: Decision support systems

Controlled terms: Algorithms - Data handling - Electronic commerce - Enterprise resource planning - Geographic information systems - Heuristic algorithms - Optimization - Traffic control - Vehicle routing - Vehicles
Uncontrolled terms: Decision support framework - Decision supports - Geographical information - Heuristics algorithm - Large-scale logistics - Logistics distribution - Logistics vehicles - Traffic information
Classification code: 723 Computer Software, Data Handling and Applications - 903.3 Information Retrieval and Use - 921.5 Optimization Techniques
DOI: 10.1007/978-3-319-19950-4_12
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

143. Novel X-ray streak camera with large dynamic range dedicated to initial confinement fusion facility

Accession number: 20151700789787
Authors: Liao, Hua (1); Yang, Qinlao (1)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Liao, Hua
Source title: Zhenkong Kexue yu Jishu Xuebao/Journal of Vacuum Science and Technology
Abbreviated source title: Zhenkong Kexue yu Jishu Xuebao
Volume: 35
Issue: 2
Issue date: February 1, 2015
Publication year: 2015
Pages: 250-254
Language: Chinese
ISSN: 16727126
CODEN: CKKSDV
Document type: Journal article (JA)
Publisher: Science Press
Abstract: A novel type of X-ray streak camera, with large dynamic range and dedicated to Shenguang-III (SG-III) of initial confinement fusion facility, was designed, constructed and tested. The original work included: i) design optimization of the streak image tube to achieve higher spatial resolution and wider dynamic range; ii) special airtight box, housing the image tube, charge-coupled-device camera and electronic control units, to ensure stable operation environment, such as atmospheric pressure and room temperature; iii) automatic remote control with an embedded computer connected to Master-Control computer via Ethernet. The newly-developed camera was evaluated and field tested. The test results show that the camera well satisfies SG-III requirements with features included but not limited to the much improved contrast, dynamic range over 2000, time resolution faster than 10 ps, and high stability. The high time-resolved X-ray diagnosis and synchronous tests of SG-III with 48 laser beams are to be performed with the newly-developed camera. ©, 2015, Science Press. All right reserved.
Number of references: 3
Main heading: CCD cameras
Controlled terms: Atmospheric pressure - Charge coupled devices - Electronic design automation - Image converters - Image resolution - Image storage tubes - Laser beams - Nuclear energy - Remote control - Streak cameras - Tubes (components)
Uncontrolled terms: Dynamic range - Spatial resolution - Streak image tube - Time resolution - X-ray streak cameras
Classification code: 443.1 Atmospheric Properties - 616.1 Heat Exchange Equipment and Components - 621 Nuclear Reactors - 714.1 Electron Tubes - 714.2 Semiconductor Devices and Integrated Circuits - 731.1 Control Systems - 741 Light, Optics and Optical Devices - 742 Cameras and Photography - 742.2 Photographic Equipment - 744.8 Laser Beam Interactions
DOI: 10.13922/j.cnki.cjovst.2015.02.22
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

144. Tunable two-color soliton pulse generation through soliton self-frequency shift
Accession number: 20151800804082

Engineering Village

Authors: Qiu, Ping (1); Liang, Runfu (2); Wang, Ke (2)
Author affiliation: (1) College of Physics Science and Technology, Shenzhen University, China; (2) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Source title: Progress in Biomedical Optics and Imaging - Proceedings of SPIE
Abbreviated source title: Progr. Biomed. Opt. Imaging Proc. SPIE
Volume: 9347
Volume title: Nonlinear Frequency Generation and Conversion: Materials, Devices, and Applications XIV
Part number: 1 of 1
Issue date: 2015
Publication year: 2015
Article number: 93471J
Language: English
ISSN: 16057422
ISBN-13: 9781628414370
Document type: Conference article (CA)
Conference name: Nonlinear Frequency Generation and Conversion: Materials, Devices, and Applications XIV
Conference date: February 9, 2015 - February 12, 2015
Conference location: San Francisco, CA, United states
Conference code: 111956
Sponsor: The Society of Photo-Optical Instrumentation Engineers (SPIE)
Publisher: SPIE
Abstract: Tunable optical solitons due to intra-pulse stimulated Raman scattering are well-known for their ultrashort pulse width, superb pulse quality and broadband tunability. Consequently they are suitable for a variety of applications, especially multi-photon microscopy (MPM). Recent progress in MPM demands two- or multi-color excitation to match the absorption peaks of multiple fluorophores. Here we propose a new scheme to generate two-color solitons with each wavelength individually tunable. The wavelength of the most energetic soliton can be easily tuned through energy tuning, while stretching the input pulse width narrows the wavelength separation between the most and the second most energetic solitons. This tunable two-color source may find application in various modalities of MPM. © 2015 SPIE.
Number of references: 27
Main heading: Pulse generators
Controlled terms: Color - Frequency shift keying - Multiphoton processes - Photons - Solitons
Uncontrolled terms: Absorption peaks - Multi-photon microscopy - Optical soliton - Recent progress - Soliton pulse - Soliton self-frequency shift - Two-color - Wavelength separation
Classification code: 713.4 Pulse Circuits - 716 Telecommunication; Radar, Radio and Television - 717 Optical Communication - 718 Telephone Systems and Related Technologies; Line Communications - 741.1 Light/Optics - 931.3 Atomic and Molecular Physics
DOI: 10.1117/12.2074996
Database: Compendex
Data Provider: Engineering Village

145. Exploring a framework of a cloud-assisted peer-to-peer live streaming

Accession number: 20161302170155
Authors: Cui, L.Z. (1); Li, G.H. (1); Sun, L.L. (1); Lu, N. (1)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China
Source title: Network Security and Communication Engineering - Proceedings of the 2014 International Conference on Network Security and Communication Engineering, NSCE 2014
Abbreviated source title: Netw. Secur. Commun. Eng. Proc. Intern. Conf. Netw. Secur. Commun. Eng.
Monograph title: Network Security and Communication Engineering - Proceedings of the 2014 International Conference on Network Security and Communication Engineering, NSCE 2014
Issue date: 2015
Publication year: 2015
Pages: 133-136
Language: English
ISBN-13: 9781138028210
Document type: Conference article (CA)
Conference name: International Conference on Network Security and Communication Engineering, NSCE 2014
Conference date: December 25, 2014 - December 26, 2014

Conference location: Hong Kong, China
Conference code: 164059
Publisher: CRC Press/Balkema
Abstract: Although P2P has been the main solution for live streaming distribution, the dynamic restricts the performance. Cloud computing is a new promising solution, which could be introduced as a supplement for P2P. However, for seeking a balance between transmission performance and deployment cost, there has been no mature and integrated solution so far. In this paper, we design a cloud-assisted P2P live streaming system by combing two state-of-art video distribution technologies: cloud computing and P2P. We introduce a two layer framework, including the cloud layer and P2P layer. As for the two respective layers, we propose the corresponding formation and evolution method. The experiment results show that our system can outperform two classical P2P live streaming systems, in terms of the transmission performance and the reduction of cross-region traffic. © 2015 Taylor & Francis Group, London.
Number of references: 9
Main heading: Network security
Controlled terms: Arts computing - Cloud computing - Distributed computer systems - Peer to peer networks - Video streaming
Uncontrolled terms: Cloud layers - Deployment costs - Formation and evolutions - Integrated solutions - Live streaming - Peer-to-peer live streaming - Transmission performance - Video distribution
Classification code: 722 Computer Systems and Equipment - 722.4 Digital Computers and Systems - 723 Computer Software, Data Handling and Applications - 723.2 Data Processing and Image Processing
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

146. Fine adjustable non-glued Fiber Optic Taper array coupled digital X-ray detector

Accession number: 20152500946839
Authors: Zhao, Zhi-Gang (1); Wang, Ru (1); Lei, Yao-Hu (1); Guo, Jin-Chuan (1); Yang, Qin-Lao (1); Niu, Han-Ben (1)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Niu, Han-Ben
Source title: Guangzi Xuebao/Acta Photonica Sinica
Abbreviated source title: Guangzi Xuebao
Volume: 44
Issue: 5
Issue date: May 1, 2015
Publication year: 2015
Article number: 0504001
Language: Chinese
ISSN: 10044213
CODEN: GUXUED
Document type: Journal article (JA)
Publisher: Chinese Optical Society
Abstract: Fiber Optic Taper (FOT) array coupled digital X-ray detector is an efficient way for large-area high-resolution X-ray imaging applications, but the coupling method between the small ends of FOT array and the corresponding image sensors is commonly tightly glued coupling at present. To avoid the disadvantages in the conventional glued coupling method, a fine adjustable non-glued 2×2 FOT array coupled digital X-ray detector was designed and implemented. The proposed X-ray detector scheme can realize multi-dimensional adjustment of the four data acquisition boards on the same adjusting layer through the novel horizontal and vertical adjusting mechanisms, with the restriction of the limited adjusting space formed by the structure of the FOT array and the sizes of the printed circuit boards, and especially under the condition of the distance between the boards was only 40 mm in the vertical direction. According to the fact that the four data acquisition boards and the data transmission board are separated, an embedded Ethernet data acquisition system for multiple CMOS image sensors based on one ARM chip and four FPGA chips was implemented. Tested results showed that the implemented X-ray detector with the imaging area of as large as 100 mm×100 mm, can realize fine adjustable non-glued coupling and data acquisition of multiple CMOS image sensors, which could be a new way for multipurpose use in large-area high-resolution digital X-ray imaging applications for scientific researches. ©, 2015, Chinese Optical Society. All right reserved.
Number of references: 15
Page count: 6
Main heading: Fiber optic sensors

Controlled terms: CMOS integrated circuits - Couplings - Data acquisition - Digital cameras - Fiber optics - Field programmable gate arrays (FPGA) - Gluing - Image acquisition - Image sensors - Printed circuit boards - Printed circuits - X ray analysis - X ray apparatus
Uncontrolled terms: Adjusting mechanism - Data transimission - Fiber optic tapers - X-ray detector - Xray imaging
Classification code: 421 Strength of Building Materials; Mechanical Properties - 602 Mechanical Drives and Transmissions - 714.2 Semiconductor Devices and Integrated Circuits - 721.3 Computer Circuits - 723 Computer Software, Data Handling and Applications - 723.2 Data Processing and Image Processing - 741.1.2 Fiber Optics - 741.3 Optical Devices and Systems - 742.2 Photographic Equipment - 801 Chemistry - 811.2 Wood and Wood Products - 951 Materials Science
DOI: 10.3788/gzxb20154405.0504001
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

147. Refractive index sensor based on side-polished fiber Bragg grating

Accession number: 20161302149442
Authors: Wang, Qiao (1); Liao, Changrui (1); Xu, Lei (1); He, Jun (1); Liu, Shen (1); Zhao, Jing (1); Li, Zhengyong (1); Xu, Xizhen (1); Yang, Kaiming (1); Wang, Yiping (1)
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Corresponding author: Liao, Changrui(cliao@szu.edu.cn)
Source title: 2015 Optoelectronics Global Conference, OGC 2015
Abbreviated source title: Optoelectron. Glob. Conf., OGC
Monograph title: 2015 Optoelectronics Global Conference, OGC 2015
Issue date: November 24, 2015
Publication year: 2015
Article number: 7336860
Language: English
ISBN-13: 9781467377324
Document type: Conference article (CA)
Conference name: Optoelectronics Global Conference, OGC 2015
Conference date: August 29, 2015 - August 31, 2015
Conference location: Shenzhen, China
Conference code: 118363
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: We experimentally demonstrated the fabrication of fiber Bragg gratings by using femtosecond laser point-by-point inscription. It is easy to create fiber Bragg gratings with different grating periods by changing the translation speed of the optical fiber. Firstly, laser pulse energy was optimized to improve the transmission spectra of fiber Bragg gratings. Then, a fiber Bragg grating was inscribed in a side-polished fiber to work as a refractive index sensor based on the evanescent field. There is a nonlinear relationship between Bragg wavelength and surrounding refractive index, where a refractive index sensitivity of ~30 nm/RIU has been achieved at 1.450. Thus, such side-polished FBGs could be used to develop a promising biochemical sensor. © 2015 IEEE.
Number of references: 10
Main heading: Refractive index
Controlled terms: Bragg gratings - Evanescent fields - Fiber Bragg gratings - Fibers - Optical fiber fabrication - Optical fibers - Optoelectronic devices - Refractometers - Ultrashort pulses
Uncontrolled terms: Bio-chemical sensor - Laser-pulse energy - Non-linear relationships - Refractive index sensitivity - Refractive index sensor - Side-polished fiber - Surrounding refractive indices (SRI) - Transmission spectrums
Classification code: 701 Electricity and Magnetism - 741 Light, Optics and Optical Devices - 941.3 Optical Instruments
DOI: 10.1109/OGC.2015.7336860
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

148. Batching for Smart Home: Leveraging delay-insensitive workload in cloud storage

Accession number: 20152300921185

Authors: Guo, Suiming (1); Chen, Liang (2); Zhang, Guoqiang (3); Chiu, Dah Ming (1)
Author affiliation: (1) Department of Information Engineering, Chinese University of Hong Kong, China; (2) College of Information Engineering, Shenzhen University, China; (3) Xunlei (Thunder) Networking Technologies, China
Source title: 2015 7th International Conference on Communication Systems and Networks, COMSNETS 2015 - Proceedings
Abbreviated source title: Int. Conf. Commun. Syst. Networks, COMSNETS - Proc.
Part number: 1 of 1
Issue date: April 30, 2015
Publication year: 2015
Article number: 7098671
Language: English
ISBN-13: 9781479984398
Document type: Conference article (CA)
Conference name: 2015 7th International Conference on Communication Systems and Networks, COMSNETS 2015
Conference date: January 6, 2015 - January 10, 2015
Conference location: Bangalore, India
Conference code: 112176
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: We study the problem of managing high intradatacenter traffic in a chunk-based public cloud storage service. The high traffic volume is introduced by aggregating very large files from multiple chunk servers in a single edge server. We measure a commercial cloud storage service system, and observe that peak traffic volume overwhelms the network interface cards (NICs) significantly. In the scenario of delivering content based on Smart Home network, it can be expected the file downloading service could be delay-insensitive. Thus, we propose 'Batching Smooth intra-datacenter Traffic' (BST) scheme to reduce the peak load to a specified upper bound by batching and delaying users' requests. We resort to a mathematical model to understand the necessity of batching strategy. To evaluate BST's effects, we implement trace-driven simulations with different scheduling policies. In the commercial cloud storage service system, we show that BST is capable of keeping the upper bound to approximately 75% of the original peak traffic by trading off an average delay of 8 minutes. © 2015 IEEE.
Number of references: 18
Main heading: Automation
Controlled terms: Home networks - Intelligent buildings - Interfaces (computer) - Personal communication systems
Uncontrolled terms: Batching strategy - Cloud storage services - Cloud storages - File downloading - Network interface cards - Scheduling policies - Trace driven simulation - Traffic volumes
Classification code: 402 Buildings and Towers - 716 Telecommunication; Radar, Radio and Television - 717 Optical Communication - 718 Telephone Systems and Related Technologies; Line Communications - 722.2 Computer Peripheral Equipment - 731 Automatic Control Principles and Applications - 732 Control Devices
DOI: 10.1109/COMSNETS.2015.7098671
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

149. Logistics systems optimization under competition

Accession number: 20151300675876
Authors: Choi, Tsan-Ming (1); Govindan, Kannan (2); Ma, Lijun (3)
Author affiliation: (1) Institute of Textiles and Clothing, Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong; (2) Department of Business and Economics, University of Southern Denmark, Campusvej 55, Odense, Denmark; (3) College of Management, Shenzhen University, Shenzhen, China
Corresponding author: Choi, Tsan-Ming
Source title: Mathematical Problems in Engineering
Abbreviated source title: Math. Probl. Eng.
Volume: 2015
Issue date: 2015
Publication year: 2015
Article number: 106142
Language: English
ISSN: 1024123X
E-ISSN: 15635147
Document type: Journal article (JA)
Publisher: Hindawi Publishing Corporation, 410 Park Avenue, 15th Floor, 287 pmb, New York, NY 10022, United States

Abstract: Nowadays, optimization on logistics and supply chain systems is a crucial and critical issue in industrial and systems engineering. Important areas of logistics and supply chain systems include transportation control, inventory management, and facility location planning. Under a competitive market environment, decision making for all these critical areas requires more sophisticated mathematical modeling and analysis. Since finding the optimal solution of MCVRP is computationally expensive, they design a few guiding rules, which employ the searching history, to enhance the searching. They conduct numerical analysis and reveal that their proposed method significantly outperforms the classical method. They conduct their analysis from the manufacturer?s perspective. Technically, they convert the proposed FDEA model into a crisp linear programming optimization problem. As a result, the problem is formulated as an interval programming problem.
Abstract type: (Edited Abstract)
Main heading: Logistics
Controlled terms: Chains - Decision making - Inventory control - Linear programming - Location - Numerical methods - Optimization - Supply chains
Uncontrolled terms: Competitive markets - Facility locations - Industrial and Systems engineerings - Interval programming - Inventory management - Linear programming optimization - Supply chain systems - Transportation control
Classification code: 602.1 Mechanical Drives - 911 Cost and Value Engineering; Industrial Economics - 911.3 Inventory Control - 912 Industrial Engineering and Management - 912.2 Management - 913 Production Planning and Control; Manufacturing - 921.5 Optimization Techniques - 921.6 Numerical Methods
DOI: 10.1155/2015/106142
Database: Compendex

Data Provider: Engineering Village

150. Revealing the trace of high-quality JPEG compression through quantization noise analysis

Accession number: 20150800540748
Authors: Li, Bin (1, 2); Ng, Tian-Tsong (3); Li, Xiaolong (4); Tan, Shunquan (5, 6); Huang, Jiwu (1, 2)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, China; (2) Shenzhen Key Laboratory of Advanced Communications and Information Processing, Shenzhen, China; (3) Agency for Science, Technology and Research, Institute for Infocomm Research, Singapore, Singapore; (4) Institute of Computer Science and Technology, Peking University, Beijing, China; (5) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (6) Shenzhen Key Laboratory of Media Security, Shenzhen, China
Source title: IEEE Transactions on Information Forensics and Security
Abbreviated source title: IEEE Trans. Inf. Forensics Secur.
Volume: 10
Issue: 3
Issue date: March 1, 2015
Publication year: 2015
Pages: 558-573
Article number: 7001657
Language: English
ISSN: 15566013
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: To identify whether an image has been JPEG compressed is an important issue in forensic practice. The state-of-the-art methods fail to identify high-quality compressed images, which are common on the Internet. In this paper, we provide a novel quantization noise-based solution to reveal the traces of JPEG compression. Based on the analysis of noises in multiple-cycle JPEG compression, we define a quantity called forward quantization noise. We analytically derive that a decompressed JPEG image has a lower variance of forward quantization noise than its uncompressed counterpart. With the conclusion, we develop a simple yet very effective detection algorithm to identify decompressed JPEG images. We show that our method outperforms the state-of-the-art methods by a large margin especially for high-quality compressed images through extensive experiments on various sources of images. We also demonstrate that the proposed method is robust to small image size and chroma subsampling. The proposed algorithm can be applied in some practical applications, such as Internet image classification and forgery detection. © 2014 IEEE.
Number of references: 42
Main heading: Audio signal processing

Controlled terms: DC-DC converters - Image classification - Image coding - Image compression - Internet - Quality control - Zero voltage switching
Uncontrolled terms: Dead time - Detection algorithm - Forgery detections - Gate drivers - High frequency HF - Quantization noise - Quasi-square waves - State-of-the-art methods
Classification code: 703 Electric Circuits - 704 Electric Components and Equipment - 704.1 Electric Components - 706 Electric Transmission and Distribution - 716 Telecommunication; Radar, Radio and Television - 716.1 Information Theory and Signal Processing - 717 Optical Communication - 718 Telephone Systems and Related Technologies; Line Communications - 723 Computer Software, Data Handling and Applications - 741 Light, Optics and Optical Devices - 913.3 Quality Assurance and Control
DOI: 10.1109/TIFS.2015.2389148
Database: Compendex

Data Provider: Engineering Village

151. Asymmetric multiple-image authentication based on complex amplitude information multiplexing and RSA algorithm

Accession number: 20152400941472
Authors: Pan, Xue-Mei (1); Meng, Xiang-Feng (1); Yang, Xiu-Lun (1); Wang, Yu-Rong (1); Peng, Xiang (2); He, Wen-Qi (2); Dong, Guo-Yan (3); Chen, Hong-Yi (4)
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Corresponding author: Meng, Xiang-Feng
Source title: Wuli Xuebao/Acta Physica Sinica
Abbreviated source title: Wuli Xuebao
Volume: 64
Issue: 11
Issue date: June 5, 2015
Publication year: 2015
Article number: 110701
Language: Chinese
ISSN: 10003290
CODEN: WLHPAR
Document type: Journal article (JA)
Publisher: Institute of Physics, Chinese Academy of Sciences
Abstract: By combining the iterative phase retrieval algorithm in the Fresnel domain with the shift rotation permutation operations of row vectors and column vectors, a new kind of asymmetric multiple-image authentication based on complex amplitude information multiplexing and RSA algorithm is proposed, where multiple complex amplitude information in the input plane is retrieved and generated by the phase retrieval algorithm in the Fresnel domain.
In original binary amplitude mask, the row vector and column vectors random numbers are randomly generated in advance, such that each sampling mask for each authenticator is obtained by the shift rotation permutation operations of corresponding row vector and column vectors random numbers for original binary amplitude mask. Thus, one synthesized complex amplitude is generated by the operations of sampling, overlap and multiplexing, and then sent to the certification center for authentication use. At the same time, the row vector and column vectors random numbers are encoded to ciphers by the public keys of RSA algorithm, and then delivered to the corresponding authenticators. During the authentication process, the row vector and column vectors random numbers are first decoded by the private keys possessed by the authenticator; second, the authenticator's sampling mask is reconstructed by the shift rotation permutation operations of the above decoded random numbers for original binary amplitude mask. Finally, the authenticator with other additional authentication keys is prompted to place the synthesized complex amplitude information and its sampling mask at the corresponding positions, when the system is illuminated by a plane wave with the correct wavelength. A recovered image is then recorded in the output plane, by calculating and displaying the nonlinear correlation coefficient between the recovered image and the certification image, if there exists a remarkable peak in its nonlinear correlation coefficient distributions, indicating that the authentication is successful. On the contrary, if there is no remarkable peak but uniformly distributed white noise in the map, the authentication process is a failure attempt. Any intruder with randomly generated forged authentication keys will end up with a failure which enhances the security of the system to some extent. ©, 2015, Chinese Physical Society. All right reserved.
Number of references: 31

Page count: 12
Main heading: Algorithms
Controlled terms: Amplitude modulation - Authentication - Bins - Decoding - Electronic document identification systems - Image processing - Iterative methods - Mobile security - Multiplexing - Phase shifters - Random number generation - Vectors - White noise
Uncontrolled terms: Binary amplitude mask - Complex amplitude - Iterative phase retrieval algorithm - Non-linear correlations - Permutation operations - Phase retrieval - Phase retrieval algorithm - Security authentication
Classification code: 694.4 Storage - 703.1 Electric Networks - 711 Electromagnetic Waves - 716 Telecommunication; Radar, Radio and Television - 716.1 Information Theory and Signal Processing - 717 Optical Communication - 718 Telephone Systems and Related Technologies; Line Communications - 723 Computer Software, Data Handling and Applications - 741 Light, Optics and Optical Devices - 921.1 Algebra - 921.6 Numerical Methods - 922.2 Mathematical Statistics
DOI: 10.7498/aps.64.110701
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

152. Improved bacterial foraging optimization algorithm with information communication mechanism for nurse scheduling

Accession number: 20154301446900
Authors: Niu, Ben (1, 2); Wang, Chao (1); Liu, Jing (1); Gan, Jianhou (3); Yuan, Lingyun (3)
Author affiliation: (1) College of Management, Shenzhen University, Shenzhen, China; (2) Department of Industrial and System Engineering, Hong Kong Polytechnic University, Hong Kong, China; (3) Key Laboratory of Educational Information for Nationalities, Ministry of Education, Yunnan Normal University, Kunming, China
Corresponding author: Niu, Ben
Source title: Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)
Abbreviated source title: Lect. Notes Comput. Sci.
Volume: 9226
Monograph title: Intelligent Computing Theories and Methodologies - 11th International Conference, ICIC 2015, Proceedings
Issue date: 2015
Publication year: 2015
Pages: 701-707
Language: English
ISSN: 03029743
E-ISSN: 16113349
ISBN-13: 9783319221854
Document type: Conference article (CA)
Conference name: 11th International Conference on Intelligent Computing, ICIC 2015
Conference date: August 20, 2015 - August 23, 2015
Conference location: Fuzhou, China
Conference code: 139689
Sponsor: International Neural Network Society; National Science Foundation of China
Publisher: Springer Verlag
Abstract: As a NP-hard combinatorial problem, nurse scheduling problem (NSP) is a well-known personnel scheduling task whose goal is to create a nurse schedule under a series of hard and soft constraints in a practical world. In this paper, a variant of structure-redesigned-based bacterial foraging optimization (SRBFO) with a dynamic topology structure (SRBFO-DN) is employed for solving nurse scheduling problem (NSP). In SRBFO-DN, each bacterium achieves cooperation by information exchange mechanism switching the topology structure between star topology and ring topology. A special encoding operation of bacteria in SRBFO-DN is adopted to transform position vectors into feasible solutions, which can make SRBFO-DN successfully dealing with this typical difficult and discrete NSP. Experiment results obtained by SRBFO-DN compared with SRBFO and SPSO demonstrated that the efficiency of the proposed SRBFO-DN algorithm is better than other two algorithms for dealing with NSP. © Springer International Publishing Switzerland 2015.
Number of references: 13
Main heading: Problem solving

Controlled terms: Algorithms - Bacteria - Computation theory - Electric network topology - Intelligent computing - Nursing - Optimization - Scheduling - Topology
Uncontrolled terms: Bacterial foraging optimization - Bacterial foraging optimization algorithms - Combinatorial problem - Dynamic topology structures - Hard and soft constraints - Information communication mechanisms - Nurse scheduling problems - Topology structure
Classification code: 461.7 Health Care - 703.1 Electric Networks - 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 723.4 Artificial Intelligence - 912.2 Management - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 921.5 Optimization Techniques
DOI: 10.1007/978-3-319-22186-1_69
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

153. Vibration suppression of the flexible manipulator using optimal input shaper and linear quadratic regulator

Accession number: 20161502230909
Authors: Deng, Hui (1); Sun, Jun-Di (1); Huang, Su-Dan (1, 2); Cao, Guang-Zhong (1)
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Source title: 2015 12th International Conference on Ubiquitous Robots and Ambient Intelligence, URAI 2015
Abbreviated source title: Int. Conf. Ubiquitous Robot. Ambient Intell., URAI
Monograph title: 2015 12th International Conference on Ubiquitous Robots and Ambient Intelligence, URAI 2015
Issue date: December 16, 2015
Publication year: 2015
Pages: 255-260
Article number: 7358948
Language: English
ISBN-13: 9781467379700
Document type: Conference article (CA)
Conference name: 12th International Conference on Ubiquitous Robots and Ambient Intelligence, URAI 2015
Conference date: October 28, 2015 - October 30, 2015
Conference location: Goyang City, Korea, Republic of
Conference code: 118700
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: This paper proposes a control strategy of a constrained planar flexible manipulator for vibration suppression using optimal input shaper (OIS) and linear quadratic regulator (LQR). An experimental setup of the flexible manipulator is presented, and the corresponding mathematical model is derived utilizing the assumed mode method and Lagrange dynamics equation. For the flexible manipulator, an OIS feedforward controller is applied to suppress its vibration and reduce time delay, and a LQR feedback controller is employed to control its angular position. Simulation and experiment are carried out, and the results related to the angular position tracking of the flexible manipulator are demonstrated. The effectiveness and superior performance of the proposed control strategy are verified. © 2015 IEEE.
Number of references: 23
Main heading: Flexible manipulators
Controlled terms: Artificial intelligence - Computer control systems - Controllers - Delay control systems - Intelligent robots - Manipulators - Time delay - Tracking (position)
Uncontrolled terms: Assumed-mode method - Control strategies - Feed-forward controllers - Feedback controller - Input shapers - Lagrange dynamics equation - Linear quadratic regulator - Vibration suppression
Classification code: 713 Electronic Circuits - 723.4 Artificial Intelligence - 731.1 Control Systems - 731.6 Robot Applications - 732.1 Control Equipment
DOI: 10.1109/URAI.2015.7358948
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

154. Fiber in-line Mach-Zehnder interferometer based on an inner air-cavity for high-pressure sensing

Accession number: 20154401452975

Engineering Village

Authors: Talataisong, W. (1, 2); Wang, D.N. (1, 3); Chitaree, R. (2); Liao, C.R. (1, 4); Wang, C. (1)
Author affiliation: (1) Department of Electrical Engineering, Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong; (2) Department of Physics, Mahidol University, Rama 6 Road, Rajathewee, Bangkok, Thailand; (3) Hong Kong Polytechnic University, Shenzhen Research Institute, Shenzhen, China; (4) College of Optoelectronic Engineering, Shenzhen University, Nanshan, Shenzhen, China
Corresponding author: Wang, D.N.
Abstract: We demonstrate a fiber in-line Mach-Zehnder interferometer based on an inner air-cavity with open micro-channel for high-pressure sensing applications. The inner air-cavity is fabricated by combining femtosecond laser micromachining and the fusion splicing technique. The micro-channel is drilled on the top of the inner air-cavity to allow the high-pressure gas to flow in. The fiber in-line device is miniature, robust, and stable in operation and exhibits a high pressure sensitivity of $\sim_8$ 239 pm/MPa. © 2015 Optical Society of America.
Number of references: 17
Main heading: Mach-Zehnder interferometers
Controlled terms: Interferometers - Pressure sensors - Ultrashort pulses
Uncontrolled terms: Air cavity - Femtosecond laser micromachining - Fusion splicing - High pressure - High pressure gas
Classification code: 941.3 Optical Instruments - 944.3 Pressure Measuring Instruments
DOI: 10.1364/OL.40.001220
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

155. Manifold discriminant regression learning for image classification

Accession number: 20151600748496
Authors: Lu, Yuwu (1); Lai, Zhihui (2); Fan, Zizhu (3); Cui, Jinrong (4); Zhu, Qi (5)
Author affiliation: (1) Bio-Computing Research Center, Shenzhen Graduate School, Harbin Institute of Technology, Shenzhen, China; (2) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (3) School of Basic Science, East China Jiaotong University, Nanchang, China; (4) College of Information, South China Agricultural University, Guangzhou, China; (5) College of Computer Science and Technology, Nanjing University of Aeronautics and Astronautics, Nanjing, China
Corresponding author: Lu, Yuwu
Abstract: Least square regression (LSR) and its variants have been widely used for classification tasks. However, LSR-based methods ignore the local geometry structure of the data and the transformation matrix is not sparse or robust. In this paper, a novel linear regression (LR) framework is proposed for image classification. Two concrete algorithms are proposed under the framework, which are named manifold discriminant regression learning (MDRL)

and robust manifold discriminant regression learning (RMDRL). MDRL introduces different norms for different purposes in the learning steps. MDRL introduces a within-class graph and between-class graph to compute an optimal subspace that can separate data points belonging to different class as far as possible and keep the data points from the same class closely. MDRL joints different norms constraints to generate sparse projections for feature extraction and classification. To enhance the robustness of discriminative LSR (DLSR), RMDRL uses the nuclear norm as a regularization term to learn a robust projection matrix. Extensive experiments are conducted on many databases to evaluate the performance of the proposed methods and the states-of-the-art algorithms. The experimental results indicate that our proposed methods outperform the related algorithms. © 2015 Elsevier B.V..

Number of references: 45
Main heading: Image classification
Controlled terms: Feature extraction - Linear regression - Linear transformations - Matrix algebra - Metadata - Regression analysis
Uncontrolled terms: Classification tasks - Discriminant - Feature extraction and classification - Least square regression - Manifold regularizations - Regularization terms - Related algorithms - Transformation matrices
DOI: 10.1016/j.neucom.2015.03.031
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

156. Deterministic process-based generative models for characterizing packet-level bursty error sequences

Accession number: 20143600050073

Authors: He, Yejun (1); Salih, Omar S. (2); Wang, Cheng-Xiang (2, 3); Yuan, Dongfeng (3)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, China; (2) Joint Research Institute for Signal and Image Processing, School of Engineering and Physical Sciences, Heriot-Watt University, Edinburgh, United Kingdom; (3) School of Information Science and Engineering, Shandong University, Jinan Shandong, China
Corresponding author: Wang, Cheng-Xiang

Abstract: Errors encountered in digital wireless channels are not independent but rather form bursts or clusters. Error models aim to investigate the statistical properties of bursty error sequences at either packet level or bit level. Packet-level error models are crucial to the design and performance evaluation of high-layer wireless communication protocols. This paper proposes a general design procedure for a packet-level generative model based on a sampled deterministic process with a threshold detector and two parallel mappers. In order to assess the proposed method, target packet error sequences are derived by computer simulations of a coded enhanced general packet radio service system. The target error sequences are compared with the generated error sequences from the deterministic process-based generative model using some widely used burst error statistics, such as error-free run distribution, error-free burst distribution, error burst distribution, error cluster distribution, gap distribution, block error probability distribution, block burst probability distribution, packet error correlation function, normalized covariance function, gap correlation function, and multigap distribution. The deterministic process-based generative model is observed to outperform the widely used Markov models.

Number of references: 31
Main heading: Error statistics
Controlled terms: Emergency traffic control - Fading (radio) - Markov processes - Probability distributions - Wireless telecommunication systems
Uncontrolled terms: Burst error statistics - Fading process - Generative model - Markov model - Wireless channel

Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

157. A thrust force characteristics measurement of the planar switched reluctance motor using flux linkage characteristics

Accession number: 20150800537080
Authors: Zheng, Hong-Xin (1); Cao, Guang-Zhong (1); Huang, Su-Dan (1, 2); Li, Ling-Long (1); Li, Ling-Ming (1)
Author affiliation: (1) Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China; (2) College of Electrical Engineering, Southwest Jiaotong University, Chengdu, China
Source title: 2014 17th International Conference on Electrical Machines and Systems, ICEMS 2014
Abbreviated source title: Int. Conf. Electr. Mach. Syst., ICEMS
Part number: 1 of 1
Issue date: January 16, 2015
Publication year: 2015
Pages: 2859-2862
Article number: 7013984
Language: English
ISBN-13: 9781479951611
Document type: Conference article (CA)
Conference name: 2014 17th International Conference on Electrical Machines and Systems, ICEMS 2014
Conference date: October 22, 2014 - October 25, 2014
Conference location: Hangzhou, China
Conference code: 110191
Sponsor: China Electrotechnical Society (CES); Institute of Electrical Engineers of Japan - Industry Applications Society (IEEEJ-IAS); Korean Institute of Electrical Engineers (KIEE); Natural Science Foundation of China (NSFC)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: In the advanced manufacture industry, high-precision planar motion is in high demand. Planar switched reluctance motors (PSRMs) have become attractive candidate for high-precision planar motion owing to the advantages of direct drive, high precision, quick response, low cost, and simple mechanical structure. Thrust force characteristics measurement is quite important for obtaining precise model and precise motion of PSRMs. Since the indelible friction exists in PSRMs, accurate thrust force characteristics are difficult to measure. This paper presents a systematic indirect thrust force characteristics measurement of a PSRM using flux linkage characteristics. With a dc-excitation method, flux linkage of the PSRM is obtained in terms of the measured phase current and voltage, and thrust force is computed by the flux linkage. Comparative studies of finite element method (FEM), direct and indirect thrust force measurements are discussed. Thrust force of the PSRM is experimentally measured by direct and indirect measurements. Compared with the thrust force by FEM, experimental results show that the indirect measurement is more accurate than the direct measurement, and the validity of the proposed indirect thrust force measurement of the PSRM is verified. © 2014 IEEE.
Number of references: 10
Main heading: Electric machine theory
Controlled terms: Finite element method - Force measurement - Reluctance motors
Uncontrolled terms: Comparative studies - DC excitation - Direct and indirect measurements - Flux-linkage characteristics - Indirect measurements - Manufacture industry - Mechanical structures - Planar switched reluctance motor
Classification code: 705.1 Electric Machinery, General - 705.3.1 AC Motors - 921.6 Numerical Methods - 943.2 Mechanical Variables Measurements
DOI: 10.1109/ICEMS.2014.7013984
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

158. Wi-Counter: Smartphone-Based People Counter Using Crowdsourced Wi-Fi Signal Data

Accession number: 20153001055210
Authors: Li, Haochao (1); Chan, Eddie C. L. (1); Guo, Xiaonan (2); Xiao, Jiang (1); Wu, Kaishun (3); Ni, Lionel M. (4)

Author affiliation: (1) Department of Computer Science and Engineering, Fok Ying Tung Graduate School, Hong Kong University of Science and Technology, Hong Kong; (2) School of Information Systems, Singapore Management University, Singapore, Singapore; (3) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (4) Hong Kong University of Science and Technology, Hong Kong
Corresponding author: Li, Haochao

Abstract: Reliable people counting is crucial to many urban applications. However, most existing people counting systems are sensor-based and can only work in some fixed gateways or checkpoints where sensors have been installed. This high dependence on the exact locations of sensors leads to low accuracy. To overcome these limitations, in this paper, we propose a smartphone-based people counting system, Wi-Counter, by leveraging the pervasive Wi-Fi infrastructure. To collect comprehensive Wi-Fi signals and people count information based on crowdsource, Wi-Counter first adopts a preprocessor to overcome the noisy, discrepant, and fragile data based on the Wiener filter and Newton interpolation. It then makes use of the designated five-layer neural network to learn the relation model between the Wi-Fi signals and the number of people. By analyzing the received Wi-Fi signals, Wi-Counter can estimate the number of people based on the resulting model. We have conducted experiments by implementing a prototype of Wi-counter based on smartphones and evaluated the system in terms of accuracy and power consumption in an indoor testbed covering an area of 96 m 2. Wi-Counter achieved a counting accuracy of up to 93% and exhibited reliable and robust performance resisting temporal environmental changes with negligible power usage. © 2013 IEEE.

Number of references: 27
Main heading: Wi-Fi
Controlled terms: Network layers - Signal encoding - Smartphones
Uncontrolled terms: Environmental change - Newton interpolation - Number of peoples - People counters - People counting - Relation models - Robust performance - Urban applications
Classification code: 716.1 Information Theory and Signal Processing - 718.1 Telephone Systems and Equipment - 723 Computer Software, Data Handling and Applications
DOI: 10.1109/THMS.2015.2401391
Database: Compendex

Data Provider: Engineering Village

159. Anomalous rheological behavior of dendritic nanoparticle/linear polymer nanocomposites

Accession number: 20152200899786

Authors: Goldansaz, Hadi (2); Goharpey, Fatemeh (3); Afshar-Taromi, Faramarz (3); Kim, II (4); Stadler, Florian J. (1, 5, 6, 7); Van Ruymbeke, Evelyne (2); Karimkhani, Vahid (3, 4, 8)
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Corresponding author: Stadler, Florian J.

Source title: Macromolecules
Abbreviated source title: Macromolecules

Abstract: We investigated the effects of soft dendritic polyethylene (dPE) nanoparticles on the rheological properties of a linear polystyrene (PS) matrix. The viscosity of PS-dPE nanocomposites is found to exhibit nonmonotonic dependence on the dPE concentration. In particular, with the addition of 1% dPE nanoparticles, we already observe more than 1 order of magnitude reduction in viscosity. The minimum viscosity was observed at 5% nanoparticles. At dPE concentrations higher than 5%, nanocomposite viscosity increases by addition of nanoparticles, yet it remains below the viscosity of PS. Addition of nanoparticles not only influences the terminal relaxation times of the nanocomposites but also affects their whole relaxation spectra. The viscosity of PS-dPE nanocomposites at high temperature is found to reversibly evolve with time, which proves the existence of supramolecular interactions between the PS matrix and the nanoparticles. Atomic force microscopy confirms that dPE nanoparticles are well distributed in the PS matrix, though each component of the nanocomposite exhibits its own glass transition. While the origin of viscosity reduction remains unknown, it cannot be attributed to confinement, free volume effect, change of entanglement density, surface slippage, shear banding, or particle induced shear thinning. © 2015 American Chemical Society.

Number of references: 48
Main heading: Nanocomposites
Controlled terms: Atomic force microscopy - Dendrimers - Glass transition - Nanoparticles - Rheology - Shear flow - Shear thinning - Supramolecular chemistry - Viscosity
Uncontrolled terms: Free volume effects - Non-monotonic dependence - Polymer nanocomposite - Relaxation spectrum - Rheological behaviors - Rheological property - Supramolecular interactions - Viscosity reduction
Classification code: 631.1 Fluid Flow, General - 708 Electric and Magnetic Materials - 741.3 Optical Devices and Systems - 761 Nanotechnology - 801.4 Physical Chemistry - 815.1 Polymeric Materials - 931.3 Atomic and Molecular Physics - 933 Solid State Physics
DOI: 10.1021/acs.macromol.5b00390
Database: Compendex

Data Provider: Engineering Village

160. Structured regularized robust coding for face recognition

Accession number: 20155201735397
Authors: Yang, Meng (1); Song, Tiancheng (1); Liu, Feng (1); Shen, Linlin (1)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Yang, Meng(yang.meng@szu.edu.cn)

Sponsor: Etal; Hangzhou Hikvision Digital Technology Co., Ltd.; IQIYI Inc.; NVIDIA Corporation; The Third Research Institute of Ministry of Public Security; Vion Technology Inc.
Publisher: Springer Verlag
Abstract: The sparse representation based classifier (SRC) has been successfully applied to robust face recognition (FR) with various variations. To achieve much stronger robustness to facial occlusion, recently regularized robust coding (RRC) was proposed by designing a new robust representation residual term. Although RRC has achieved the leading performance, it ignores the structured information (i.e., spatial consistence) embedded in the occluded pixels. In this paper, we proposed a novel structured regularized robust coding (SRRC) framework, in which the spatial consistence of occluded pixels was exploited by pixel weight learning (PWL) model. Efficient algorithms were also proposed to fastly learn the pixel's weight and accurately recover the occluded area. The experiments on face recognition in several representative datasets clearly show the advantage of the proposed SRRC in accuracy and efficiency. © Springer-Verlag Berlin Heidelberg 2015.
Number of references: 21
Main heading: Face recognition
Controlled terms: Algorithms - Codes (symbols) - Computer vision - Packet loss - Pixels
Uncontrolled terms: Facial occlusions - Robust coding - Sparse representation - Structured information
Classification code: 723.2 Data Processing and Image Processing - 723.5 Computer Applications
DOI: 10.1007/978-3-662-48570-5_9
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

161. MAC-layer concurrent beamforming protocol for indoor millimeter-wave networks

Accession number: 20150400447767
Authors: Qiao, Jian (1); Shen, Xuemin (1); Mark, Jon W. (1); He, Yejun (2)
Author affiliation: (1) Broadband Communications Research (BBCR) Group, Department of Electrical and Computer Engineering, University of Waterloo, Waterloo; ON, Canada; (2) College of Information Engineering, Shenzhen University, Shenzhen, China
Source title: IEEE Transactions on Vehicular Technology
Abbreviated source title: IEEE Trans. Veh. Technol.
Volume: 64
Issue: 1
Issue date: January 1, 2015
Publication year: 2015
Pages: 327-338
Article number: 6807750
Language: English
ISSN: 00189545
CODEN: ITVTAB
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: In this paper, we study concurrent beamforming issue for achieving high capacity in indoor millimeter-wave (mmWave) networks. The general concurrent beamforming issue is first formulated as an optimization problem to maximize the sum rates of concurrent transmissions, considering the mutual interference. To reduce the complexity of beamforming and the total setup time, concurrent beamforming is decomposed into multiple single-link beamforming, and an iterative searching algorithm is proposed to quickly achieve the suboptimal transmission/reception beam sets. A codebook-based beamforming protocol at medium access control (MAC) layer is then introduced in a distributive manner to determine the beam sets. Both analytical and simulation results demonstrate that the proposed protocol can drastically reduce total setup time, increase system throughput, and improve energy efficiency. © 1967-2012 IEEE.
Number of references: 26
Main heading: Medium access control
Controlled terms: Access control - Beamforming - Complex networks - Concurrency control - Energy efficiency - Iterative methods - Millimeter waves - Optimization
Uncontrolled terms: Concurrent transmission - Iterative searching - Medium access control layer - Medium access control(MAC) - Millimeter waves (mmwave) - Mutual interference - Optimization problems - Set-up time
Classification code: 525.2 Energy Conservation - 711 Electromagnetic Waves - 713 Electronic Circuits - 722 Computer Systems and Equipment - 723 Computer Software, Data Handling and Applications - 723.3 Database Systems - 731 Automatic Control Principles and Applications - 731.3 Specific Variables Control - 732 Control Devices - 921.5 Optimization Techniques - 921.6 Numerical Methods

Database: Compendex
Data Provider: Engineering Village

162. Optimizing configuration of supply chain with survival assessment model

Accession number: 20161502211003
Authors: Chan, Felix T. S. (1); Niu, B. (1, 2); Nayak, A. (3); Raj, R. (3); Tiwari, M.K. (3)
Author affiliation: (1) Department of Industrial and Systems Engineering, The Hong Kong Polytechnic University, Hung Hum, Hong Kong; (2) College of Management, Shenzhen University, Shenzhen, China; (3) Department of Industrial Engineering and Management, Indian Institute of Technology, Kharagpur, West Bengal, India
Source title: Testing and Measurement: Techniques and Applications - Proceedings of the 2015 International Conference on Testing and Measurement: Techniques and Applications, TMTA 2015
Abbreviated source title: Test. Meas.: Tech. Appl. - Proc. Int. Conf. Test. Meas.: Tech. Appl. TMTA
Monograph title: Testing and Measurement: Techniques and Applications - Proceedings of the 2015 International Conference on Testing and Measurement: Techniques and Applications, TMTA 2015
Issue date: 2015
Publication year: 2015
Pages: 287-290
Language: English
ISBN-13: 9781138028128
Document type: Conference article (CA)
Conference name: International Conference on Testing and Measurement: Techniques and Applications, TMTA 2015
Conference date: January 16, 2015 - January 17, 2015
Conference location: Phuket Island, Thailand
Conference code: 157549
Publisher: CRC Press/Balkema
Abstract: This paper adopts Biased Random Key Genetic Algorithm (BRKGA) to optimize the configuration of a robust supply chain for decision making using survival analysis. To perform proportional hazard class of survival analysis, Cox-PH model is developed to compare the significance of structural and logistics flexibility. Illustrative simulation models are provided to demonstrate different aspects of the proposed methodology. © 2015 Taylor & Francis Group, London.
Number of references: 8
Main heading: Supply chains
Controlled terms: Algorithms - Bioinformatics - Decision making - Genetic algorithms - Optimization
Uncontrolled terms: Assessment models - BRKGA - Cox ph models - Proportional hazards - Random keys - Supply chain configuration - Survival analysis
Classification code: 461.8.2 Bioinformatics - 912 Industrial Engineering and Management - 912.2 Management - 913 Production Planning and Control; Manufacturing - 921.5 Optimization Techniques
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

163. Elliptic cylindrical silicon nanowire hybrid surface plasmon polariton waveguide

Accession number: 20153801297076
Authors: Zhang, Li (1); Xiong, Qiulin (1); Li, Xiaopeng (1); Ma, Junxian (1)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Ma, Junxian
Volume: 54
Issue: 23
Issue date: 2015
Publication year: 2015
Pages: 7037-7044
Language: English
ISSN: 1559128X
E-ISSN: 21553165
CODEN: APOPAI
Document type: Journal article (JA)

Publisher: OSA - The Optical Society

Abstract: We researched an elliptic cylindrical silicon nanowire hybrid surface plasmon polariton waveguide and evaluated its mode characteristics using the finite element method software COMSOL. The waveguide consists of three parts: an elliptic cylindrical silicon nanowire, a silver film layer, and a silica covering layer between them. All of the components are surrounded by air. After optimizing the geometrical parameters of the waveguide, we can achieve the waveguide's strong field confinement (ranging from λ_2 270 to λ_2 27) and long propagation distances (119-485 µm). In order to further understand the impact of the waveguide's architecture on its performance, we also studied the ridge hybrid waveguide. The results show that the ridge waveguide has moderate local field confinement ranging from λ_2 190 to λ_2 20 and its maximum propagation distance is about 340 µm. We compared the elliptic cylindrical and ridge nanowire hybrid waveguides with the cylindrical hybrid waveguide that we studied before. The elliptic cylindrical waveguide achieves a better trade-off between reasonable mode confinement and maximum propagation length in the three waveguides. The researched hybrid surface plasmon polaritons waveguides are useful to construct devices such as a directional coupler and may find potential applications in photonic integrated circuits or other novel SPP devices. © 2015 Optical Society of America.

Number of references: 26

Main heading: Ridge waveguides

Controlled terms: Coupled circuits - Economic and social effects - Electromagnetic wave polarization - Finite element method - Geometry - Nanowires - Optical waveguides - Particle optics - Phonons - Photonic devices - Photonic integration technology - Photons - Plasmons - Quantum theory - Silicon - Silver - Surface plasmon resonance - Waveguides

Uncontrolled terms: Finite element method softwares - Hybrid surface - Hybrid waveguides - Mode characteristics - Photonic integrated circuits - Propagation distances - Propagation lengths - Silicon nanowires

Classification code: 547.1 Precious Metals - 711 Electromagnetic Waves - 712.1.1 Single Element Semiconducting Materials - 713.5 Electronic Circuits Other Than Amplifiers, Oscillators, Modulators, Limiters, Discriminators or Mixers - 714.2 Semiconductor Devices and Integrated Circuits - 714.3 Waveguides - 717 Optical Communication - 744 Lasers - 761 Nanotechnology - 921 Mathematics - 921.6 Numerical Methods - 931.3 Atomic and Molecular Physics - 931.4 Quantum Theory; Quantum Mechanics - 933 Solid State Physics - 971 Social Sciences

DOI: 10.1364/AO.54.007037

Compendex references: YES

Database: Compendex

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Data Provider: Engineering Village

164. Femtosecond laser inscribed phase-shifted fiber Bragg gratings

Accession number: 20161202125706

Authors: He, Jun (1); Liao, Changrui (1); Yang, Kaiming (1); Wang, Yiping (1); Wang, Qiaoni (2)

Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (2) Key Laboratory on Precision Opto-Mechatronics Technology of the Ministry of Education, Beihang University, Beijing, China

Source title: 2015 Opto-Electronics and Communications Conference, OECC 2015

Abbreviated source title: Opto-Electron. Commun. Conf., OECC

Monograph title: 2015 Opto-Electronics and Communications Conference, OECC 2015

Issue date: November 30, 2015

Publication year: 2015

Article number: 7340204

Language: English

ISBN-13: 9781467379441

Document type: Conference article (CA)

Conference name: Opto-Electronics and Communications Conference, OECC 2015

Conference date: June 28, 2015 - July 2, 2015

Conference location: Shanghai, China

Conference code: 118434

Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: A highly-birefringent phase-shifted fiber Bragg grating (PS-FBG) was inscribed with femtosecond laser and a uniform phase mask. The PS-FBG was fabricated from an ordinary FBG in case over exposure was applied. The spectral evolution from FBG to FS-FBG was observed in accompany with a decrease in transmission loss, a 'blue' shift of dip wavelength, a decrease in cladding mode loss, and an increase in insertion loss. High birefringence was demonstrated experimentally with the existence of PS-FBG only in TM polarization. The formation of the PS-FBG may probably due to a negative index change induced by the high-intensity center of Gaussian laser beam. © 2015 IEEE.

Number of references: 11

Main heading: Fiber Bragg gratings
Controlled terms: Birefringence - Bragg gratings - Laser beams - Phase shift - Phase shifters - Ultrashort pulses
Uncontrolled terms: Cladding modes - Gaussian laser beam - High birefringence - High intensity - Phase shifted fiber bragg grating (PSFBG) - Spectral evolution - TM polarization - Transmission loss
Classification code: 713.5 Electronic Circuits Other Than Amplifiers, Oscillators, Modulators, Limiters, Discriminators or Mixers - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 744.8 Laser Beam Interactions
DOI: 10.1109/OECC.2015.7340204
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

165. A problem-reduction evolutionary algorithm for solving the capacitated vehicle routing problem

Accession number: 20150600504450
Authors: Liu, Wanfeng (1, 2); Li, Xia (1, 2)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, China; (2) Shenzhen Key Lab of Communication and Information Processing, Shenzhen, China
Corresponding author: Li, Xia
Source title: Mathematical Problems in Engineering
Abbreviated source title: Math. Probl. Eng.
Volume: 2015
Issue date: January 22, 2015
Publication year: 2015
Article number: 165476
Language: English
ISSN: 1024123X
E-ISSN: 15635147
Document type: Journal article (JA)
Publisher: Hindawi Publishing Corporation, 410 Park Avenue, 15th Floor, 287 pmb, New York, NY 10022, United States
Abstract: Assessment of the components of a solution helps provide useful information for an optimization problem. This paper presents a new population-based problem-reduction evolutionary algorithm (PREA) based on the solution components assessment. An individual solution is regarded as being constructed by basic elements, and the concept of acceptability is introduced to evaluate them. The PREA consists of a searching phase and an evaluation phase. The acceptability of basic elements is calculated in the evaluation phase and passed to the searching phase. In the searching phase, for each individual solution, the original optimization problem is reduced to a new smaller-size problem. With the evolution of the algorithm, the number of common basic elements in the population increases until all individual solutions are exactly the same which is supposed to be the near-optimal solution of the optimization problem. The new algorithm is applied to a large variety of capacitated vehicle routing problems (CVRP) with customers up to nearly 500. Experimental results show that the proposed algorithm has the advantages of fast convergence and robustness in solution quality over the comparative algorithms. © 2015 Wanfeng Liu and Xia Li.
Number of references: 23
Main heading: Evolutionary algorithms
Controlled terms: Algorithms - Network routing - Optimization - Routing algorithms
Uncontrolled terms: Capacitated vehicle routing problem - Evaluation phase - Fast convergence - Near-optimal solutions - Optimization problems - Problem reduction - Solution components - Solution quality
Classification code: 721 Computer Circuits and Logic Elements - 723 Computer Software, Data Handling and Applications - 921.5 Optimization Techniques
DOI: 10.1155/2015/165476
Database: Compendex
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Data Provider: Engineering Village

166. Terahertz wave transmission within metal-clad antiresonant reflecting hollow waveguides

Accession number: 20153801292151
Authors: Liu, Jiamin (1, 2, 3); Liang, Huawei (2, 3); Zhang, Min (2, 3); Su, Hong (2, 3)

Author affiliation: (1) College of Electronic Science and Technology, Shenzhen University, Shenzhen, China; (2) Shenzhen Key Laboratory of Laser Engineering, Shenzhen University, Shenzhen, China; (3) Key Laboratory of Advanced Optical Precision Manufacturing Technology of Guangdong, Higher Education Institutes, Shenzhen University, Shenzhen, China
Corresponding author: Liang, Huawei

Abstract: We present the transmission characteristics of THz waves in metal-clad antiresonant reflecting hollow waveguides. We have derived the equation for the blueshift of the resonance frequency. The effects of the waveguide structure on the blueshift of the resonance frequency are studied comprehensively. In particular, we find that the blueshift of the resonance frequency is strongly affected by the interval between two dielectric slabs. By changing the interval, we find that the maximum frequency-tuning range is up to 2030 GHz and the maximum sensitivity of the resonance frequency shift is up to 6950 GHz/mm at the resonance order of $m = 1$. When the THz wave is at the near-zero loss frequency, both the loss and the dispersion of the guide modes are very low. © 2015 Optical Society of America.

Number of references: 38
Main heading: Resonance
Controlled terms: Natural frequencies - Terahertz waves - Wave transmission - Waveguides
Uncontrolled terms: Dielectric slabs - Hollow waveguides - Maximum frequency - Maximum sensitivity - Resonance frequencies - Resonance frequency shift - Transmission characteristics - Waveguide structure
Classification code: 701 Electricity and Magnetism - 711 Electromagnetic Waves - 711.1 Electromagnetic Waves in Different Media - 714.3 Waveguides
DOI: 10.1364/AO.54.004549
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

167. Improved cumulant-based methods for direction finding with mutual coupling effect

Accession number: 20160501876866
Authors: Liao, Bin (1); Huang, Lei (1); Chan, S.C. (2)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, China; (2) Department of Electrical and Electronic Engineering, University of Hong Kong, Pokfulam Road, Hong Kong
Abstract: We have recently proposed a fourth-order cumulant (FOC)-based method for direction-of-arrival (DOA) estimation in uniform linear arrays (ULAs) with mutual coupling. However, it is found that this method has limited

performance in terms of the root-mean-square error (RMSE) in the case where the mutual coupling effect is not significant (but not ignorable). Motivated by this fact, two improved methods are presented in this paper. According to the properties of cumulants, a FOC matrix of the received data is firstly introduced. An improved DOA estimator based on the shift-invariant property as in the ESPRIT method is then developed. To further improve the performance, the other improved method that exploits the matrix rank-reduction property is finally proposed. Although grid search is required in the second improved method, the search space is restricted to a substantially reduced size since the coarse DOA estimates are provided by the first improved one. Simulation results show that the RMSE of DOA estimation can be reduced by means of the presented methods. © 2015 IEEE.

Number of references: 12
Main heading: Direction of arrival
Controlled terms: Digital signal processing - Matrix algebra - Mean square error - Signal processing
Uncontrolled terms: Direction finding - Direction of arrivalestimation(DOA) - Fourth order cumulant - Fourth-order cumulants - Mutual coupling - Mutual coupling effects - Root mean square errors - Uniform linear arrays
Classification code: 716.1 Information Theory and Signal Processing - 921.1 Algebra - 922.2 Mathematical Statistics
DOI: 10.1109/ICDSP.2015.7252017
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

168. High-sensitivity gas pressure sensors based on in-fiber devices

Accession number: 20153301175862
Authors: Wang, Yiping (1); Liao, Changrui (1); Liu, Shen (1); Sun, Bing (1); Li, Zhengyong (1); Zhong, Xiaoyong (1); Yin, Guolu (1)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Source title: Proceedings of SPIE - The International Society for Optical Engineering
Abbreviated source title: Proc SPIE Int Soc Opt Eng
Volume: 9655
Part number: 1 of 1
Monograph title: Fifth Asia-Pacific Optical Sensors Conference, APOS 2015
Issue date: 2015
Publication year: 2015
Article number: 96550G
Language: English
ISSN: 0277786X
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CODEN: PSISDG
ISBN-13: 9781628418651
Document type: Conference article (CA)
Conference name: 5th Asia-Pacific Optical Sensors Conference, APOS 2015
Conference date: May 20, 2015 - May 22, 2015
Conference location: Jeju, Korea, Republic of
Conference code: 113227
Sponsor: et al.; FIBERPRO, Inc.; JT, Inc.; NineOne Co., Ltd.; SeongKyeong Photonics; Taihan Fiberoptics Co., Ltd.
Publisher: SPIE

Abstract: We proposed and experimentally demonstrated four kinds of high-sensitivity gas pressure sensors based on in-fiber devices, including a sub-micron silica diaphragm-based fiber-tip, a polymer-capped Fabry-Perot interferometer, an inflated long period fiber grating and a twin core fiber-based Mach-Zehnder interferometer, which have sensitivities of 1036, 1130, 1680, 9600 pm/MPa, respectively. © 2015 Copyright SPIE.

Number of references: 6
Main heading: Fibers
Controlled terms: Diffraction gratings - Fabry-Perot interferometers - Interferometers - Ionization of gases - Mach-Zehnder interferometers - Optical fibers - Optical sensors - Pressure sensors
Uncontrolled terms: Fiber tip - Gas pressure sensor - High sensitivity - In-fiber devices - Long period fiber grating - Sub micron - Twin core fiber
Classification code: 741.1.2 Fiber Optics - 741.3 Optical Devices and Systems - 802.2 Chemical Reactions - 812 Ceramics, Refractories and Glass - 817 Plastics and Other Polymers: Products and Applications - 941.3 Optical Instruments - 944.3 Pressure Measuring Instruments
DOI: 10.1117/12.2184285

169. High dielectric tunability, electrostriction strain and electrocaloric strength at a tricritical point of tetragonal, rhombohedral and pseudocubic phases

Accession number: 20152700994812
Authors: Peng, Biaolin (1, 2, 3); Zhang, Qi (4, 5); Li, Xing (3); Sun, Tieyu (3); Ke, Shanming (1); Ye, Mao (1, 2); Wang, Yu (3); Lu, Wei (3); Niu, Hanben (2); Zeng, Xierong (1); Fan, Huiqing (6); Huang, Haitao (3)
Author affiliation: (1) Shenzhen Key Laboratory of Special Functional Materials, College of Materials Science and Engineering, Shenzhen University, Shenzhen, China; (2) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (3) Department of Applied Physics, Hong Kong Polytechnic University, Kowloon, Hong Kong; (4) Department of Manufacturing and Materials, Cranfield University, Cranfield, Bedfordshire, United Kingdom; (5) State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, Wuhan; Hubei, China; (6) State Key Lab. of Solidification Proc. Sch. of Mat. Sci. and Eng. NW Polytechnical University, Xi'an, China
Corresponding author: Zeng, Xierong
Abstract: A relaxor ferroelectric Pb(Ni1/3Nb2/3)0.5Zr0.15Ti0.35O3 (PNNZT) ceramic was reported, designed upon an idea that the composition is selected to near a tricritical point of tetragonal, rhombohedral and pseudocubic phases. High dielectric tunability of 67%, simultaneously with high electrostriction strain of 0.319% and high electrocaloric strength (#T/#E) of 32.5 mK cm/kV are achieved, which make it a promising multifunctional material for applications in dielectric tunable, precisely controlled and electric refrigeration devices. This is endowed by the low energy barrier among the transitions of phases and strong relaxor ferroelectric activities around the tricritical point. This work provides a guide for the design of multifunctional ferroelectric materials and can promote the development of other multifunctional ferroic materials. © 2015 Elsevier B.V. All rights reserved.
Number of references: 42
Main heading: Ferroelectric materials
Controlled terms: Electrostriction - Ferroelectricity - Lead
Uncontrolled terms: Electrocaloric - Electrostriction strain - Ferroic materials - Morphotropic phase boundaries - Multi-functional materials - Refrigeration devices - Relaxor ferroelectric - Relaxors
Classification code: 546.1 Lead and Alloys - 701.1 Electricity: Basic Concepts and Phenomena - 708.1 Dielectric Materials
DOI: 10.1016/j.jallcom.2015.05.133

170. The effect of stockout cause and brand equity on consumer preference in online retailing

Accession number: 20154501506044
Authors: Ding, Jun (1); Lu, Qiang (1); Chu, Xianghua (2)
Author affiliation: (1) Harbin Institute of Technology Shenzhen Graduate School, Shenzhen, China; (2) College of Management, Shenzhen University, Shenzhen, China
Corresponding author: Chu, Xianghua

Abstract: Customers can browse the information of stockout items in online retailing, thus change their preferences for the stockout product. This study tests the hypothesis that brand equity moderates the effect of causes of stockout on consumer preference for the online stockout product. The results reveal that for high-equity branded products, consumers exhibit a slit decrease in preference for the product whether the product is out-of-stock due to heavy demand or short supply. By comparison, for low-equity branded products, consumers increase preference for the product if the product is out-of-stock due to excessive demand and decrease preference for the product if stockout cause is supply-based. These findings highlight the importance of taking the product's brand equity into consideration when stating different kinds of causes for stockout to consumers. © Springer-Verlag Berlin Heidelberg 2015.

Number of references: 31
Main heading: Marketing
Controlled terms: Management science
Uncontrolled terms: Brand equity - Branded products - Consumer preferences - Online retailing - Out of stock - Short supply - Stock-out
Classification code: 911.4 Marketing - 912.2 Management
DOI: 10.1007/978-3-662-47200-2_63
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

171. Defending jamming attack in wide-area monitoring system for smart grid

Accession number: 20153101093990
Authors: Niu, Jianwei (1); Ming, Zhong (2); Qiu, Meikang (3); Su, Hai (4); Gu, Zonghua (5); Qin, Xiao (6)
Author affiliation: (1) State Key Laboratory of Software Development Environment, Beihang University, Beijing, China; (2) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen; GD, China; (3) Department of Computer Science, Pace University, New York City; NY, United States; (4) Department of Electrical and Computer Engineering, University of Kentucky, Lexington; KY, United States; (5) College of Computer Science, Zhejiang University, Hangzhou, China; (6) Department of Computer Science and Software Engineering, Auburn University, Auburn; AL, United States
Corresponding author: Ming, Zhong

Abstract: Smart Grid is a promising technology to efficiently manage the power use, transmission and production. An efficient and dependable smart power grid relies on the secure and reliable real-time data collection and transmission

service provided by an underlying backbone communication network. Cognitive radio network is an emerging wireless communication technology that fits communication needs in smart grid. However, the cognitive radio is vulnerable to jamming attacks that can disturb the real time communication. The loss of the timely information from the remotely distributedly deployed sensors can cause the loss of control of the system. In this paper, we focus on the availability of the communication services provided by the cognitive radio nodes deployed over the smart grid. We consider the jamming attacks to this wireless network. We propose to defeat the jamming attacks by introducing the combined online optimization and linear programming to the smart grid to enable the system to heal automatically from the jamming attack. © 2014, Springer Science+Business Media New York.
Number of references: 20
Main heading: Smart power grids
Controlled terms: Balloons - Cognitive radio - Electric power transmission networks - Jamming - Linear programming - Secure communication - Wireless networks - Wireless telecommunication systems
Uncontrolled terms: Anti-jamming - Cognitive radio network - Real time data collections - Real-time communication - Security - Smart grid - Wide area monitoring system - Wireless communication technology
Classification code: 404 Civil Defense and Military Engineering - 652.5 Balloons and Gliders - 706.1 Electric Power Systems - 706.1.1 Electric Power Transmission - 711 Electromagnetic Waves - 716 Telecommunication; Radar, Radio and Television - 716.3 Radio Systems and Equipment - 717 Optical Communication - 922 Statistical Methods
DOI: 10.1007/s11235-014-9930-3
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

172. Gas pressure sensors based on in-fiber devices

Accession number: 20161202125608
Authors: Wang, Yiping (1); Liao, Changrui (1); Liu, Shen (1); Sun, Bing (1); Li, Zhengyong (1); Zhong, Xiaoyong (1); Yin, Guolu (1)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Source title: 2015 Opto-Electronics and Communications Conference, OECC 2015
Abbreviated source title: Opto-Electron. Commun. Conf., OECC
Monograph title: 2015 Opto-Electronics and Communications Conference, OECC 2015
Issue date: November 30, 2015
Publication year: 2015
Article number: 7340215
Language: English
ISBN-13: 9781467379441
Document type: Conference article (CA)
Conference name: Opto-Electronics and Communications Conference, OECC 2015
Conference date: June 28, 2015 - July 2, 2015
Conference location: Shanghai, China
Conference code: 118434
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: We proposed and experimentally demonstrated four kinds of high-sensitivity gas pressure sensors based on in-fiber devices, including a sub-micron silica diaphragm-based fiber-tip, a polymer-capped Fabry-Perot interferometer, an inflated long period fiber grating and a twin core fiber-based Mach-Zehnder interferometer, which have sensitivities of 1036, 1130, 1680, 9600 pm/MPa, respectively. © 2015 IEEE.
Number of references: 6
Main heading: Fibers
Controlled terms: Diffraction gratings - Fabry-Perot interferometers - Interferometers - Mach-Zehnder interferometers - Pressure sensors
Uncontrolled terms: Fiber tip - Gas pressure sensor - High sensitivity - In-fiber devices - Long period fiber grating - Sub micron - Twin core fiber
Classification code: 741.3 Optical Devices and Systems - 941.3 Optical Instruments - 944.3 Pressure Measuring Instruments
DOI: 10.1109/OECC.2015.7340215
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

173. An ultra-low power common-source-amplifier-based physical unclonable function

Accession number: 20161502208458
Authors: Lin, Shibang (1); Zhao, Xiaojin (1); Li, Bing (1); Pan, Xiaofang (2)
Author affiliation: (1) College of Electronic Science and Technology, Shenzhen University, Shenzhen, China; (2) College of Information Engineering, Shenzhen University, Shenzhen, China
Source title: Proceedings of the 2015 IEEE International Conference on Electron Devices and Solid-State Circuits, EDSSC 2015
Abbreviated source title: Proc. IEEE Int. Conf. Electron Devices Solid-State Circuits, EDSSC
Monograph title: Proceedings of the 2015 IEEE International Conference on Electron Devices and Solid-State Circuits, EDSSC 2015
Issue date: September 30, 2015
Publication year: 2015
Pages: 269-272
Article number: 7285102
Language: English
ISBN-13: 9781479983636
Document type: Conference article (CA)
Conference name: 11th IEEE International Conference on Electron Devices and Solid-State Circuits, EDSSC 2015
Conference date: June 1, 2015 - June 4, 2015
Conference location: 60 Nanyang View, Singapore, Singapore
Conference code: 118291
Sponsor: IEEE Electron Devices Society (EDS); IEEE Hong Kong Section ED/SSC Joint Chapter; IEEE Singapore Section Rel/CPMT/ED Joint Chapter
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: In this paper, a common-source-amplifier-based physical unclonable function (PUF) is presented with ultra-low power consumption, which is verified with 0.18μm standard complementary-metal-oxide-semiconductor (CMOS) technology. Compared with the previous implementations, the proposed PUF circuitry features an averaged reliability as high as 98.83% with the operating temperature ranging from -20°C to 150°C. In addition, an average power consumption as low as 2.72μW is achieved with a supply voltage of 1.8V. Moreover, the reported superior uniqueness of 0.4999 and standard deviation of uniqueness of 0.0172 further validate the excellent security of the proposed circuitry. © 2015 IEEE.
Number of references: 15
Main heading: Amplifiers (electronic)
Controlled terms: Cryptography - Electric power utilization - Electron devices - Hardware security - Metals - MOS devices - Oxide semiconductors - Reconfigurable hardware - Solid state devices
Uncontrolled terms: Common source amplifier - Operating temperature - Physical unclonable functions (PUF) - Standard complementary metaloxide-semiconductor (CMOS) technologies - Standard deviation - Supply voltages - Ultra low power - Ultra-low power consumption
Classification code: 706.1 Electric Power Systems - 713.1 Amplifiers - 714.2 Semiconductor Devices and Integrated Circuits - 721.3 Computer Circuits
DOI: 10.1109/EDSSC.2015.7285102
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

174. An improved non-linear ARED algorithm based on queue length

Accession number: 20153801282860
Authors: Zhou, Ying (1); Zhang, Jihong (1); Liu, Wei (2); Liang, Yongsheng (2); Hu, Tao (2); Ren, Xianyi (2); Chen, Xiaoping (3)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, China; (2) Shenzhen Key Laboratory of Visual Media Processing and Transmission, Shenzhen Institute of Information Technology, Shenzhen, China; (3) SZMOBI Shenzhen Company, Shenzhen, China
Source title: Multimedia Technology IV - Proceedings of the 4th International Conference on Multimedia Technology
Abbreviated source title: Multimed. Technol. - Proc. Int. Conf. Multimed. Technol.
Part number: 1 of 1
Issue date: 2015
Publication year: 2015
Pages: 177-181

Language: English
ISBN-13: 9781138027947
Document type: Conference article (CA)
Conference name: 4th International Conference on Multimedia Technology, ICMT 2015
Conference date: March 28, 2015 - March 29, 2015
Conference location: Sydney, Australia
Conference code: 114329
Publisher: CRC Press/Balkema

Abstract: Active queue management algorithm can effectively control the network congestion, among which ARED and its improved algorithm has been widely used in recent years. In order to timely response to unexpected network congestion and match the non-linear relationship between packet loss rate and queue length, this paper improved ARED algorithm and proposed a queue length based nonlinear ARED algorithm. This algorithm was analyzed and compared with others in NS2 simulation environment. Experimental results show that compared to other ARED algorithm, this algorithm can guarantee the stability of the queue, respond to unexpected network congestion timely, reduce drop rate and improve network throughput. © 2015 Taylor & Francis Group.
Number of references: 14
Main heading: Algorithms
Controlled terms: Congestion control (communication) - Multimedia systems - Queueing networks - Queueing theory
Uncontrolled terms: Active Queue Management - ARED - Non linear - NS2 - Queue lengths
Classification code: 716 Telecommunication; Radar, Radio and Television - 717 Optical Communication - 718 Telephone Systems and Related Technologies; Line Communications - 723 Computer Software, Data Handling and Applications - 723.5 Computer Applications - 921 Mathematics - 922.1 Probability Theory
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

175. Complexity reduction in multi-dictionary based single-image superresolution reconstruction via pahse congtuency

Accession number: 20160201799294
Authors: Zhou, Yu (1, 2); Kwong, Sam (1, 2); Gao, Wei (1, 2); Zhang, Xiao (1, 2); Wang, Xu (2)
Author affiliation: (1) Department of Computer Science, City University of Hong Kong, Kowloon, Hong Kong; (2) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China
Source title: International Conference on Wavelet Analysis and Pattern Recognition
Abbreviated source title: Int. Conf. Wavelet Anal. Pattern Recogn.
Volume: 2015-October
Monograph title: Proceedings of 2015 International Conference on Wavelet Analysis and Pattern Recognition, ICWAPR 2015
Issue date: October 9, 2015
Publication year: 2015
Pages: 146-151
Article number: 7295941
Language: English
ISSN: 21585695
E-ISSN: 21585709
ISBN-13: 9781467372244
Document type: Conference article (CA)
Conference name: International Conference on Wavelet Analysis and Pattern Recognition, ICWAPR 2015
Conference date: July 12, 2015 - July 15, 2015
Conference location: Guangzhou, China
Conference code: 117300
Sponsor: Hebei University; Hebei University IEEE Systems, Man and Cybernetics Society; Hebei University SMC TC on Computational Intelligence; Hebei University SMC TC on Intelligent Internet Systems; Hebei University SMC TC on Machine Learning; Hebei University SMC TC on Pattern Recognition
Publisher: IEEE Computer Society

Abstract: Compared with single dictionary, multi-dictionary method can achieve better performance in image superresolution reconstruction (SR). However, the computational cost of multi-dictionary based SR is very heavy and usually time-consuming and resource-intensive. In this paper, we proposed a complexity reduction method in multi-dictionary based SR via phase congruency. The PC map of the LR image is extracted and binarized to distinct the importance of the image patches of it. Then, the corresponding important HR patches are reconstructed by multi-

dictionary based SR method and the unimportant ones by single-dictionary based SR. The finalized reconstructed HR image is obtained by averaging the overlapped region between the adjacent patches. Experimental results show that our method can not only obtain competitive results but also can save much time and reduce the computational complexity in the reconstruction process compared with multi-dictionary based SR method. © 2015 IEEE.
Number of references: 13
Main heading: Image processing
Controlled terms: Glossaries - Image reconstruction - Optical resolving power - Pattern recognition - Wavelet analysis
Uncontrolled terms: Adjacent patches - Complexity reduction - Computational costs - Dictionary method - Image super-resolution reconstruction - Phase congruency - Reconstruction process - Supperesolution reconstrution
Classification code: 741.1 Light/Optics - 921 Mathematics
DOI: 10.1109/ICWAPR.2015.7295941
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

176. Coupling of Sommerfeld waves using odd TM mode of double-dielectric-slab waveguide

Accession number: 20144900283477
Authors: Liu, Jia-Min (1, 2, 3); Liang, Hua-Wei (1, 2, 3); Zhang, Min (1, 2, 3); Su, Hong (1, 2, 3)
Author affiliation: (1) College of Electronic Science and Technology, Shenzhen University, Shenzhen, China; (2) Shenzhen Key Laboratory of Laser Engineering, Shenzhen University, Shenzhen, China; (3) Key Laboratory of Advanced Optical Precision Manufacturing Technology of Guangdong Higher Education Institutes, Shenzhen University, Shenzhen, China
Corresponding author: Liang, Hua-Wei
Source title: Journal of Optics (India)
Abbreviated source title: J. Opt.
Volume: 44
Issue: 1
Issue date: 2015
Publication year: 2015
Pages: 53-58
Language: English
ISSN: 09728821
E-ISSN: 09746900
CODEN: JOPTBQ
Document type: Journal article (JA)
Publisher: Optical Society of India
Abstract: We report the coupling of cylindrical metal wire THz surface plasmon-polaritons using odd TM mode of double-dielectric-slab waveguide. We analyze the mode matching issue. We calculate the coupling efficiency of the double-dielectric-slab waveguide to copper wire of 1 mm diameter with respect to waveguide structure, beam structure and the THz frequency, theoretically. It is concluded that at 4.2 THz the highest coupling efficiency achieved to be is 43.5 %. We further show the coupling experimental system. © 2014, The Optical Society of India.
Number of references: 29
Main heading: Waveguides
Controlled terms: Dielectric materials - Electromagnetic wave polarization - Plasmons - Wire
Uncontrolled terms: Beam structures - Coupling efficiency - Dielectric slabs - Experimental system - Surface plasmons - THz frequencies - THz surface plasmons - Waveguide structure
DOI: 10.1007/s12596-014-0227-4
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

177. Response Vector Constrained Robust LCMV Beamforming Based on Semidefinite Programming

Accession number: 20161002050879
Authors: Xu, Jingwei (1); Liao, Guisheng (1); Zhu, Shengqi (1); Huang, Lei (2)

Author affiliation: (1) National Laboratory of Radar Signal Processing, Xidian University, Xi'an, Shaanxi, China; (2) College of Information Engineering, Shenzhen University, Shenzhen, Guangdong, China

Abstract: Although linearly constrained minimum variance (LCMV) beamforming is robust against imprecise target information, it usually leads to relatively high sidelobe and distorted mainlobe which would induce a high false alarm probability. To circumvent this problem, this work devises a novel robust LCMV beamforming approach by utilizing response vector optimization. It intends to find the optimal response vector in lieu of the all-one response vector in traditional LCMV beamformer. The proposed robust beamformer is first formulated as a nonconvex quadratically constrained quadratic programming problem, and then transformed into a semidefinite programming problem which can be efficiently and exactly solved. The proposed beamformer not only improves the performance in terms of signal-to-interference-plus-noise ratio substantially, but also possesses low sidelobe and well-maintained mainlobe. Moreover, since the response vector is quite small in size, the complexity of calculating the optimal response vector is negligible. Additionally, the proposed beamformer is also extended to two-dimensional space-time adaptive processing. Simulation results are presented to demonstrate the superiority of the proposed approach. © 2015 IEEE.

Number of references: 43
Main heading: Beamforming
Controlled terms: Constrained optimization - Multiobjective optimization - Quadratic programming - Signal to noise ratio - Space time adaptive processing - Vectors
Uncontrolled terms: Beam formers - Quadratically constrained quadratic programming - Robust adaptive beamforming - Semi-definite programming - Vector optimizations
Classification code: 711.2 Electromagnetic Waves in Relation to Various Structures - 716.1 Information Theory and Signal Processing - 921.1 Algebra - 921.5 Optimization Techniques - 961 Systems Science
DOI: 10.1109/TSP.2015.2460221
Compendex references: YES
Database: Compendex

Data Provider: Engineering Village

178. Predicting protein-protein interactions from amino acid sequences using SaE-ELM combined with continuous wavelet descriptor and PseAA composition

Accession number: 20154301446894
Authors: Huang, Yu-An (1); You, Zhu-Hong (1); Li, Jianqiang (1); Wong, Leon (1); Cai, Shubin (1)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, Guangdong, China
Corresponding author: You, Zhu-Hong

ISBN-13: 9783319221854
Document type: Conference article (CA)
Conference name: 11th International Conference on Intelligent Computing, ICIC 2015
Conference date: August 20, 2015 - August 23, 2015
Conference location: Fuzhou, China
Conference code: 139689
Sponsor: International Neural Network Society; National Science Foundation of China
Publisher: Springer Verlag

Abstract: Protein-protein interactions (PPIs) are known for its crucial role in almost all cellular processes. Although many innovative techniques for detecting PPIs have been developed, these methods are still both time-consuming and costly. Therefore, it is significant to develop computational approaches for predicting PPIs. In this paper, we propose a novel method to identify new PPIs in ways of self-adaptive evolutionary extreme learning machine (SaE-ELM) combined with a novel representation using continuous wavelet (CW) transform and Chou's pseudo amino acid feature vector. We apply Meyer continuous wavelet transform to extracting wavelet power spectrums from a protein sequence representing a protein as an image, which allows us to use well-known image texture descriptors for extracting protein features. Chou's pseudoamino- acid composition (PseAAC) expands the simple amino-acid composition (AAC) by retaining information embedded in protein sequence. SaE-ELM, a variant of extreme learning machine (ELM), optimizes the single hidden layer feedforward network (SLFN) hidden node parameters using self-adaptive different evolution algorithms. When performed on the PPI data of yeast, the proposed method achieved 87.87 % prediction accuracy with 91.19 % sensitivity at the precision of 82.62 %. Extensive experiments are performed to compare our method with the method base on state-of-the-art classifier, support vector machine (SVM). It is observed from the achieved results that the proposed method is very promising for predicting PPI. © Springer International Publishing Switzerland 2015.
Number of references: 32
Main heading: Proteins
Controlled terms: Amino acids - Computation theory - Evolutionary algorithms - Forecasting - Image retrieval - Image texture - Intelligent computing - Knowledge acquisition - Learning systems - Network layers - Support vector machines - Wavelet transforms
Uncontrolled terms: Amino acid compositions - Computational approach - Continuous Wavelet Transform - Extreme learning machine - Feed-forward network - Innovative techniques - Protein sequences - Protein-protein interactions
Classification code: 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 723 Computer Software, Data Handling and Applications - 804.1 Organic Compounds - 921.3 Mathematical Transformations
DOI: 10.1007/978-3-319-22186-1_63
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

179. Preparation of ph-sensitive dextran nanoparticle for doxorubicin delivery

Accession number: 20150300423958

Authors: Wang, Bi (1, 2); Liu, Peng (2); Shi, Bihua (2); Gao, Jihua (1); Gong, Ping (2)
Author affiliation: (1) College of Materials Science and Engineering, Shenzhen University, Shenzhen, China; (2) Guangdong Key Laboratory of Nanomedicine, Institute of Biomedicine and Biotechnology, Chinese Academy of Sciences, Shenzhen, China
Corresponding author: Gong, Ping
Source title: Journal of Nanoscience and Nanotechnology
Abbreviated source title: J. Nanosci. Nanotechnol.
Volume: 15
Issue: 4
Issue date: April 1, 2015
Publication year: 2015
Pages: 2613-2618
Language: English
ISSN: 15334880
E-ISSN: 15334899
CODEN: JNNOAR
Document type: Journal article (JA)
Publisher: American Scientific Publishers

Abstract: One of challenge for cancer therapy is efficient delivery of anticancer agents into tumor sites to increase efficiency of drugs and reduce side effects. To overcome this challenge, we designed pHsensitive doxorubicin prodrug

(DEX-PEI-DOX) nanoparticles based on dextran-poly(ethylene imine) copolymers (DEX-PEI). The DEX-PEI-DOX conjugates were conveniently prepared by grafting PEI to dextran, and then anticancer drug doxorubicin (DOX) were conjugated to DEX-PEI through acid cleavable cis-aconityl bonds. The experiments of dynamic light scattering (DLS) and transmission electron microscopy (TEM) represented that size of dextran nanoparticles was about 120 nm with uniform spherical shape. In vitro drug release from self-assembled nanoparticles was dependent on the pH of medium due to the cis-aconityl linkage. Confocal images revealed that dextran based pH-sensitive DOX delivery nanoparticle could enter into Human breast carcinoma (MCF-7) cells easily. Therapeutic efficacy against MCF-7 cells in vitro was evaluated through MTT assays and the results showed that dextran nanoparticle had obvious anticancer ability. All above results indicated this pH-sensitive DOX-loaded nanoparticles system would be a useful candidate for cancer therapy. Copyright © 2015 American Scientific Publishers.

Number of references: 16
Main heading: Nanoparticles
Controlled terms: Dextran - Diseases - Drug delivery - Drug interactions - Drug therapy - Dynamic light scattering - Ethylene - Light scattering - Medical imaging - Oncology - pH sensors - Transmission electron microscopy
Uncontrolled terms: Anti-cancer agents - Anticancer abilities - Anticancer drug - pH sensitive - Polyethylene imines - Self assembled nanoparticles - Spherical shape - Therapeutic efficacy
Classification code: 461.6 Medicine and Pharmacology - 708 Electric and Magnetic Materials - 741 Light, Optics and Optical Devices - 746 Imaging Techniques - 761 Nanotechnology - 801.1 Chemistry, General - 804.1 Organic Compounds - 933 Solid State Physics
DOI: 10.1166/jnn.2015.9243
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

180. Fuzziness based sample categorization for classifier performance improvement

Authors: Wang, Xi-Zhao (1); Ashfaq, Rana Aamir Raza (1); Fu, Ai-Min (2)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (2) College of Science, China Agricultural University, Beijing, China
Corresponding author: Wang, Xi-Zhao
Abstract: This paper investigates a relationship between the fuzziness of a classifier and the misclassification rate of the classifier on a group of samples. For a given trained classifier that outputs a membership vector, we demonstrate experimentally that samples with higher fuzziness outputted by the classifier mean a bigger risk of misclassification.We then propose a fuzziness category based divide-and-conquer strategy which separates the high-fuzziness samples from the low fuzziness samples. A particular technique is used to handle the high-fuzziness samples for promoting the classifier performance. The reasonability of the approach is theoretically explained and its effectiveness is experimentally demonstrated. © 2015 - IOS Press and the authors.
Number of references: 39
Main heading: Fuzzy set theory
Controlled terms: Fuzzy systems
Uncontrolled terms: Boundary points - Divide and conquer - Fuzziness - generalization - Misclassifications
Classification code: 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 961 Systems Science
DOI: 10.3233/IFS-151729
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

181. Design of fractional order PID controller for automatic regulator voltage system based on multi-objective extremal optimization

Authors: Zeng, Guo-Qiang (1); Chen, Jie (1); Dai, Yu-Xing (1); Li, Li-Min (1); Zheng, Chong-Wei (1); Chen, Min-Rong (2)
Author affiliation: (1) Department of Electrical and Electronic Engineering, Wenzhou University, Wenzhou, China; (2) College of Information Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Zeng, Guo-Qiang
Abstract: Design of an effective and efficient fractional order PID (FOPID) controller, as a generalization of a standard PID controller based on fractional order calculus, for an industrial control system to obtain high-quality performances is of great theoretical and practical significance. From the perspective of multi-objective optimization, this paper presents a novel FOPID controller design method based on an improved multi-objective extremal optimization (MOEO) algorithm for an automatic regulator voltage (AVR) system. The problem of designing FOPID controller for AVR is firstly formulated as a multi-objective optimization problem with three objective functions including minimization of integral of absolute error (IAE), absolute steady-state error, and settling time. Then, an improved MOEO algorithm is proposed to solve this problem by adopting individual-based iterated optimization mechanism and polynomial mutation (PLM). From the perspective of algorithm design, the proposed MOEO algorithm is relatively simpler than NSGA-II and single-objective evolutionary algorithms, such as genetic algorithm (GA), particle swarm optimization (PSO), chaotic anti swarm (CAS) due to its fewer adjustable parameters. Furthermore, the superiority of proposed MOEO-FOPID controller to NSGA-II-based FOPID, single-objective evolutionary algorithms-based FOPID controllers, MOEO-based and NSGA-II-based PID controllers is demonstrated by extensive experimental results on an AVR system in terms of accuracy and robustness. © 2015 Elsevier B.V.
Number of references: 61
Main heading: Multiobjective optimization
Controlled terms: Algorithms - Calculations - Controllers - Design - Electric control equipment - Evolutionary algorithms - Genetic algorithms - Optimization - Particle swarm optimization (PSO) - Problem solving - Proportional control systems - Three term control systems
Uncontrolled terms: Controller design method - Extremal optimization - Fractional-order calculus - Fractional-order PID controllers - Industrial control systems - Integral of absolute errors (IAE) - Multi-objective optimization problem - Voltage systems
DOI: 10.1016/j.neucom.2015.02.051
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

182. Electro-deposition of CoNi2S4flower-like nanosheets on 3D hierarchically porous nickel skeletons with high electrochemical capacitive performance

Authors: Wang, Tao (1, 2); Zhao, Bo (1); Jiang, Hong (1); Yang, Hai-Peng (2); Zhang, Kai (3); Yuen, Matthew M.F. (3); Fu, Xian-Zhu (1); Sun, Rong (1); Wong, Ching-Ping (4, 5)
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Abbreviated source title: J. Mater. Chem. A
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Issue: 45
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Language: English
ISSN: 20507488
E-ISSN: 20507496
CODEN: JMCAET
Document type: Journal article (JA)
Publisher: Royal Society of Chemistry
Abstract: Ternary cobalt nickel sulfide ($CoNi_2S_4$) flower-like nanosheets are directly grown on three dimensional (3D) hierarchically porous nickel skeletons by one-step electro-deposition. The resultant 3D porous $Ni/CoNi_2S_4$composites could serve as binder-free integrated electrodes for supercapacitors, which exhibit higher capacitance than those of 3D porous Ni/Co_9S_8, 3D porous Ni/Ni_3S_2, Ni foam/$CoNi_2S_4$and smooth $Ni/CoNi_2S_4$electrodes. Furthermore, the 3D porous $Ni/CoNi_2S_4$electrodes demonstrate better electrochemical reversibility and excellent rate capability. The super electrochemical capacitive behavior might be attributed to the highly interconnected conductive networks of 3D hierarchically porous Ni scaffold supported $CoNi_2S_4$flower-like nanosheets with a large specific area and highly active sites. © 2015 The Royal Society of Chemistry.
Number of references: 42
Main heading: Nickel
Controlled terms: Deposition - Electrochemical electrodes - Electrodes - Electrolytic capacitors - Foams - Musculoskeletal system - Nanosheets - Scaffolds
Uncontrolled terms: Capacitive behavior - Capacitive performance - Conductive networks - Electrochemical reversibility - Hierarchically porous - Integrated electrodes - Rate capabilities - Threedimensional (3-d)
Classification code: 405.1 Construction Equipment - 461.3 Biomechanics, Bionics and Biomimetics - 548.1 Nickel - 704.1 Electric Components - 761 Nanotechnology - 802.3 Chemical Operations - 933 Solid State Physics
DOI: 10.1039/c5ta04705f
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

183. Modeling dynamics of online video popularity

Accession number: 20161702299171
Authors: Wu, Jiqiang (1, 2); Zhou, Yipeng (1); Chiu, Dah Ming (2); Zhu, Zirong (3)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, China; (2) Department of Information Engineering, Chinese University of Hong Kong, Hong Kong; (3) Department of Online Video, Tencent, China
Source title: 2015 IEEE 23rd International Symposium on Quality of Service, IWQoS 2015
Abbreviated source title: IEEE Int. Symp. Qual. Serv., IWQoS
Monograph title: 2015 IEEE 23rd International Symposium on Quality of Service, IWQoS 2015
Issue date: February 10, 2016
Publication year: 2015
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Article number: 7404724
Language: English
ISBN-13: 9781467371131
Document type: Conference article (CA)
Conference name: 23rd IEEE International Symposium on Quality of Service, IWQoS 2015
Conference date: June 15, 2015 - June 16, 2015
Conference location: Portland, OR, United states
Conference code: 119387
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Large Internet video delivery systems serve millions of videos to tens of millions of users on daily basis, via Video-on-Demand (VoD) and live streaming. Video popularity (measured by view count) evolves over time. It represents the workload, as well as business value, of the video to the overall system. The ability to predict video popularity is very helpful for improving service quality and operating efficiency. Previous studies adopted simple

(usually static) models for video popularity, or directly adopted patterns from measurement studies. In this paper, we develop a fluid model that tries to capture two hidden processes that give rise to different patterns of a given video's popularity evolution: (a) the information spreading process, and (b) the user reaction process. Specifically, these processes model how the video is recommended to the users, the video's inherent attractiveness, and users' reaction rate; and yield different popularity evolution patterns. We validate our model by fitting the data obtained from a large content provider in China. This model gives us the insight to explain the common and different video popularity evolution patterns and why. © 2015 IEEE.

Number of references: 13
Main heading: Quality of service
Controlled terms: Video on demand - Video streaming
Uncontrolled terms: Content providers - Evolution patterns - Information spreading - Measurement study - Operating efficiency - Reaction process - Service Quality - Video on demands (VoD)
Classification code: 716.4 Television Systems and Equipment
DOI: 10.1109/IWQoS.2015.7404724
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

184. A control method of switching power amplifiers with triple-arm SVPWM

Accession number: 20160101750433
Authors: Li, Rui (1); Sun, Yanhua (1); Qiu, Hong (2); Duan, Ruirui (1)
Author affiliation: (1) Key laboratory of Digital Manufacturing Technology and Application, Xi'an Jiaotong University, Xi'an, China; (2) Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen; Guangdong, China
Corresponding author: Sun, Yanhua
Source title: Hsi-An Chiao Tung Ta Hsueh/Journal of Xi'an Jiaotong University
Abbreviated source title: Hsi An Chiao Tung Ta Hsueh
Volume: 49
Issue: 12
Issue date: December 10, 2015
Publication year: 2015
Pages: 71-76
Language: Chinese
ISSN: 0253987X
CODEN: HCTPDW
Document type: Journal article (JA)
Publisher: Xi'an Jiaotong University
Abstract: A novel triple-arm switching power amplifier based on SVPWM theory is proposed to solve the problem that the traditional AMB (active magnetic bearing) that is controlled by two H-bridge switching power amplifiers have some shortcomings such as bulky size, high power consumption. The amplifier bases on the theory of SVPWM and the advantage of three-level control. Both symmetrical and asymmetrical SVPWM theories are applied for different carriers. Two different methods of SVPWM switching power amplifiers are established in the Matlab/Simulink environment and a novel three-leg switching power amplifier circuit system is realized by dSPACE. Both the theoretical results and experiment results show that the symmetrical SVPWM control algorithm improves the current response speed effectively, doubles the ripple current frequency and decreases its amplitude significantly. When the frequency is 1 750 rad/s, the system gain is only -3 dB. Thus the method meets the requirements of low ripple current and good dynamic, and improves the reliability of AMB system performance. © 2015, Xi'an Jiaotong University. All right reserved.
Number of references: 11
Main heading: Power amplifiers
Controlled terms: Algorithms - Amplifiers (electronic) - Bridge circuits - Electric rectifiers - Pulse width modulation - Switching - Voltage control
Uncontrolled terms: Active Magnetic Bearing - Control methods - Current response - High power consumption - MATLAB/Simulink environment - Ripple currents - Space voltage pulse width modulations - Switching power amplifiers
Classification code: 713.1 Amplifiers - 731.3 Specific Variables Control
DOI: 10.7652/xjtuxb201512012
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

185. Direction finding in partly calibrated uniform linear arrays with unknown gains and phases

Authors: Liao, Bin (1); Chan, Shing-Chow (2)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Room N921, Shenzhen, China; (2) Department of Electrical and Electronic Engineering, University of Hong Kong, Pokfulam Road, Hong Kong, Hong Kong
Abstract: Recently, we considered the problem of direction finding with partly calibrated uniform linear arrays (ULAs) with unknown gains and phases and proposed an ESPRIT-like method for direction-of-arrival (DOA) estimation. It was shown that the DOAs, together with unknown sensor gains and phases in the uncalibrated portion of the array, can be estimated in closed form. However, the identifiability of DOA estimation has not yet been addressed. Moreover, though the proposed method performs better than existing ones, it uses the overlapping subarrays only. Thus it is possible to further improve the performance if the whole array aperture is employed. To fill this gap, two main issues are addressed in this paper. First, the ESPRIT-like algorithm is reinvestigated and conditions ensuring the uniqueness of DOA estimates and identifiability are derived. Second, by exploiting the subspace principle, a refining scheme is proposed that is able to improve the performance of the ESPRIT-like algorithm. Numerical examples are carried out to demonstrate the identifiability issue and performance of the refinement. © 1965-2011 IEEE.
Number of references: 22
Main heading: Direction of arrival
Controlled terms: Calibration - Time varying networks
Uncontrolled terms: Closed form - Direction finding - Direction of arrivalestimation(DOA) - DOA estimates - DOA estimation - Identifiability - Uncalibrated - Uniform linear arrays
Classification code: 703.1 Electric Networks - 716.1 Information Theory and Signal Processing - 941 Acoustical and Optical Measuring Instruments - 942 Electric and Electronic Measuring Instruments - 943 Mechanical and Miscellaneous Measuring Instruments - 944 Moisture, Pressure and Temperature, and Radiation Measuring Instruments
DOI: 10.1109/TAES.2014.130460
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

186. Root Growth Optimizer with Self-Similar Propagation

Authors: He, Xiaoxian (1, 2); Chen, Hanning (3); Niu, Ben (4, 5); Wang, Jie (1)
Author affiliation: (1) College of Information Science and Engineering, Central South University, Changsha, China; (2) College of Engineering, University of Tennessee, Knoxville; TN, United States; (3) Shenyang Institute of Automation, Chinese Academy of Sciences, Shenyang, China; (4) College of Management, Shenzhen University, Shenzhen, China; (5) Hong Kong Polytechnic University, Hung Hom, Hong Kong
Corresponding author: He, Xiaoxian

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Language: English
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Publisher: Hindawi Publishing Corporation, 410 Park Avenue, 15th Floor, 287 pmb, New York, NY 10022, United States

Abstract: Most nature-inspired algorithms simulate intelligent behaviors of animals and insects that can move spontaneously and independently. The survival wisdom of plants, as another species of biology, has been neglected to some extent even though they have evolved for a longer period of time. This paper presents a new plant-inspired algorithm which is called root growth optimizer (RGO). RGO simulates the iterative growth behaviors of plant roots to optimize continuous space search. In growing process, main roots and lateral roots, classified by fitness values, implement different strategies. Main roots carry out exploitation tasks by self-similar propagation in relatively nutrient-rich areas, while lateral roots explore other places to seek for better chance. Inhibition mechanism of plant hormones is applied to main roots in case of explosive propagation in some local optimal areas. Once resources in a location are exhausted, roots would shrink away from infertile conditions to preserve their activity. In order to validate optimization effect of the algorithm, twelve benchmark functions, including eight classic functions and four CEC2005 test functions, are tested in the experiments. We compared RGO with other existing evolutionary algorithms including artificial bee colony, particle swarm optimizer, and differential evolution algorithm. The experimental results show that RGO outperforms other algorithms on most benchmark functions. Copyright © 2015 Xiaoxian He et al.
Number of references: 34
Main heading: Evolutionary algorithms
Controlled terms: Algorithms - Biology - Hormones - Iterative methods - Optimization - Particle swarm optimization (PSO) - Plants (botany)
Uncontrolled terms: Artificial bee colonies - Differential evolution algorithms - Inhibition mechanisms - Intelligent behavior - Nature inspired algorithms - Optimization effects - Particle swarm optimizers - Self-similar propagation
Classification code: 461.2 Biological Materials and Tissue Engineering - 461.9 Biology - 723 Computer Software, Data Handling and Applications - 921 Mathematics
DOI: 10.1155/2015/498626
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

187. Ultra-low power CMOS multiple voltage reference with 3.9 ppm/°C temperature coefficient

Accession number: 20161002071893
Authors: Li, Yongquan (1); Jiang, Mei (1)
Author affiliation: (1) Shenzhen University, China
Source title: 2015 IEEE International Conference on Consumer Electronics - Taiwan, ICCE-TW 2015
Abbreviated source title: IEEE Int. Conf. Consum. Electron. - Taiwan, ICCE-TW
Monograph title: 2015 IEEE International Conference on Consumer Electronics - Taiwan, ICCE-TW 2015
Issue date: August 20, 2015
Publication year: 2015
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Article number: 7217038
Language: English
ISBN-13: 9781479987443
Document type: Conference article (CA)
Conference name: 2nd IEEE International Conference on Consumer Electronics - Taiwan, ICCE-TW 2015
Conference date: June 6, 2015 - June 8, 2015
Conference location: No. 43, Sec. 4, Keelung Rd., Da'an Dist., Taipei, Taiwan
Conference code: 116941
Sponsor: IEEE Consumer Electronics Society
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: A voltage reference with low temperature coefficient (TC), multipliable outputs and low power consumption is presented in this paper. The proposed reference circuit operating with all transistors biased in the subthreshold region, provides reference voltage of 342 mV. The outputs also can be multipliable to two or three, such as 684 and 1025 mV which is dependence on the requirement of system and the supply voltage. Subthreshold MOSFET design allows the

circuit to work on a supply voltage as low as 0.8 V with an average current consumption of 6.4 nA at room temperature. The power supply rejection ratio (PSRR) with a 500f F capacitor load of 342 mV output voltage simulated at 100 Hz and 10 MHz is over than 51.9 dB and 42.2 dB, respectively. Monte Carlo simulation shows a mean TC is 3.9 ppm/°C over a set of 500 samples, in a temperature range from -30 °C to 100 °C. The layout area of the presented voltage reference is 0.0015 mm2. © 2015 IEEE.

Number of references: 6
Main heading: Temperature
Controlled terms: CMOS integrated circuits - Consumer electronics - Gas generators - Intelligent systems - Logic design - Logic gates - Monte Carlo methods - MOSFET devices - Power supply circuits - Reconfigurable hardware - Threshold voltage - Voltage measurement
Uncontrolled terms: Layout - Low temperature coefficients - Low-power consumption - MOS-FET - Power supply rejection ratio - Sub-threshold regions - Temperature coefficient - Ultra-low-power CMOS
Classification code: 522 Gas Fuels - 641.1 Thermodynamics - 701.1 Electricity: Basic Concepts and Phenomena - 714.2 Semiconductor Devices and Integrated Circuits - 721.2 Logic Elements - 721.3 Computer Circuits - 723.4 Artificial Intelligence - 922.2 Mathematical Statistics - 942.2 Electric Variables Measurements
DOI: 10.1109/ICCE-TW.2015.7217038
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

188. Pig bones derived N-doped carbon with multi-level pores as electrocatalyst for oxygen reduction

Accession number: 20153401184176
Authors: Wang, Rongfang (1); Wang, Kai (1); Wang, Zihan (1); Song, Huihui (1); Wang, Hui (1); Ji, Shan (2)
Author affiliation: (1) Key Laboratory of Eco-Environment-Related Polymer Materials, College of Chemistry and Chemical Engineering, Northwest Normal University, Lanzhou, China; (2) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Wang, Rongfang
Source title: Journal of Power Sources
Abbreviated source title: J Power Sources
Volume: 297
Issue date: November 30, 2015
Publication year: 2015
Pages: 295-301
Article number: 21548
Language: English
ISSN: 03787753
CODEN: JPSODZ
Document type: Journal article (JA)
Publisher: Elsevier
Abstract: Abstract In this work, a N-doped highly porous carbon material with multi-level pores and high activity for oxygen reduction reaction (ORR) is successfully prepared by carbonizing pig bones instead of separated carbon/nitrogen-containing and template precursors. The N-doped porous carbon material has high specific surface area of ca. 562.6 m2 g-1. Due to its high surface area and N-doped active sites, the ORR activity of obtained carbon in alkaline media is higher than that of commercial Pt/C catalyst (10 wt.%). In addition, it shows a higher methanol tolerance than Pt/C catalyst and long term-operating stability, rendering it as promising ORR catalyst material for fuel cells. © 2015 Elsevier B.V.
Number of references: 49
Main heading: Doping (additives)
Controlled terms: Biomass - Bone - Catalyst activity - Catalysts - Electrocatalysts - Electrolytic reduction - Fuel cells - Oxygen - Platinum - Platinum alloys - Porous materials
Uncontrolled terms: High specific surface area - High surface area - Methanol tolerance - Operating stability - Oxygen Reduction - Oxygen reduction reaction - Porous carbon materials - Porous carbons
Classification code: 461.2 Biological Materials and Tissue Engineering - 525.1 Energy Resources and Renewable Energy Issues - 547.1 Precious Metals - 702.2 Fuel Cells - 801 Chemistry - 801.4.1 Electrochemistry - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 951 Materials Science
DOI: 10.1016/j.jpowsour.2015.07.107
Database: Compendex

Data Provider: Engineering Village

189. A two-level advanced production planning and scheduling model for RFID-enabled ubiquitous manufacturing

Accession number: 20150600488284

Authors: Zhong, Ray Y. (1, 2); Huang, George Q. (1); Lan, Shulin (1); Dai, Q.Y. (3); Zhang, T. (4); Xu, Chen (5)
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Corresponding author: Zhong, Ray Y.(zhongzry@gmail.com)

Abstract: Radio frequency identification (RFID) technology has been used in manufacturing industries to create a RFID-enabled ubiquitous environment, in where ultimate real-time advanced production planning and scheduling (APPS) will be achieved with the goal of collective intelligence. A particular focus has been placed upon using the vast amount of RFID production shop floor data to obtain more precise and reasonable estimates of APPS parameters such as the arrival of customer orders and standard operation times (SOTs). The resulting APPS model is based on hierarchical production decision-making principle to formulate planning and scheduling levels. A RFID-event driven mechanism is adopted to integrate these two levels for collective intelligence. A heuristic approach using a set of rules is utilized to solve the problem. The model is tested through four dimensions, including the impact of rule sequences on decisions, evaluation of released strategy to control the amount of production order from planning to scheduling, comparison with another model and practical operations, as well as model robustness. Two key findings are observed. First, release strategy based on the RFID-enabled real-time information is efficient and effective to reduce the total tardiness by 44.46% averagely. Second, it is observed that the model has the immune ability on disturbances like defects. However, as the increasing of the problem size, the model robustness against emergency orders becomes weak; while, the resistance to machine breakdown is strong oppositely. Findings and observations are summarized into a number of managerial implications for guiding associated end-users for purchasing collective intelligence in practice. © 2015 Elsevier Ltd. All rights reserved.

Number of references: 45
Main heading: Scheduling
Controlled terms: Decision making - Floors - Heuristic methods - Identification (control systems) - Manufacture - Planning - Production control - Radio frequency identification (RFID) - Radio waves
Uncontrolled terms: Collective intelligences - Manufacturing industries - Production planning and scheduling - Radio frequency identification technology - Real time - Shop floor - Two-level - Ubiquitous environments
DOI: 10.1016/j.aei.2015.01.002
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

190. Bias-corrected quantile re gression fores ts for high-dimensiona l data

Accession number: 20150500461076

Authors: Tungl, Nguyen Thanh (1, 4); Huangl, Joshua Zhexue (1, 2); Nguyen, Thuy Thi (3); Khanl, Imran (1)
Author affiliation: (1) Shenzhen Key Laboratory of High Performance Data Mining, SIAT, CAS, Shenzhen, China; (2) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (3) Hanoi University of Agriculture Vietnam, Viet Nam; (4) Water Resources University, Viet Nam
Source title: Proceedings - International Conference on Machine Learning and Cybernetics

Abstract: The Quantile Regression Forest (QRF), a nonparametric regression method based on the random forests, has been proved to perform well in terms of prediction accuracy, especially for nonGaussian conditional distributions. However, the method may have two kinds of bias when solving regression problems: bias in the feature selection stage and bias in solving the regression problem. In this paper, we propose a new bias-correction algorithm that uses bias correction based on the QRF. To correct the first kind of bias, we propose a new scheme for feature sampling that allows to select good features for growing trees. The first level QRF is built based on this. For the second kind of bias, the residual term of the first level QRF model is used as the response feature to train the second level QRF model for bias correction. The second level model is then used to compute bias-corrected predictions. In our experiments, the proposedalgorithm dramatically reduces prediction errors and outperforms most of the existing regression random forests models for both synthetic and well-known real-world data sets. © 2014 IEEE.

191. A Gene-Level Hybrid Crossover Operator for Multiobjective Evolutionary Algorithm

Authors: Zhu, Qingling (1); Lin, Qiuzhen (1); Chen, Jianyong (1); Huang, Peizhi (1)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China

Document type: Conference article (CA)
Conference name: 2nd International Conference on Soft Computing and Machine Intelligence, ISCMI 2015
Conference date: November 23, 2015 - November 24, 2015
Conference location: Hong Kong, Hong kong
Conference code: 119573
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: This study proposes a novel recombination operator, called hybrid crossover operator (HX), which is performed in gene level of chromosome to enhance the optimization performance of multi-objective evolutionary algorithms (MOEAs). The proposed HX operator combines the advantages of simulated binary crossover with local search ability and differential evolution with strong global search capability. When HX is embedded into two state-of-the-art MOEAs, i.e., NSGA-II and MOEA/D-DE, the experimental results validate the improvement of HX when compared to the original counterpart. © 2015 IEEE.
Number of references: 15
Main heading: Evolutionary algorithms
Controlled terms: Algorithms - Artificial intelligence - Bins - Genes - Multiobjective optimization - Optimization - Soft computing
Uncontrolled terms: Crossover operator - Differential Evolution - Global search capability - hybrid crossover - Local search - Multi objective evolutionary algorithms - Recombination operators - Simulated binary crossover
Classification code: 461.2 Biological Materials and Tissue Engineering - 694.4 Storage - 723 Computer Software, Data Handling and Applications - 723.4 Artificial Intelligence - 921.5 Optimization Techniques
DOI: 10.1109/ISCMI.2015.25
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

192. General construction method of multilength optical orthogonal codes with arbitrary cross-correlation constraint for OCDMA multimedia network

Accession number: 20152300911601
Authors: Li, Xiaobin (1); Lu, Lizhi (2)
Author affiliation: (1) Shenzhen Key Lab of Advanced Communications and Information Processing, Shenzhen University, China; (2) College of Information Engineering, Shenzhen University, China
Source title: Journal of Optical Communications and Networking
Abbreviated source title: J.of Opt. Comm. and Netw.
Volume: 7
Issue: 3
Issue date: March 1, 2015
Publication year: 2015
Pages: 156-163
Language: English
ISSN: 19430620
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Due to the fact that we lack a general construction method of (N, w, λ, λ) multiple-length (ML) optical orthogonal codes (OOCs), a general construction method with high efficiency for ML OOCs with arbitrary cross-correlation λ is presented. The main idea of the method is to construct a variable-length mapping sequence with unparallel λ positions, with which to map short-length OOCs into long-length OOCs to realize the general construction of ML OOCs with correlation value λ with high efficiency by the Johnson bound. The cardinality of multiple-length mapping sequences is derived. Based on the cardinality, the fundamentals of constructing the aforementioned multiple-length mapping sequences are presented and proved. The construction method of ML OOCs with arbitrary cross-correlation λ is given. Simulation results show that the method can construct ML OOCs with arbitrary λ the applications of ML OOCs show that the method is practical for constructing ML OOCs to support multiple service. © 2015 Optical Society of America.
Number of references: 11
Main heading: Code division multiple access
Controlled terms: Codes (symbols) - Mapping - Optical communication - Optical correlation
Uncontrolled terms: Construction method - Cross correlations - Cross-correlation constraints - Multilength code - Multimedia networks - Multiple services - Optical code division multiple access - Optical orthogonal codes

Data Provider: Engineering Village

193. Orthogonal self-guided similarity preserving projections

Authors: Fang, Xiaozhao (1); Xu, Yong (1); Zhang, Zheng (1); Lai, Zhihui (2); Shen, Linlin (2)
Author affiliation: (1) Bio-Computing Research Center, Shenzhen Graduate School, Harbin Institute of Technology, China; (2) College of Computer Science and Software Engineering, Shenzhen University, China
Corresponding author: Xu, Yong
Abstract: In this paper, we propose a novel unsupervised dimensionality reduction (DR) method called orthogonal self-guided similarity preserving projections (OSSPP), which seamlessly integrates the procedures of an adjacency graph learning and DR into a one step. Specifically, OSSPP projects the data into a low-dimensional subspace and simultaneously performs similarity preserving learning by using the similarity preserving regularization term in which the reconstruction coefficients of the projected data are used to encode the similarity structure information. An interesting finding is that the problem to determine the reconstruction coefficients can be converted into a weighted non-negative sparse coding problem without any explicit sparsity constraint. Thus the projections obtained by OSSPP contain natural discriminating information. Experimental results demonstrate that OSSPP outperforms state-of-the-art methods in DR. © 2015 IEEE.
Data Provider: Engineering Village

194. Interpolation array technique for direction finding via Taylor series fitting

Authors: Cao, Ming-Yang (1); Huang, Lei (2); Xie, Wei-Xin (2); So, H.C. (3)
Author affiliation: (1) Department of Electronics and Information Engineering, Harbin Institute of Technology, Harbin, China; (2) College of Information Engineering, Shenzhen University, Shenzhen, China; (3) Department of Electronic Engineering, City University of Hong Kong, Hong Kong, Hong Kong

Monograph title: 2015 IEEE China Summit and International Conference on Signal and Information Processing, ChinaSIP 2015 - Proceedings
Issue date: August 31, 2015
Publication year: 2015
Pages: 736-740
Article number: 7230502
Language: English
ISBN-13: 9781479919482
Document type: Conference article (CA)
Conference name: IEEE China Summit and International Conference on Signal and Information Processing, ChinaSIP 2015
Conference date: July 12, 2015 - July 15, 2015
Conference location: Chengdu, China
Conference code: 117267
Sponsor: Institute of Electrical and Electronics Engineers Signal Processing Society (SPS)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Interpolation array approach based on Taylor series fitting for arbitrary geometry array is developed in this paper. As the steering vector is a function of direction-of-Arrival (DOA), Taylor series fitting for the steering vector is conducted within an angle range, and the steering matrix is decomposed into a coefficient matrix multiplying by a Vandermonde structure vector bearing the DOA information. Moreover, the coefficient matrix is calculated by the least squares method. Results show that the proposed approach has a better DOA estimation performance over the traditional interpolation array technique under uncorrelated and correlated signal conditions. © 2015 IEEE.
Number of references: 14
Main heading: Direction of arrival
Controlled terms: Array processing - Information science - Interpolation - Least squares approximations - Taylor series
Uncontrolled terms: Arbitrary geometry - Array interpolation - Coefficient matrix - Correlated signals - Direction finding - DOA estimation - Least squares methods - Steering vector
Classification code: 716.1 Information Theory and Signal Processing - 921 Mathematics - 921.6 Numerical Methods
DOI: 10.1109/ChinaSIP.2015.7230502
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

195. Two-photon excited fluorescence microendoscopic imaging using a GRIN lens

Accession number: 20152600973952
Authors: Yan, Wei (1, 2); Peng, Xiao (1); Lin, Danying (1); Wang, Qi (1); Gao, Jian (1); Zhou, Jie (1); Ye, Tong (2); Qu, Junle (1); Niu, Hanben (1)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (2) Deparment of Bioengineering, Clemson University, CU-MUSC Bioengineering Program, Charleston; SC, United States
Corresponding author: Ye, Tong
Source title: Progress in Biomedical Optics and Imaging - Proceedings of SPIE
Abbreviated source title: Progr. Biomed. Opt. Imaging Proc. SPIE
Volume: 9329
Volume title: Multiphoton Microscopy in the Biomedical Sciences XV
Part number: 1 of 1
Issue date: 2015
Publication year: 2015
Article number: 93290N
Language: English
ISSN: 16057422
ISBN-13: 9781628414196
Document type: Conference article (CA)
Conference name: Multiphoton Microscopy in the Biomedical Sciences XV
Conference date: February 8, 2015 - February 10, 2015
Conference location: San Francisco, CA, United states
Conference code: 112095

Sponsor: Becker and Hickl; Carl Zeiss; Chroma Technology Corporation; Coherent Inc.; et al.; The Society of Photo-Optical Instrumentation Engineers (SPIE)

Publisher: SPIE

Abstract: With the rapid development of life sciences, there is an increasing demand for intravital fluorescence imaging of small animals. However, large dimensions and limited working distances of objective lenses in traditional fluorescence microscopes have limited the imaging applications mostly to superficial tissues. To overcome this disadvantage, researchers have developed the graded-index (GRIN) probes with small diameters for imaging internal organs of small animals in a minimally invasive fashion. Here, we present the development of a fluorescence endoscopic imaging system based on a GRIN lens using two-photon excitation. Experimental results showed that this system could perform dynamic fluorescence microendoscopic imaging and monitor the blood flow in anesthetized living mice using two-photon excitation. © 2015 SPIE.

Number of references: 18

Main heading: Fluorescence

Controlled terms: Animals - Photons

Uncontrolled terms: Dynamic imaging - Fluorescence imaging - Fluorescence microscopes - GRIN lens - Imaging applications - Micro-endoscopy - Two-photon excitations - Two-photon excited fluorescence

Classification code: 461 Bioengineering and Biology - 471 Marine Science and Oceanography - 741.1 Light/Optics - 814 Leather and Tanning - 821 Agricultural Equipment and Methods; Vegetation and Pest Control - 822 Food Technology

DOI: 10.1117/12.2079183

Compendex references: YES

Database: Compendex

Compilation and indexing terms, Copyright 2016 Elsevier Inc.

Data Provider: Engineering Village

196. In-Situ Investigation of Interactions between Magnesium Ion and Natural Organic Matter

Accession number: 20153001065670

Authors: Yan, Mingquan (1); Lu, Yujuan (2); Gao, Yuan (3); Benedetti, Marc F. (4); Korshin, Gregory V. (3)

Author affiliation: (1) Department of Environmental Engineering, Key Laboratory of Water and Sediment Sciences, Peking University, Beijing, China; (2) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, China; (3) Department of Civil and Environmental Engineering, University of Washington, Box 352700, Seattle; WA, United States; (4) Institut de Physique du Globe de Paris - Sorbonne Paris Cité, Université Paris - Diderot, UMR CNRS 7154, Paris, France

Corresponding author: Yan, Mingquan(yanmq@pku.edu.cn)

Source title: Environmental Science and Technology

Abbreviated source title: Environ. Sci. Technol.

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CODEN: ESTHAG

Document type: Journal article (JA)

Publisher: American Chemical Society

Abstract: Natural organic matter (NOM) generated in all niches of the environment constitutes a large fraction of the global pool of organic carbon while magnesium is one of the most abundant elements that has multiple roles in both biotic and abiotic processes. Although interactions between Mg^{2+} and NOM have been recognized to affect many environmental processes, little is understood about relevant mechanisms and equilibria. This study addressed this deficiency and quantified Mg^{2+}-NOM interactions using differential absorbance spectroscopy (DAS) in combination with the NICA-Donnan speciation model. DAS data were obtained for varying total Mg concentrations, pHs from 5.0 to 11.0 and ionic strengths from 0.001 to 0.3 mol L-1. DAS results demonstrated the existence of strong interactions between magnesium and NOM at all examined conditions and demonstrated that the binding of Mg^{2+} by NOM was accompanied by the replacement of protons in the protonation-active phenolic and carboxylic groups. The slope of the log-transformed absorbance spectra of NOM in the range of wavelength 350-400 nm was found to be indicative of the extent of Mg^{2+}-NOM binding. The differential and absolute values of the spectral slopes were strongly correlated with the amount of NOM-bound Mg^{2+} ions and with the concentrations of NOM-bound protons. © 2015 American Chemical Society.

Number of references: 38
Main heading: Biological materials
Controlled terms: Biogeochemistry - Carbon - Ionic strength - Magnesium - Metal ions - Organic carbon - Organic compounds
Uncontrolled terms: Absorbance spectrum - Differential absorbance spectroscopy - Environmental process - In-situ investigations - Mg concentrations - Natural organic matters - Speciation modeling - Strong interaction
Classification code: 461.2 Biological Materials and Tissue Engineering - 533 Ore Treatment and Metal Refining - 542.2 Magnesium and Alloys - 801.2 Biochemistry - 801.4 Physical Chemistry - 804 Chemical Products Generally - 804.1 Organic Compounds
DOI: 10.1021/acs.est.5b00003
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

197. Side-polished fibers with rough surface scratches for sensing applications

Accession number: 20161202125540
Authors: Zhao, Jing (1); Yin, Guolu (1); Wang, Yiping (1); Liao, Changrui (1); Liu, Shen (1); Sun, Bin (1); He, Jun (1); Wang, Guanjun (1); Xu, Xizheng (1)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Source title: 2015 Opto-Electronics and Communications Conference, OECC 2015
Abbreviated source title: Opto-Electron. Commun. Conf., OECC
Monograph title: 2015 Opto-Electronics and Communications Conference, OECC 2015
Issue date: November 30, 2015
Publication year: 2015
Article number: 7340341
Language: English
ISBN-13: 9781467379441
Document type: Conference article (CA)
Conference name: Opto-Electronics and Communications Conference, OECC 2015
Conference date: June 28, 2015 - July 2, 2015
Conference location: Shanghai, China
Conference code: 118434
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: We demonstrated a fast mechanical wheel lapping technique to fabricate a low-cost side polished fiber (SPF) with a rough, rather than smooth, polished surface. Such a bare SPF can be directly used to develop a promising sensing device, because Mach-Zehnder interference pattern with high fringe contrast above 10 dB in transmission spectrum was achieved due to the macro scratches on the rough polished surface. Fabrication parameters, e.g. Thickness of remained fiber, polished length and roughness of the abrasive paper were optimized to obtain SPF samples. The SPF-based sensor exhibited strain and temperature sensitivities up to-2.00 pm/μE and 29.37 pm/°C, and can be used to realize simultaneous strain and temperature measurement. © 2015 IEEE.
Number of references: 7
Main heading: Fibers
Controlled terms: Temperature measurement
Uncontrolled terms: Fabrication parameters - Fiber optics sensors - Interference patterns - scratches - Side-polished fiber - Simultaneous strain and temperature measurements - Temperature sensitivity - Transmission spectrums
Classification code: 944.6 Temperature Measurements
DOI: 10.1109/OECC.2015.7340341
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

198. A two-dimensional direct-drive generator for wave energy conversion

Accession number: 20154701593361
Authors: Pan, Jianfei (1); Bo, Zhang (1); Cao, Guangzhong (1)
Author affiliation: (1) Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China
Source title: Diangong Jishu Xuebao/Transactions of China Electrotechnical Society

Abbreviated source title: Diangong Jishu Xuebao
Volume: 30
Issue: 14
Issue date: July 25, 2015
Publication year: 2015
Pages: 75-79
Language: English
ISSN: 10006753
CODEN: DIJXE5
Document type: Journal article (JA)
Publisher: Chinese Machine Press
Abstract: For direct wave energy conversion in a two dimensional (2D) way, this paper proposes a planar, direct-drive generator based on switched reluctance principle. The proposed machine has the merit of a simple and robust structure and it is very suitable for the operation under hostile environment in the ocean. This paper first presents the design and construction of the generator. Then, performance prediction of the generator based on three dimensional (3D) time-stepping finite element methods (FEM) and power generation investigation from co-simulation are carried out. Next, preliminary generation current waveforms are inspected by the regulation of turn-on and turn-off positions based on FEM and verified by experimental results. Last, the voltage output waveform of any one axis of motion is also presented. ©, 2015, The editorial office of Transaction of China Electrotechnical Society. All right reserved.
Number of references: 11
Main heading: Electric machine theory
Controlled terms: Energy conversion - Finite element method - Hydroelectric generators - Reluctance motors - Wave energy conversion
Uncontrolled terms: Design and construction - Direct drive generators - Performance prediction - Planar generator - Switched reluctance - Threedimensional (3-d) - Time-stepping finite element method - Two Dimensional (2 D)
Classification code: 525.5 Energy Conversion Issues - 615.6 Wave Energy - 705.2 Electric Generators - 705.3.1 AC Motors - 921.6 Numerical Methods
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

199. An image super resolution reconstruction algorithm based on Undecimated Morphological Wavelet

Accession number: 20160501876571
Authors: Liu, Wei (1); Liang, Yong-Sheng (1); Chen, Zeng-Bin (2); Zhang, Ji-Hong (2)
Author affiliation: (1) Institute of Information Technology, Shenzhen Institute of Information Technology, Shenzhen, China; (2) College of Information Engineering, Shenzhen University, Shenzhen, China
Source title: International Conference on Digital Signal Processing, DSP
Abbreviated source title: Int Conf Dig Signal Process DSP
Volume: 2015-September
Monograph title: 2015 IEEE International Conference on Digital Signal Processing, DSP 2015
Issue date: September 9, 2015
Publication year: 2015
Pages: 600-603
Article number: 7251944
Language: English
ISBN-13: 9781479980581
Document type: Conference article (CA)
Conference name: IEEE International Conference on Digital Signal Processing, DSP 2015
Conference date: July 21, 2015 - July 24, 2015
Conference location: Singapore, Singapore
Conference code: 118054
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: The paper proposes an image super resolution reconstruction (SRR) algorithm based on Undecimated Morphological Wavelet (UMW). As UMW can maintain more gradient information and eliminate more artificial blocks, it is used to decompose low resolution (LR) images. High frequency coefficients from the decomposition contain the gradients that reflect the horizontal, vertical, and diagonal domain information. Then both the low frequency and high frequency coefficients are interpolated to produce an extended group of coefficient sequence. Finally, the extended

coefficients are fused and using inverse transformation to produce a super resolution image. Experimental results show that that the proposed algorithm have good performance in the image reconstruction quality and the computational efficiency. © 2015 IEEE.
Number of references: 9
Main heading: Image reconstruction
Controlled terms: Algorithms - Computational efficiency - Digital signal processing - Image processing - Image registration - Interpolation - Optical resolving power - Signal processing
Uncontrolled terms: Domain informations - Gradient informations - Image super-resolution reconstruction - Inverse transformations - Low resolution images - Morphological wavelet - Reconstruction quality - Super resolution reconstruction
Classification code: 716.1 Information Theory and Signal Processing - 723.2 Data Processing and Image Processing - 741.1 Light/Optics - 921.6 Numerical Methods
DOI: 10.1109/ICDSP.2015.7251944
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

200. Rao tests for distributed target detection in interference and noise

Accession number: 20152701005645
Authors: Liu, Weijian (1, 2); Liu, Jun (3); Huang, Lei (4); Zou, Dujian (5); Wang, Yongliang (2)
Author affiliation: (1) College of Electronic Science and Engineering, National University of Defense Technology, Changsha, China; (2) Wuhan Radar Academy, Wuhan, China; (3) National Laboratory of Radar Signal Processing, Xidian University, Xi'an, China; (4) College of Information Engineering, Shenzhen University, Shenzhen, China; (5) Graduate School at Shenzhen, Tsinghua University, Shenzhen, China
Corresponding author: Liu, Weijian
Source title: Signal Processing
Abbreviated source title: Signal Process
Volume: 117
Issue date: July 6, 2015
Publication year: 2015
Pages: 333-342
Article number: 5835
Language: English
ISSN: 01651684
CODEN: SPRODR
Document type: Journal article (JA)
Publisher: Elsevier
Abstract: Abstract This paper deals with the problem of detecting a distributed target in interference and noise. The target signal and interference are assumed to lie in two linearly independent subspaces, and their coordinates are unknown. The noise is Gaussian distributed, with an unknown covariance matrix. To estimate the covariance matrix, a set of training data is supposed available. We derive the Rao test and its two-step variant both in homogeneous and partially homogeneous environments. All of the proposed detectors exhibit a desirable constant false alarm rate. Numerical examples show that the proposed detectors can provide better detection performance than their natural counterparts in some scenarios. © 2015 Elsevier B.V.
Number of references: 42
Main heading: Gaussian noise (electronic)
Controlled terms: Covariance matrix - Errors - Image resolution - Wave interference
Uncontrolled terms: Adaptive detection - Constant false alarm rate - Detection performance - Distributed target - Distributed target detections - Linearly independents - Partially-homogeneous - Subspace modeling
Classification code: 711 Electromagnetic Waves - 713 Electronic Circuits - 716 Telecommunication; Radar, Radio and Television - 731 Automatic Control Principles and Applications - 741 Light, Optics and Optical Devices - 742 Cameras and Photography - 921 Mathematics - 922 Statistical Methods
DOI: 10.1016/j.sigpro.2015.06.012
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

201. Study of visual saliency detection via nonlocal anisotropic diffusion equation

Authors: Zhang, Xiujun (1); Xu, Chen (2); Li, Min (3); Teng, Robert K.F. (1, 4)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, China; (2) Institute of Intelligent Computing Science, Shenzhen University, Shenzhen, China; (3) College of Mathematics and Computational Science, Shenzhen University, Shenzhen, China; (4) Department of Electrical Engineering, California State University, Long Beach; CA, United States
Corresponding author: Xu, Chen
Abstract: In this paper, a nonlocal anisotropic diffusion equation is constructed to model the evolution of visual saliency. A new multi-directions discretization scheme is adopted to solve the equation. Visual attention diffusion is modeled as a series of diffusion progresses until achieving a stable status. So two stages of diffusion are involved. In the first stage, image boundaries are used to guide the background iterative diffusion process, and the initial saliency seeds are obtained by sorting. In the second stage, an optimization of saliency seeds is executed, and the good saliency seeds are strengthened and updated during each iteration. The final saliency map is obtained through iteratively diffusing saliency scores from the optimal saliency seeds (i.e. the most representative salient elements). Extensive experimental results on two large benchmark databases demonstrate the effectiveness of the proposed method.
Number of references: 49
Main heading: Diffusion
Controlled terms: Anisotropy - Behavioral research - Iterative methods - Optical anisotropy - Partial differential equations - Visualization
Uncontrolled terms: Anisotropic Diffusion - Anisotropic diffusion equations - Benchmark database - Boundary prior - Discretization scheme - Nonlocal operator - Saliency detection - Visual saliency detections
Classification code: 902.1 Engineering Graphics - 921.2 Calculus - 921.6 Numerical Methods - 931.1 Mechanics - 931.2 Physical Properties of Gases, Liquids and Solids - 971 Social Sciences
DOI: 10.1016/j.patcog.2014.10.016
Database: Compendex
Data Provider: Engineering Village

202. Preparation and characterization of cross-linked carboxymethyl chitin porous membrane scaffold for biomedical applications

Authors: Zhao, Liqing (1); Wu, Yiguang (1); Chen, Shu (1); Xing, Tao (1)
Author affiliation: (1) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, Guangdong, China
Corresponding author: Wu, Yiguang

Abstract: Porous dermal scaffold membrane (PDSM) was successfully prepared by using a so-called sol-gel freeze-drying method. In this method, the carboxymethyl chitin (CMC) hydrosol was first cross-linked by 1-ethyl-3-[3-dimethylaminopropyl] carbodiimide hydrochloride (EDC) and N-hydroxysuccinimide (NHS), and then lyophilized to form the PDSM. For the first time, this research focused on the cross-linked CMC as the only component for three-dimensional PDSM. The effects of cross-linking conditions on the performance of the PDSM were investigated. And PDSM with optimal performance was obtained through 4-h cross-linking at 4 wt% of CMC concentration in the hydrosol, where the mass ratio of EDC to NHS to CMC was 5:3:10. The porosity of the optimized PDSM was more than 90% and the water swelling rate was above 4000%. The pore size was well distributed and was between 100 μm and 200 μm. And the tensile strength was above 0.09 MPa. The as-made PDSM could be degraded above 80% in 12 days in the presence of a 0.2 mg/mL lysozyme solution. Very importantly, the PDSM had no cytotoxicity and good biocompatibility from MTT assays. Our results showed the application possibility of the as-prepared PDSM as dermal scaffold for skin tissue engineering. ©2015 Elsevier Ltd. All rights reserved.
Number of references: 17
Main heading: Scaffolds (biology)
Controlled terms: Biocompatibility - Biodegradability - Biodegradation - Chitin - Low temperature drying - Medical applications - Pore size - Sol-gel process - Sol-gels - Tensile strength - Tissue - Tissue engineering
Uncontrolled terms: Biomedical applications - Carbodiimide hydrochlorides - Carboxymethyl chitin - Freeze drying method - N-hydroxysuccinimide - Optimal performance - Scaffold membranes - Skin tissue engineering
Classification code: 421 Strength of Building Materials; Mechanical Properties - 422 Strength of Building Materials; Test Equipment and Methods - 454 Environmental Engineering - 461 Bioengineering and Biology - 802.3 Chemical Operations - 804 Chemical Products Generally - 804.1 Organic Compounds - 813.1 Coating Techniques - 951 Materials Science
DOI: 10.1016/j.carbpol.2015.02.050
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

203. Timing jitter in synchronized time-lens source for coherent Raman scattering imaging

Accession number: 20160701915616
Authors: Qiu, Ping (1); Wang, Ke (2)
Author affiliation: (1) College of Physics Science and Technology, Shenzhen University, Shenzhen, China; (2) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Source title: Optics Express
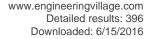**Abbreviated source title:** Opt. Express
Volume: 23
Issue: 14
Issue date: July 13, 2015
Publication year: 2015
Pages: 18786-18791
Language: English
E-ISSN: 10944087
Document type: Journal article (JA)
Publisher: OSA - The Optical Society
Abstract: Synchronized time-lens source is suitable for various applications in coherent Raman scattering (CRS) imaging up to video-rate. Timing jitter between the time-lens source and the mode-locked laser is a crucial parameter for estimating the synchronization performance. Although it has been measured experimentally, there is a lack of theoretical investigation of this parameter. Here we demonstrate numerical simulation results of timing jitter in a synchronized time-lens system, with parameters similar to those in real experiments. Our results show that due to the optical delay between the time-lens source and the mode-locked laser, the timing jitter is close to the intrinsic timing jitter of the mode-locked laser. Further reduction in timing jitter can be achieved by matching the optical delays between the time-lens source and the mode-locked laser. ©2015 Optical Society of America.
Number of references: 17
Main heading: Timing jitter
Controlled terms: Coherent scattering - Lasers - Lenses - Locks (fasteners) - Mode-locked fiber lasers - Raman scattering - Synchronization
Uncontrolled terms: Coherent Raman scattering - Crucial parameters - Mode-locked laser - Optical delay - Synchronization performance - Theoretical investigations - Time lens - Video rates

Classification code: 711 Electromagnetic Waves - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 744.1 Lasers, General - 961 Systems Science
DOI: 10.1364/OE.23.018786
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

204. Hydrogen bonding in aprotic solvents, a new strategy for gelation of bioinspired catecholic copolymers with N-isopropylamide

Accession number: 20150800539446

Authors: Vatankhah-Varnoosfaderani, Mohammad (1, 2, 3, 4); GhavamiNejad, Amin (2, 5); Hashmi, Saud (2, 6); Stadler, Florian J. (1, 2, 7, 8, 9)
Author affiliation: (1) College of Materials Science and Engineering, Shenzhen University, Shenzhen, China; (2) Chonbuk National University, School of Semiconductor and Chemical Engineering, Baekjero 567, Deokjin-gu, Jeonju, Jeonbuk, Korea, Republic of; (3) Islamic Azad University, Omidiyeh Branch, Department of Polymer, Omidiyeh, Iran; (4) Department of Chemistry, University of North Carolina at Chapel Hill, NC, United States; (5) Department of Bionanosystem Engineering, Graduate School, Chonbuk National University, Jeonju, Korea, Republic of; (6) Department of Chemical Engineering, NED University of Engineering and Technology, University Road, Karachi, Pakistan; (7) Nanshan District Key Lab for Biopolymers and Safety Evaluation, Shenzhen, China; (8) Shenzhen Engineering Laboratory for Advanced Technology of Ceramics, Shenzhen, China; (9) Shenzhen Key Laboratory of Special Functional Materials, Shenzhen, China
Source title: Macromolecular Rapid Communications
Abbreviated source title: Macromol. Rapid Commun.
Volume: 36
Issue: 5
Issue date: March 1, 2015
Publication year: 2015
Pages: 447-452
Language: English
ISSN: 10221336
E-ISSN: 15213927
CODEN: MRCOE3
Document type: Journal article (JA)
Publisher: Wiley-VCH Verlag

Abstract: Copolymers of N-isopropylacrylamide (NIPAM) and dopamine methacrylate can establish a reversible, self-healing 3D network in aprotic solvents based on hydrogen bonding. The reactivity and hydrogen bonding formation of catechol groups in copolymer chains are studied by UV-vis and 1H NMR spectroscopy, while reversibility from sol to gel and inverse as well as self-healing properties are tested rheologically. The produced reversible organogel can self-encapsulate physically interacting or chemically bonded solutes such as drugs due to thermosensitivity of the used copolymer. This system offers dual-targeted and controlled drug delivery and release - by slowing down release kinetics by supramolecular bonding of the drug and by reducing diffusion rates due to modulus increase. © 2015 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim
Number of references: 47
Main heading: Hydrogen bonds
Controlled terms: Acrylic monomers - Controlled drug delivery - Copolymers - Drug delivery - Gelation - Hydrogen - Nuclear magnetic resonance spectroscopy - Phenols - Sols
Uncontrolled terms: Catechol - Drug delivery and release - Drug release - Mussel-inspired - N-isopropylacrylamides - Self-healing - Self-healing properties - Thermosensitivities
DOI: 10.1002/marc.201400501
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

205. Source enumeration for large array using shrinkage-based detectors with small samples

Accession number: 20151600762574
Authors: Huang, Lei (1); Qian, Cheng (2); So, Hing (3); Fang, Jun (4)

Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, China; (2) Harbin Institute of Technology Shenzhen Graduate School, Department of Electronic and Information Engineering, Shenzhen, China; (3) City University of Hong Kong, Department of Electronic Engineering, Hong Kong; (4) University of Electronic Science and Technology of China, Department of Electronic and Information Engineering, Chengdu, China
Abstract: It is interesting to determine the number of signals impinging upon a large array with small samples. We tackle this problem by using linear shrinkage coefficients of signal and noise subspaces, ending up with two shrinkage coefficient-based detectors (SCDs) for source enumeration. It is proved that the noise shrinkage coefficients are asymptotically Gaussian distributed as the number of antennas and number of samples tend to infinity at the same rate. Moreover, the noise shrinkage coefficients almost surely converge to one while the signal shrinkage coefficients are almost surely less than one as $m, n\#, \#$ and $m/n\#c$. With these properties, the threshold-like and heuristic SCD algorithms for source number detection are devised. Simulation results are included to illustrate their effectiveness. © 1965-2011 IEEE.
Number of references: 29
Main heading: Shrinkage
Controlled terms: Gaussian noise (electronic) - Heuristic algorithms
Uncontrolled terms: Gaussian distributed - Linear shrinkage - Noise subspace - Number of samples - Shrinkage coefficients - Small samples - Source enumerations - Source number detection
Classification code: 713 Electronic Circuits - 716 Telecommunication; Radar, Radio and Television - 723.1 Computer Programming - 951 Materials Science
DOI: 10.1109/TAES.2014.130579
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

206. Simultaneous measurement of pressure and temperature by employing Fabry-Perot interferometer based on pendant polymer droplet

Accession number: 20150800538059
Authors: Sun, Bing (1); Wang, Yiping (1); Qu, Junle (1); Liao, Changrui (1); Yin, Guolu (1); He, Jun (1); Zhou, Jiangtao (1); Tang, Jian (1); Liu, Shen (1); Li, Zhengyong (1); Liu, Yingjie (1)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Abstract: We investigated a novel and ultracompact polymer-capped Fabry-Perot interferometer, which is based on a polymer capped on the endface of a single mode fiber (SMF). The proposed Fabry-Perot interferometer has advantages of easy fabrication, low cost, and high sensitivity. The variation of the Fabry-Perot cavity length can be

easily controlled by using the motors of a normal arc fusion splicer. Moreover, the enhanced mechanical strength of the Fabry-Perot interferometer makes it suitable for high sensitivity pressure and temperature sensing in harsh environments. The proposed interferometer exhibits a wavelength shift of the interference fringes that corresponds to a temperature sensitivity of 249 pm/°C and a pressure sensitivity of 1130 pm/MPa, respectively, around the wavelength of 1560 nm. © 2015 Optical Society of America.
Number of references: 34
Main heading: Fabry-Perot interferometers
Controlled terms: Interferometers - Polymers - Single mode fibers
Uncontrolled terms: Fabry-Perot cavity - Harsh environment - High-sensitivity pressure - Interference fringe - Pressure and temperature - Pressure sensitivities - Simultaneous measurement - Temperature sensitivity
Classification code: 741.1.2 Fiber Optics - 815.1 Polymeric Materials - 941.3 Optical Instruments
DOI: 10.1364/OE.23.001906
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

207. Review on chalcogenide 3D nano-structured crystals: Synthesis and growth mechanism

Accession number: 20151900822705
Authors: Qiu, Qi (1)
Author affiliation: (1) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen; Guangdong, China
Corresponding author: Qiu, Qi
Source title: Recent Patents on Nanotechnology
Abbreviated source title: Recent Pat. Nanotechnol.
Volume: 9
Issue: 1
Issue date: March 1, 2015
Publication year: 2015
Pages: 3-16
Language: English
ISSN: 18722105
Document type: Journal article (JA)
Publisher: Bentham Science Publishers B.V., P.O. Box 294, Bussum, 1400 AG, Netherlands
Abstract: Three dimensional (3D) nano-structured crystals have received extensive attention for their superior properties over zero dimensional (0D), one dimensional (1D), or two dimensional (2D) nanomaterials in many areas. This review is generalized for the group of chalcogenide nanoflowers (NFs) by the synthetic techniques, such as solvothermal, wet chemical, sol-gel, surface oxidation, microwave, coating, electrochemical, and several other methods. The formation mechanism was also described for the purpose of opening up new food for thoughts to bring up new functionality of materials by tuning the morphology of crystals. The pH value or the template plays fundamental role in forming the nano-flowered structure. Moreover, the correlations between the surface area (SA), contact angle (CA), and the NFs are also discussed within the context. Here, we also discussed some patents relevant to the topic. © 2015 Bentham Science Publishers.
Number of references: 57
Main heading: Nanostructures
Controlled terms: Chalcogenides - Nanocrystals - Nanoflowers - Self assembly - Sol-gels
Uncontrolled terms: Dandelion - Nano-structured - Protection mechanisms - Sulfide - Urchin
Classification code: 761 Nanotechnology - 801 Chemistry - 804 Chemical Products Generally - 804.2 Inorganic Compounds - 951 Materials Science
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

208. The moderating effect of perceived quality of logistics services and gender in the relationship between trust, satisfaction and repurchase intention in E-commerce

Accession number: 20154801624940
Authors: Luo, Hanyang (1); Han, Xinwei (1); Wang, Jingjing (1); Liu, Lijiao (1)

Author affiliation: (1) College of Management, Shenzhen University, Shenzhen, China
Abstract: In order to further research the effect of logistics service quality, this study explores the moderating effect of perceived quality of logistics services (PQLS) on the relationships between satisfaction, trust and repurchase intention. In addition, we also test whether there are gender differences in the relationships. Drawing on the theory of organizational trust, and based on a survey of 209 online consumers, we find that PQLS negatively moderates the relationship between trust in online retailer and consumer repurchase intention, because it relaxes customers' worry and anxiousness about the inefficiency and poor quality of products delivery. We also find that PQLS positively moderates the relationship between consumer satisfaction with online vendor and trust as it strengths consumers' reliance on past transaction experience to reestimate trust in the vendor. At last, we find that the moderating effect of gender on the relationship between satisfaction and trust isn't significant. © 2015 IEEE.

209. Hybrid-order Poincaré sphere

Authors: Yi, Xunong (1, 2, 3); Liu, Yachao (1); Ling, Xiaohui (2); Zhou, Xinxing (1); Ke, Yougang (1); Luo, Hailu (1); Wen, Shuangchun (1); Fan, Dianyuan (2)
Author affiliation: (1) Laboratory for Spin Photonics, School of Physics and Electronics, Hunan University, Changsha, China; (2) College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (3) School of Physics and Electronic Information Engineering, Hubei Engineering University, Xiaogan, China
Abstract: In this work, we develop a hybrid-order Poincaré sphere to describe the evolution of polarization states of wave propagation in inhomogeneous anisotropic media. We extend the orbital Poincaré sphere and high-order Poincaré sphere to a more general form. Polarization evolution in inhomogeneous anisotropic media with special geometry can be conveniently described by state evolution along the longitude line on the hybrid-order Poincaré sphere. Similar to that in previously proposed Poincaré spheres, the Berry curvature can be regarded as an effective

magnetic field with monopole centered at the origin of sphere and the Berry connection can be interpreted as the vector potential. Both the Berry curvature and the Pancharatnam-Berry phase on the hybrid-order Poincaré sphere are demonstrated to be proportional to the variation of total angular momentum. Our scheme provides a convenient method to describe the spin-orbit interaction in inhomogeneous anisotropic media. © 2015 American Physical Society.

Number of references: 28
Main heading: Anisotropic media
Controlled terms: Anisotropy - Fruits - Polarization - Spheres - Wave propagation
Uncontrolled terms: High-order - Hybrid orderings - Pancharatnam-Berry phase - Polarization evolution - Polarization state - Spin orbit interactions - State evolutions - Vector potential
Classification code: 631 Fluid Flow - 711 Electromagnetic Waves - 711.1 Electromagnetic Waves in Different Media - 821.4 Agricultural Products - 931.2 Physical Properties of Gases, Liquids and Solids - 951 Materials Science
DOI: 10.1103/PhysRevA.91.023801
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

210. Free-space optical data links based on coaxial sidelobemodified optical vortices

Authors: Zhang, Meng (1); Jia, Ping (1); Li, Yuru (2); Lei, Ting (3); Li, Zhaohui (2); Yuan, Xiaocong (3)
Author affiliation: (1) Institute of Modern Optics, Nankai University, Tianjin, China; (2) Institute of Photonics Technology, Jinan University, Guangzhou, China; (3) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Yuan, Xiaocong(xcyuan@szu.edu.cn)
Abstract: We propose and demonstrate free-space optical data links based on coaxial sidelobe-modified optical vortices (CSMOVs). In contrast to the optical communication systems based on amplitude, frequency, or phase detection, the proposed scheme uses the radii ratio between the principle ring and the first sidelobe of the CSMOV. Therefore, the demand of stringent alignment and/or accurate phase matching is released. We design and optimize a composite computer-generated hologram to generate a CSMOV with four topological charges (TCs). Extracted from the images captured by a CCD camera, the radii ratio between the principle ring and the first sidelobe of different TCs are consistent with the theoretical values. © 2015 Chinese Optics Letters.
Number of references: 25
Page count: 5
Main heading: Optical communication
Controlled terms: CCD cameras - Computer generated holography - Electron holography - Optical links - Phase matching - Vortex flow
Uncontrolled terms: Computer generated holograms - Free-space optical - Optical vortices - Phase detection - Radii ratio - Side lobes - Theoretical values - Topological charges
Classification code: 631.1 Fluid Flow, General - 713 Electronic Circuits - 714.2 Semiconductor Devices and Integrated Circuits - 717.1 Optical Communication Systems - 743.1 Holographic Techniques
DOI: 10.3788/COL201513.100502
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

211. GIS-based analysis of fractal features of the urban road network

Authors: Mo, Yikui (1); Liu, Junda (1); Lv, Shen (1)
Author affiliation: (1) Shenzhen University, Nanhai Road 3688, Shenzhen, China
Source title: Proceedings of the IEEE International Conference on Software Engineering and Service Sciences, ICSESS
Abbreviated source title: Proc.IEEE Int. Conf. Software Eng. Serv. Sci., ICSESS
Volume: 2015-November
Monograph title: ICSESS 2015 - Proceedings of 2015 IEEE 6th International Conference on Software Engineering and Service Science
Issue date: November 25, 2015
Publication year: 2015
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Article number: 7339187
Language: English
ISSN: 23270586
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ISBN-13: 9781479983520
Document type: Conference article (CA)
Conference name: 6th IEEE International Conference on Software Engineering and Service Science, ICSESS 2015
Conference date: September 23, 2015 - September 25, 2015
Conference location: Beijing, China
Conference code: 118376
Publisher: IEEE Computer Society

Abstract: The urban road network shares self-similarity and is suitable to adopt the fractal theory for analysis. The fractal dimension of the urban road network reflects the completeness of the road system. The employment of fractal theory to analyze the urban road network can reflect the feasibility of the urban road network layout and is of vital significance to the evaluation of the urban road network planning. GIS has strong space analysis function and can directly show the analysis process. To use the fractal theory to analyze the urban road network on the GIS platform can provide a new idea for the evaluation of the urban road network. Based on the GIS platform, this paper employs the fractal theory to the analysis of Shenzhen's municipal road network. Hausdorff method is adopted to calculate the index of the road network coverage, analyze the calculation results and put forward suggestions to optimize the road network. © 2015 IEEE.
Number of references: 10
Main heading: Highway planning
Controlled terms: Fractal dimension - Fractals - Geographic information systems - Roads and streets - Software engineering - Transportation
Uncontrolled terms: Analysis of fractals - Analysis process - Calculation results - Fractal theory - Self-similarities - Spatial analysis - Transportation network - Urban road networks
Classification code: 406.2 Roads and Streets - 432.1 Highway Transportation, General - 723.1 Computer Programming - 903.3 Information Retrieval and Use - 921 Mathematics
DOI: 10.1109/ICSESS.2015.7339187
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

212. Preparation and performance of ultrafine Ag-Cu immiscible alloy powder

Accession number: 20154101350364
Authors: Wu, Hai-Lin (1); Tang, Jiao-Ning (1); Cao, Guang-Zhong (2); Guo, Jian-Jun (3); Zhao, Hao-Da (4); Chen, Zhi-Peng (4); He, Tao (1); Zhang, Jiang-Tao (1); Gong, Xiao-Zhong (4)
Author affiliation: (1) College of Materials Science and Engineering, Shenzhen University, Shenzhen, China; (2) College of Mechatronics and Control Engineering, Shenzhen University, Shenzhen, China; (3) Shenzhen Longgang Joint Welding Company, Shenzhen, China; (4) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Gong, Xiao-Zhong
Source title: Cailiao Rechuli Xuebao/Transactions of Materials and Heat Treatment
Abbreviated source title: Cailiao Rechuli Xuebao
Volume: 36
Issue: 8
Issue date: August 25, 2015
Publication year: 2015

Pages: 17-21
Language: Chinese
ISSN: 10096264
CODEN: JRXUDO
Document type: Journal article (JA)
Publisher: Editorial Office of Transactions of Materials and Heat Treatment

Abstract: The mixed liquor of AgNO3 and CuSO4 was reduced by ascorbic acid or hydrazine hydrate. By changing the concentration, proportion and reaction temperature, the ultrafine Ag-Cu immiscible alloy powder was prepared successfully. The alloy powders were characterized by X-ray diffraction (XRD), scanning electron microscopy (SEM) and thermogravimetric analyzer (TG). The alloy powder was used for the preparation of conductive adhesive and its electrical properties were tested. The antibacterial experiments were also carried out. The results show that immiscible alloy powders which is reduced by ascorbic acid and hydrazine hydrate have particle diameters of 463-871 nm and 25.9-63.5 nm, respectively. The alloy powder which is reduced by ascorbic acid has stronger resistance to oxidation and better electrical conductivity, meanwhile the alloy powder which is reduced by hydrazine hydrate has stronger antibacterial property. ©, 2015, Editorial Office of Transactions of Materials and Heat Treatment. All right reserved.

Number of references: 12
Main heading: Silver alloys
Controlled terms: Acid resistance - Ascorbic acid - Copper alloys - Electric conductivity - Hydration - Hydrazine - Organic acids - Oxidation resistance - Powders - Scanning electron microscopy - Silver - X ray diffraction - X ray powder diffraction
Uncontrolled terms: Antibacterial properties - Conductive adhesive - Electrical conductivity - Hydrazine hydrate - Immiscible alloys - Particle diameters - Reaction temperature - Thermogravimetric analyzers
Classification code: 544.2 Copper Alloys - 547.1 Precious Metals - 701.1 Electricity: Basic Concepts and Phenomena - 802.2 Chemical Reactions - 804.1 Organic Compounds - 804.2 Inorganic Compounds
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

213. SwinTop: Optimizing memory efficiency of packet classification in network devices

Accession number: 20160401841944
Authors: Chen, Chang (1); Cai, Liangwei (2); Xiang, Yang (3); Li, Jun (4)
Author affiliation: (1) Department of Automation, Tsinghua University, Beijing, China; (2) College of Information Engineering, Shenzhen University, Shenzhen, Guangdong, China; (3) Research Institute of Information Technology, Tsinghua University, Beijing, China; (4) Tsinghua National Lab for Information Science and Technology, Tsinghua Universit, Beijing, China
Source title: Proceedings of 2015 IEEE International Conference on Communication Software and Networks, ICCSN 2015
Abbreviated source title: Proc. IEEE Int. Conf. Commun. Softw. Networks, ICCSN
Monograph title: Proceedings of 2015 IEEE International Conference on Communication Software and Networks, ICCSN 2015
Issue date: October 9, 2015
Publication year: 2015
Pages: 125-133
Article number: 7296139
Language: English
ISBN-13: 9781479919833
Document type: Conference article (CA)
Conference name: IEEE International Conference on Communication Software and Networks, ICCSN 2015
Conference date: June 6, 2015 - June 7, 2015
Conference location: Chengdu, China
Conference code: 117302
Sponsor: IEEE Beijing Section
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: Packet classification is one of the key functionalities provided by network devices for QoS and network security purposes. Recently the rapid growth of classification ruleset size and ruleset complexity has caused memory performance woes when applying traditional packet classification algorithms. Inheriting the divide-and-conquer idea of pre-partitioning the original rules into several groups for significant reduction of memory overhead, this paper proposes Swin Top, a new ruleset partitioning approach based on swarm intelligent optimization algorithms, to seek for the global optimum grouping of rules. To enhance convergence accuracy and speed up the iterative process, Swin Top

employs several novel ideas, such as the introduction of grouping penalty, the combination of PSO and GA, and a new memory usage estimation method. On the publicly available rulesets from Class Bench, SwinTop is shown to achieve 1 to 4 orders of magnitude lower memory consumption than simply applying a traditional packet classification algorithm without ruleset partitioning, and outperform the state-of-the-art partitioning algorithms EffiCuts and ParaSplit on all kinds of large-sized rulesets. © 2015 IEEE.

Data Provider: Engineering Village

214. SRBFO algorithm for production scheduling with mold and machine maintenance consideration

Authors: Niu, Ben (1, 2, 3); Bi, Ying (1); Chan, Felix T.S. (3); Wang, Z.X. (3)
Author affiliation: (1) College of Management, Shenzhen University, Shenzhen, China; (2) Hefei Institute of Intelligent Machine, Chinese Academy of Science, Hefei, China; (3) Department of Industrial and System Engineering, Hong Kong Polytechnic University, Kowloon, Hong Kong
Corresponding author: Niu, Ben
Abstract: A good production scheduling integrated with preventive maintenance scheduling scheme is significant for maintaining a higher reliability and stability for manufactory system. In this paper production scheduling problem with mold and machine maintenance (PS-MMS) consideration is studied and solved by structure-redesign-based bacterial foraging optimization (SRBFO) algorithm. PPS-MMS is a typical discrete combination optimization problem that allocating a certain number of jobs to available machine and mold and integrating maintenance activities for machine and mold with production activities. Unlike traditional maintenance activities operated with fixed duration, the maintenance duration in our PS-MMS model is varying with the usage age of machine/mold. To obtain a better solution for this difficult problem in acceptable time, SRBFO is adopted by encoding and decoding of bacteria on every dimension so that each bacterium can represent a potential solution. Five different scale instances were selected as test problems, experimental results demonstrated that SRBFO is more suitable than PSO to deal with PS-MMS problem in terms of the stability from the best solutions. © Springer International Publishing Switzerland 2015.

Number of references: 15
Main heading: Preventive maintenance
Controlled terms: Algorithms - Bacteria - Computation theory - Intelligent computing - Maintenance - Molds - Optimization - Particle swarm optimization (PSO) - Production control - Scheduling - Scheduling algorithms
Uncontrolled terms: Bacterial foraging optimization - Barterial foraging - Combination optimization - Encoding and decoding - Machine maintenance - Maintenance scheduling - Production Scheduling - Reliability and stability
Classification code: 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 723.4 Artificial Intelligence - 912.2 Management - 913.2 Production Control - 913.5 Maintenance - 921.5 Optimization Techniques
DOI: 10.1007/978-3-319-22186-1_73
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

215. On random walk based graph sampling

Accession number: 20153601247784
Authors: Li, Rong-Hua (1); Yu, Jeffrey Xu (2); Qin, Lu (3); Mao, Rui (1); Jin, Tan (4)
Author affiliation: (1) Shenzhen University, Shenzhen, China; (2) Chinese University of Hong Kong, Hong Kong, Hong Kong; (3) Centre for QCIS, FEIT, University of Technology, Sydney, Australia; (4) Northeastern University, Shenyang, China
Corresponding author: Mao, Rui
Source title: Proceedings - International Conference on Data Engineering
Abbreviated source title: Proc Int Conf Data Eng
Volume: 2015-May
Part number: 1 of 1
Monograph title: 2015 IEEE 31st International Conference on Data Engineering, ICDE 2015
Issue date: May 26, 2015
Publication year: 2015
Pages: 927-938
Article number: 7113345
Language: English
ISSN: 10844627
ISBN-13: 9781479979639
Document type: Conference article (CA)
Conference name: 2015 31st IEEE International Conference on Data Engineering, ICDE 2015
Conference date: April 13, 2015 - April 17, 2015
Conference location: Seoul, Korea, Republic of
Conference code: 113815
Publisher: IEEE Computer Society
Abstract: Random walk based graph sampling has been recognized as a fundamental technique to collect uniform node samples from a large graph. In this paper, we first present a comprehensive analysis of the drawbacks of three widely-used random walk based graph sampling algorithms, called re-weighted random walk (RW) algorithm, Metropolis-Hastings random walk (MH) algorithm and maximum-degree random walk (MD) algorithm. Then, to address the limitations of these algorithms, we propose two general random walk based algorithms, named rejection-controlled Metropolis-Hastings (RCMH) algorithm and generalized maximum-degree random walk (GMD) algorithm. We show that RCMH balances the tradeoff between the limitations of RW and MH, and GMD balances the tradeoff between the drawbacks of RW and MD. To further improve the performance of our algorithms, we integrate the so-called delayed acceptance technique and the non-backtracking random walk technique into RCMH and GMD respectively. We conduct extensive experiments over four real-world datasets, and the results demonstrate the effectiveness of the proposed algorithms. © 2015 IEEE.
Number of references: 30
Main heading: Random processes
Controlled terms: Algorithms
Uncontrolled terms: Comprehensive analysis - Graph samplings - Large graphs - Maximum degree - Metropolis Hastings - Random Walk - Real-world datasets
Classification code: 723 Computer Software, Data Handling and Applications - 921 Mathematics - 922.1 Probability Theory
DOI: 10.1109/ICDE.2015.7113345
Compendex references: YES
Database: Compendex

216. Salient Object Detection via Nonlocal Diffusion Tensor

Accession number: 20153601251306
Authors: Zhang, Xiujun (1); Xu, Chen (2); Sun, Xiaoli (3); Baciu, George (4)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Nanhai Ave 3688, Shenzhen, Guangdong, China; (2) Institute of Intelligent Computing Science, Shenzhen University, Nanhai Ave 3688, Shenzhen, Guangdong, China; (3) College of Mathematics and Computational Science, Shenzhen University, Nanhai Ave 3688, Shenzhen, Guangdong, China; (4) GAMA Lab, Department of Computing, Hong Kong Polytechnic University, Hong Kong
Corresponding author: Xu, Chen
Source title: International Journal of Pattern Recognition and Artificial Intelligence
Abbreviated source title: Int J Pattern Recognit Artif Intell
Volume: 29
Issue: 7
Issue date: November 30, 2015
Publication year: 2015
Article number: 1555013
Language: English
ISSN: 02180014
CODEN: IJPIEI
Document type: Journal article (JA)
Publisher: World Scientific Publishing Co. Pte Ltd
Abstract: In this paper, visual attention spreading is formulated as a nonlocal diffusion equation. Different from other diffusion-based methods, a nonlocal diffusion tensor is introduced to consider both the diffusion strength and the diffusion direction. With the help of diffusion tensor, along with the principle direction, the diffusion has been suppressed to preserve the dissimilarity between the foreground and background, while in other directions, the diffusion has been boosted to combine the similar regions and highlight the salient object as a whole. Through a two-stages diffusion, the final saliency maps are obtained. Extensive quantitative or visual comparisons are performed on three widely used benchmark datasets, i.e. MSRA-ASD, MSRA-B and PASCAL-1500 datasets. Experimental results demonstrate the superior performance of our method. © 2015 World Scientific Publishing Company.
Number of references: 47
Main heading: Tensors
Controlled terms: Behavioral research - Diffusion - Object detection
Uncontrolled terms: Benchmark datasets - Diffusion direction - Diffusion tensor - Nonlocal diffusion - Salient object detection - Salient objects - Visual Attention - Visual comparison
DOI: 10.1142/S0218001415550137
Compendex references: YES
Database: Compendex

217. Raman spectral changes of Artemisinin-induced Raji cells apoptosis

Accession number: 20154601543200
Authors: Hu, Shufang (1); Feng, Yanyan (1); Zhang, Daosen (1); Lu, Xiaoxu (1); Tian, Jindong (2); Fan, Jinping (1); Zhong, Liyun (1)
Author affiliation: (1) Guangdong Provincial Key Laboratory of Nanophotonic Functional Materials and Devices, South China Normal University, Guangzhou, Guangdong, China; (2) College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Zhong, Liyun
Source title: Vibrational Spectroscopy
Abbreviated source title: Vib. Spectrosc.
Volume: 81
Issue date: November 1, 2015
Publication year: 2015
Pages: 83-89
Language: English
ISSN: 09242031

CODEN: VISPEK
Document type: Journal article (JA)
Publisher: Elsevier

Abstract: Though it has been reported that Artemisinin (ART), a traditional Chinese herb extract medicine, might inhibit the transferrin receptor of tumor cells to transfer iron and induce cell apoptosis, it remains controversial about the mechanism of ART-induced cell apoptosis. In this study, the single-cell Raman spectral data during ART-induced Raji cells apoptosis were acquired by Micro-Raman spectroscopy. Correspondingly, Raman spectral data during Dexamethasone (DEX)-induced Raji cells apoptosis were also presented. The obtained result revealed that peaks at 1303 and 1655 cm-1assigned to proteins and the peak at 785 cm-1assigned to the symmetric stretching vibration mode of O-P-O of DNA were changed in intensity in ART-treated cells relative to untreated cells. One possible reason was that ART played a role to inhibit the receptors generation of Raji cells during apoptosis. Moreover, by combining Raman spectral differences and principal component analysis (PCA), it was presented that the main biochemical changes of ART-induced cell apoptosis were come from the content and structure changes of proteins and nucleic acids, which were different from DEX-induced DNA changes, indicating that the mechanism of ART-induced cell apoptosis might be different with DEX-induced DNA damaging cell apoptosis. Importantly, these results also showed that PCA based Raman spectral analysis should be a better approach to exhibit the drugs-induced cell apoptosis. Moreover, this method will provide a useful tool to construct a biological model of cell apoptosis in vitro for the clinical treatment and anticancer drug research. © 2015 Published by Elsevier B.V.
Number of references: 34
Main heading: Principal component analysis
Controlled terms: Bioinformatics - Cell death - Cells - Cytology - DNA - Nucleic acids - Proteins - Raman spectroscopy - Spectrum analysis - Stretching
Uncontrolled terms: Artemisinin - Cell apoptosis - Content and structure - Dexamethasones - Micro Raman Spectroscopy - Raman spectral data - Symmetric stretching - Transferrin receptors
Classification code: 461 Bioengineering and Biology - 535.2 Metal Forming - 804.1 Organic Compounds - 922.2 Mathematical Statistics
DOI: 10.1016/j.vibspec.2015.10.006
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

218. Complex projective synchronization in drive-response stochastic coupled networks with complex-variable systems and coupling time delays

Accession number: 20143600056522
Authors: Wu, Xuefei (1, 2); Xu, Chen (3); Feng, Jianwen (4)
Author affiliation: (1) School of Computer and Software Engineering, Shenzhen Polytechnic, Shenzhen, China; (2) College of Information Engineering, Shenzhen University, Shenzhen, China; (3) Institute of Intelligent Computing Science, Shenzhen University, Shenzhen, China; (4) College of Mathematics and Computational Science, Shenzhen University, Shenzhen, China
Corresponding author: Xu, Chen
Source title: Communications in Nonlinear Science and Numerical Simulation
Abbreviated source title: Comm. Nonlinear Sci. Numer. Simul.
Volume: 20
Issue: 3
Issue date: March 1, 2015
Publication year: 2015
Pages: 1004-1014
Language: English
ISSN: 10075704
Document type: Journal article (JA)
Publisher: Elsevier

Abstract: In this paper, the complex projective synchronization in drive-response stochastic coupled networks with complex-variable systems and linear coupling time delays are considered. The pinning control scheme are adopted to achieve complex projective synchronization and several simple and practical sufficient conditions are obtained in a general drive-response network. In addition, the adaptive feedback algorithms are proposed to adjust the control strength. Several numerical simulations are provided to show the effectiveness and feasibility of the proposed methods. © 2014 Elsevier B.V.
Number of references: 34

Main heading: Complex networks
Controlled terms: Delay control systems - Numerical methods - Stochastic systems - Synchronization - Time delay
Uncontrolled terms: Adaptive feedback - Coupled networks - Coupling time delays - Drive-response networks - Linear coupling - Projective synchronization - Stochastic complex networks - Variable systems
Classification code: 713 Electronic Circuits - 722 Computer Systems and Equipment - 731 Automatic Control Principles and Applications - 731.1 Control Systems - 921.6 Numerical Methods
DOI: 10.1016/j.cnsns.2014.07.003
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

219. On-demand block-level address mapping in large-scale NAND flash storage systems

Authors: Chen, Renhai (2); Qin, Zhiwei (2); Wang, Yi (1); Liu, Duo (3); Shao, Zili (2); Guan, Yong (4)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (2) Embedded Systems and CPS Laboratory, Department of Computing, Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong; (3) College of Computer Science, Chongqing University, Chongqing, China; (4) College of Computer and Information Management, Capital Normal University, Beijing, China
Corresponding author: Chen, Renhai
Abstract: The density of flash memory chips has doubled every two years in the past decade and the trend is expected to continue. The increasing capacity of NAND flash memory leads to large RAM footprint on address mapping management. This paper proposes a novel Demand-based block-level Address mapping scheme with a two-level Caching mechanism (DAC) for large-scale NAND flash storage systems. The objective is to reduce RAM footprint without excessively compromising system response time. In our technique, the block-level address mapping table is stored in fixed pages (called the translation pages) in the flash memory. Considering temporal locality that workloads exhibit, we maintain one cache in RAM to store the on-demand address mapping entries. Meanwhile, by exploring both spatial locality and access frequency of workloads with another two caches, the second-level cache is designed to cache selected translation pages. In such a way, both the most-frequently-accessed and sequentially accessed address mapping entries can be stored in the cache so the cache hit ratio can be increased and the system response time can be improved. To the best of our knowledge, this is the first work to reduce the RAM cost by employing the demand-based approach on block-level address mapping schemes. The experiments have been conducted on a real embedded platform. The experimental results show that our technique can effectively reduce the RAM footprint while maintaining similar average system response time compared with previous work. © 1968-2012 IEEE.
Number of references: 41
Main heading: Flash memory
Controlled terms: Cache memory - Mapping - Memory architecture - Monolithic microwave integrated circuits - NAND circuits - Random access storage - Response time (computer systems) - Storage management
Uncontrolled terms: Block-level mappings - Embedded platforms - Flash memory chip - Increasing capacities - NAND flash memory - On demands - System response time - Two-level caches
Classification code: 714.2 Semiconductor Devices and Integrated Circuits - 721.3 Computer Circuits - 722 Computer Systems and Equipment - 723.3 Database Systems - 902.1 Engineering Graphics
DOI: 10.1109/TC.2014.2329680
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
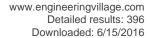**Data Provider:** Engineering Village

220. Synthesis of zinc phosphate and zinc ammonium phosphate nanostructures with different morphologies through pH control

Authors: Zhou, Xiaoming (1); Bai, Helong (2); Ma, He (1); Li, Hebin (1); Yuan, Wenxiang (1); Du, Hanjie (1); Zhang, Peixin (1); Xin, Hong (1)
Author affiliation: (1) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, China; (2) College of Chemistry, Jilin University, Changchun, China
Corresponding author: Xin, Hong
Abstract: In this work, morphologically different zinc phosphate $(\alpha\text{-}Zn3(PO4)2\cdot4H2O)$ nanostructures were synthesized from single crystalline nanosheets in an aqueous solution via a simple surfactant and template-free microwave-assisted sono-chemical method. The morphologies of crystalline $\alpha\text{-}Zn3(PO4)2\cdot4H2O$ were controlled through adjustments in the pH values in the reaction system. Plate-like samples with an average thickness of 0.1-1.8 μm and flower-like samples with an average size of 8.8-11.0 μm were obtained at pH# 3.5 and pH $\geq$ 4.0, respectively. Furthermore, different growth orientation profiles were shown between the two samples with these morphologies. When the pH was set between 6.0 and 7.0, flower-shaped, bicone-shaped and prismatic-shaped zinc phosphate crystals were obtained. Zinc ammonium phosphate nanowires were obtained when the pH =10.0. The generated Dy^{3+}-doped zinc phosphate exhibited good fluorescence performance. © 2015 Elsevier Inc. All rights reserved.

221. Rough side-polished fiber with surface scratches for sensing applications

Authors: Zhao, Jing (1); Yin, Guolu (1); Liao, Changrui (1); Liu, Shen (1); He, Jun (1); Sun, Bing (1); Wang, Guanjun (1); Xu, Xizheng (1); Wang, Yiping (1)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Wang, Yiping

Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: We demonstrated a fast mechanical wheel lapping technique to fabricate a convenient and low-cost side-polished fiber (SPF) with a rough, rather than smooth, polished surface. Such a bare SPF can be directly used to develop a promising sensing device, because a Mach-Zehnder interference pattern with high fringe contrast above 10 dB in transmission spectrum was achieved due to the macro scratches on the rough polished surface. Fabrication parameters, e.g., thickness of remaining fiber, polished length, and roughness of abrasive paper, were optimized. The sensor exhibited strain and temperature sensitivities up to -2.00 pm/μE and 29.37 pm/°C and can be used to realize simultaneous strain and temperature measurement. © 2015 IEEE.
Number of references: 17
Main heading: Fibers
Controlled terms: Optical fiber fabrication - Optical fibers - Temperature measurement
Uncontrolled terms: Fabrication parameters - Mach-Zehnder - Optical fiber sensor - Side-polished fiber - Simultaneous strain and temperature measurements - Surface scratches - Temperature sensitivity - Transmission spectrums
Classification code: 741.1.2 Fiber Optics - 812 Ceramics, Refractories and Glass - 817 Plastics and Other Polymers: Products and Applications - 944.6 Temperature Measurements
DOI: 10.1109/JPHOT.2015.2423288
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

222. An adaptive high-precision tracking controller for the coupled switched reluctance two-finger gripper

Accession number: 20154001322118
Authors: Fan, Y. (1); Pan, J. (1)
Author affiliation: (1) Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China
Source title: 2015 IEEE International Magnetics Conference, INTERMAG 2015
Abbreviated source title: IEEE Int. Magn. Conf., INTERMAG
Monograph title: 2015 IEEE International Magnetics Conference, INTERMAG 2015
Issue date: July 14, 2015
Publication year: 2015
Article number: 7156894
Language: English
ISBN-13: 9781479973224
Document type: Conference article (CA)
Conference name: 2015 IEEE International Magnetics Conference, INTERMAG 2015
Conference date: May 11, 2015 - May 15, 2015
Conference location: Beijing, China
Conference code: 113931
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Automatic finger grippers play an important role in modern industry and become an alternative for human kind in hazardous fields such as product manufacturing, material handing and post-disaster rescues, etc [1,2]. Therefore low-cost, stable finger grippers based motion control systems should be developed with high reliability and good static performance. The switched reluctance (SR) motors have drawn researchers'attention, owing to its simple control circuits, robustness and low-cost structure [3]. © 2015 IEEE.
Number of references: 5
DOI: 10.1109/INTMAG.2015.7156894
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

223. Synthesis and characterization of MgSnO prepared via a ball milling process

Accession number: 20154501505023
Authors: He, Haiying (1); Xie, Zhengcai (1); Li, Qingqing (1); Luo, Yiyun (1); Niu, Hanben (1)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Xie, Zhengcai

Abstract: Nanocrystalline powders of MgO-SnO2(MgSnO) were experimentally obtained via a high-energy ball milling process with various operating time and annealing temperatures. The average crystallite size and lattice strain of the MgSnO powder decreased and increased, respectively, with increasing milling time. X-ray diffraction results revealed that the Mg2SnO4phase formed after calcinations of the as-milled MgSnO powder at temperatures higher than 1000 °C. The film annealed at 500 °C exhibited a much higher transmittance (~92%) in the visible region than that of a previously reported, non-ball-milled Mg-doped SnO2. The surface morphology of MTO films is dependent on the annealing temperature. The fabricated MgSnO TFT operating in electron-accumulation mode can perform n-channel operations. In addition, the sub-threshold voltage swing value of the device is 0.29 V/decade. © 2015 Published by Elsevier B.V.

Number of references: 26
Main heading: Ball milling
Controlled terms: Annealing - Crystallite size - Milling (machining) - Nanocrystalline powders - Nanocrystals - Semiconductor materials - Threshold voltage - X ray diffraction
Uncontrolled terms: Annealing temperatures - Electron accumulation - High-energy ball milling - High-energy ball milling process - MgSnO - MTO TFT - Synthesis and characterizations - X-ray techniques
Classification code: 537.1 Heat Treatment Processes - 604.2 Machining Operations - 701.1 Electricity: Basic Concepts and Phenomena - 712.1 Semiconducting Materials - 802.3 Chemical Operations - 933.1 Crystalline Solids
DOI: 10.1016/j.matlet.2015.03.048
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

224. Calibration method of LRF in road geometry detection system

Authors: He, Ming (1); He, Li (1); Zhang, Dejin (2, 3); Quan, Yi (1); Liu, Xiaolong (1)
Author affiliation: (1) School of Electrical and Electronic Engineering, Hubei Uni. of Tech., Wuhan, China; (2) Shenzhen University, China; (3) Wuhan Wuda ZOYON Science and Technology CO., LTD, Wuhan, China
Corresponding author: He, Li(heli.edu@hotmail.com)

Abstract: The road geometry is one of the most important indices that reflect the road condition. In order to collect this data, scholars developed several detection methods in recent years. This paper introduced a Road Geometry Detection System based on section measurement method. The detection system applies a inertial measurement unit (IMU) and laser rangefinders (LRFs) fixed on a measuring platform to capture the data of the slope and cross slope of the pavement. However, the detection system is limited as it needs to calibrate the system before a measuring task and this problem affect the measurement accuracy seriously. This paper proposed an efficient method to calculate the angles between measuring platform and each LRFs, which improve the detection accuracy effectively. Finally, a case study showed the proposed detection system and calibrating method was feasible and effective. © 2015 IEEE.
Number of references: 8
Main heading: Transportation
Controlled terms: Calibration - Fixed platforms - Geometry - Range finders - Roads and streets - Units of measurement
Uncontrolled terms: Calibration method - Detection accuracy - Inertial measurement unit - Laser range finders - Laser sensor applications - Measurement accuracy - Measurement methods - Road geometry
Classification code: 406.2 Roads and Streets - 511.2 Oil Field Equipment - 902.2 Codes and Standards - 921 Mathematics - 943.1 Mechanical Instruments
DOI: 10.1109/IMCCC.2015.218
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

225. Towards write-activity-aware page table management for non-volatile main memories

Accession number: 20150900590220
Authors: Wang, Tianzheng (1); Liu, Duo (2); Wang, Yi (3); Shao, Zili (4)
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Source title: ACM Transactions on Embedded Computing Systems
Abbreviated source title: ACM Trans. Embedded Comput. Syst.
Volume: 14
Issue: 2
Issue date: February 1, 2015
Publication year: 2015
Pages: 34
Language: English
ISSN: 15399087
E-ISSN: 15583465
Document type: Journal article (JA)
Publisher: Association for Computing Machinery
Abstract: Non-volatile memories such as phase change memory (PCM) and memristor are being actively studied as an alternative to DRAM-based main memory in embedded systems because of their properties, which include low power consumption and high density. Though PCM is one of the most promising candidates with commercial products available, its adoption has been greatly compromised by limited write endurance. As main memory is one of the most heavily accessed components, it is critical to prolong the lifetime of PCM. In this article, we present write-activity-aware page table management (WAPTM), a simple yet effective page table management scheme for reducing unnecessary writes, by redesigning system software and exploiting write-activity-aware features provided by the hardware. We implemented WAPTM in Google Android based on the ARM architecture and evaluated it with real Android applications. Experimental results show that WAPTM can significantly reduce writes in page tables, proving the feasibility and potential of prolonging the lifetime of PCM-based main memory through reducing writes at the OS level. © 2015 ACM
Number of references: 41
Main heading: Phase change memory
Controlled terms: Android (operating system) - ARM processors - Computer operating systems - Data storage equipment - Digital storage - Dynamic random access storage - Embedded systems
Uncontrolled terms: Android applications - Low-power consumption - Memory management - Non-volatile main memory - Non-volatile memory - Phase change memory (pcm) - Re-designing systems - Write activity aware
Classification code: 721 Computer Circuits and Logic Elements - 722 Computer Systems and Equipment - 722.1 Data Storage, Equipment and Techniques - 723 Computer Software, Data Handling and Applications

226. Local variation joint representation for face recognition with single sample per person

Authors: Yang, Meng (1); Song, Tiancheng (1); Yu, Shiqi (1); Shen, Linlin (1)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Yang, Meng(yangmengpolyu@msn.com)
Abstract: Sparse representation based classification (SRC) was originally applied to multiple-training-sample face recognition with promising performance. Recently SRC has been extended to face recognition with single sample per person by using variations extracted from a generic training set as an additional common dictionary. However, the extended SRC ignored to learn a better variation dictionary and to use local region information of face images. To address this issue, we propose a local variation joint representation (LVJR) method, which learns a variation dictionary and does joint and local collaborative representation for a query image. The learned variation dictionary was required to do similar representation for the same-type facial variations, while the joint and local collaborative representation could effectively use local information of face images. Experiments on the large-scale CMU Multi-PIE and AR databases demonstrate that the proposed LVJR method achieves better results compared with the existing solutions to the single sample per person problem. © Springer-Verlag Berlin Heidelberg 2015.

227. Spatial vector soliton in nonlocal nonlinear media with exponential-decay response

Authors: Wang, Qing (1, 2); Li, Jingzhen (1)
Author affiliation: (1) Shenzhen Key Laboratory of Micro-Nano Photonic Information Technology, College of Electronic Science and Technology, Shenzhen University, Guangdong, China; (2) College of Optoelectronic Engineering, Shenzhen University, Guangdong, China
Corresponding author: Li, Jingzhen

Abstract: The propagation of two orthogonally polarized incoherent optical beams in strong nonlocal nonlinear media with exponential-decay response was investigated by a variational approach, and the analytical result was confirmed by numerical simulation. The evolution equations for the parameters of the two beams were obtained and a spatial vector soliton was found. The effects of coupling coefficient and birefringence on the propagation of the two beams were discussed. A soliton-like wave, which is different from the vector soliton, was discovered. Moreover, the phase shifts of the two beams are different under certain conditions and the propagation distance of generating π phase difference can be figured out. These theoretical result have the potential application to developing the logical devices or optical switching, which based on the principle of phase difference or polarization.

Number of references: 30
Main heading: Solitons
Controlled terms: Nonlinear optics - Nonlinear systems - Phase shift - Vectors
Uncontrolled terms: Coupling coefficient - Decay response - Evolution equations - Nonlocal - Nonlocal nonlinear media - Propagation distances - Variational approaches - Vector soliton
Classification code: 741.1.1 Nonlinear Optics - 921 Mathematics - 921.1 Algebra - 942.2 Electric Variables Measurements - 961 Systems Science
DOI: 10.1016/j.optcom.2014.12.002
Database: Compendex

Data Provider: Engineering Village

228. New insights into multi-shape memory behaviours and liquid crystalline properties of supramolecular polyurethane complexes based on pyridine-containing polyurethane and 4-octyldecyloxybenzoic acid

Accession number: 20153901312647

Authors: Chen, Shaojun (1); Mo, Funian (1); Chen, Shiguo (1); Ge, Zaochuan (1); Yang, Haipeng (1); Zuo, Jiandong (1); Liu, Xinke (1); Zhuo, Haitao (2)
Author affiliation: (1) Shenzhen Key Laboratory of Special Functional Materials, Nanshan District Key Lab for Biopolymers and Safety Evaluation, College of Materials Science and Engineering, Shenzhen University, Shenzhen, China; (2) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen 518060, China
Corresponding author: Liu, Xinke

Abstract: Both liquid crystalline polymers and shape memory polymers are attractive to researchers. This paper describes the development of a supramolecular liquid crystalline complex exhibiting a multi-shape memory effect and liquid crystalline properties. 4-n-Octyldecyloxybenzoic acid (OOBA) is connected to a pyridine-containing polyurethane (PySMPU), forming a new PySMPU/OOBA complex. The results of this study demonstrate that the complex maintains the intrinsic crystallization and liquid-crystalline properties of OOBA and combines the shape memory effects of PySMPUs. Shape memory investigations demonstrate that the PySMPU/OOBA complexes have a good multi-shape

memory effect, exhibiting triple- and quadruple-shape memory behaviours. For the triple-shape memory behaviours, the strain fixity at the first stage is lower than that at the second stage, while the strain recovery at the first stage is higher than that at the second stage. Overall, increasing the OOBA content improves the strain fixity but reduces the strain recovery due to the lubrication of the OOBA long chains. The successful combination of the liquid crystalline properties and multi-shape memory effect makes the PySMPU/OOBA complexes potentially applicable in smart optical devices, smart electronic devices and smart sensors. © The Royal Society of Chemistry 2015.

Number of references: 30
Main heading: Shape memory effect
Controlled terms: Crystalline materials - Liquid crystal polymers - Liquids - Polymers - Polyurethanes - Pyridine - Supramolecular chemistry
Uncontrolled terms: Liquid crystalline - Liquid crystalline properties - Multi shapes - Shape memory - Shape memory behaviour - Shape memory polymers - Smart electronics - Strain recovery
Classification code: 804.1 Organic Compounds - 815.1 Polymeric Materials - 815.1.1 Organic Polymers - 931.2 Physical Properties of Gases, Liquids and Solids - 931.3 Atomic and Molecular Physics - 933.1 Crystalline Solids
DOI: 10.1039/c5ta04469c
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

229. Smooth View Quality Oriented Bit Allocation Optimization for 3D Video Coding

Accession number: 20161802324978
Authors: Wang, Xu (1, 2); Kwong, Sam (2, 3); Gao, Wei (2, 3); Zhou, Yu (2, 3); Yuan, Hui (4); Zhang, Yun (5)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (2) Department of Computer Science, City University of Hong Kong, Kowloon, Hong Kong; (3) City University of Hong Kong Shenzhen Research Institute, Shenzhen, China; (4) School of Information Science and Engineering, Shandong University, Jinan, China; (5) Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China
Source title: Proceedings - 2015 IEEE International Conference on Systems, Man, and Cybernetics, SMC 2015
Abbreviated source title: Proc. - IEEE Int. Conf. Syst., Man, Cybern., SMC
Monograph title: Proceedings - 2015 IEEE International Conference on Systems, Man, and Cybernetics, SMC 2015
Issue date: January 12, 2016
Publication year: 2015
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Article number: 7379441
Language: English
ISBN-13: 9781479986965
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Conference name: IEEE International Conference on Systems, Man, and Cybernetics, SMC 2015
Conference date: October 9, 2015 - October 12, 2015
Conference location: Kowloon Tong, Hong kong
Conference code: 119045
Sponsor: IEEE SMC Society; K C Wong Foundation
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: View level bit allocation is an fundamental optimization problem in multiview video plus depth (MVD) based 3D video coding (3DVC). In this paper, we propose a smooth view quality oriented view level bit allocation framework for MVD based 3DVC. The Cauchy-density based rate-distortion model of the texture video and depth map are employed to represent the rate distortion properties. The relationship between the distortion of synthesized view and quantization step size of texture videos and depth maps is approximately fitted as linear model. Final, the bit allocation problem is solved by convex optimization algorithms. Experimental results demonstrated that our proposed algorithm can achieve good performance with acceptable computational complexity comparing to the full search scheme. © 2015 IEEE.
Number of references: 12
Main heading: Image coding
Controlled terms: Algorithms - Codes (symbols) - Convex optimization - Cybernetics - Electric distortion - Optimization - Signal distortion - Video signal processing
Uncontrolled terms: 3D video coding - Bit allocation - Convex optimization algorithms - Multi view video plus depth (MVD) - Multiview video plus depths - Optimization problems - Quantization step sizes - Rate distortion model

Classification code: 701.1 Electricity: Basic Concepts and Phenomena - 716.1 Information Theory and Signal Processing - 716.4 Television Systems and Equipment - 723.2 Data Processing and Image Processing - 921.5 Optimization Techniques
DOI: 10.1109/SMC.2015.309
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

230. Enabling device-to-device communications in millimeter-wave 5G cellular networks

Accession number: 20150500460060
Authors: Qiao, Jian (1); Shen, Xuemin (1); Mark, Jon (1); Shen, Qinghua (1); He, Yejun (2); Lei, Lei (3)
Author affiliation: (1) University of Waterloo, Canada; (2) Shenzhen University, China; (3) Jiaotong University, China
Source title: IEEE Communications Magazine
Abbreviated source title: IEEE Commun Mag
Volume: 53
Issue: 1
Issue date: January 1, 2015
Publication year: 2015
Pages: 209-215
Article number: 7010536
Language: English
ISSN: 01636804
CODEN: ICOMD9
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Millimeter-wave communication is a promising technology for future 5G cellular networks to provide very high data rate (multi-gigabits-persecond) for mobile devices. Enabling D2D communications over directional mmWave networks is of critical importance to efficiently use the large bandwidth to increase network capacity. In this article, the propagation features of mmWave communication and the associated impacts on 5G cellular networks are discussed. We introduce an mmWave+4G system architecture with TDMA-based MAC structure as a candidate for 5G cellular networks. We propose an effective resource sharing scheme by allowing non-interfering D2D links to operate concurrently. We also discuss neighbor discovery for frequent handoffs in 5G cellular networks. © 2015 IEEE.
Number of references: 15
Main heading: Time division multiple access
Controlled terms: Millimeter wave devices - Millimeter waves - Mobile devices - Mobile telecommunication systems - Wireless networks
Uncontrolled terms: Cellular network - D2D communications - Device-to-Device communications - Millimeter-wave communication - Mm-wave Communications - Neighbor discovery - Network Capacity - Resource sharing schemes
Classification code: 711 Electromagnetic Waves - 714 Electronic Components and Tubes - 715 Electronic Equipment, General Purpose and Industrial - 716 Telecommunication; Radar, Radio and Television - 716.3 Radio Systems and Equipment
DOI: 10.1109/MCOM.2015.7010536
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

231. Spatial optical soliton in (1 + 2)-dimensional synthetic nonlocal nonlinear media

Accession number: 20160101753485
Authors: Wang, Qing (1, 2); Li, Jingzhen (1); Wang, Xinghua (3)
Author affiliation: (1) Shenzhen Key Laboratory of Micro-Nano Photonic Information Technology, College of Electronic Science and Technology, Shenzhen University, Guangdong, China; (2) College of Optoelectronic Engineering, Shenzhen University, Guangdong, China; (3) School of Physics and Electronic Information, Gannan Normal University, Ganzhou, China
Corresponding author: Li, Jingzhen(lijz@szu.edu.cn)
Source title: Optik
Abbreviated source title: Optik
Volume: 126
Issue: 23

Issue date: 2015
Publication year: 2015
Pages: 3567-3569
Language: English
ISSN: 00304026
Document type: Journal article (JA)
Publisher: Elsevier GmbH

Abstract: This paper studies the propagation of Gaussian-shaped optical beams in (1 + 2)-dimensional synthetic nonlocal media by variational approach. The evolution equations for the parameters of the optical beam are obtained and the critical power of forming a soliton is found. The optical soliton can be formed in "focusing-focusing" synthetic nonlocal media with arbitrary degree of nonlocality. However, we find that #2must be grater than a certain value which was depended on the other material parameters of the "focusing-defocusing" synthetic nonlocal media. The analytical results were confirmed by the numerical results. © 2015 Elsevier GmbH. All rights reserved.
Number of references: 13
Main heading: Nonlinear optics
Controlled terms: Focusing - Gaussian beams - Solitons
Uncontrolled terms: Analytical results - Evolution equations - Material parameter - Nonlocal - Nonlocal nonlinear media - Optical soliton - Spatial optical solitons - Variational approaches
Classification code: 711 Electromagnetic Waves - 741.1.1 Nonlinear Optics
DOI: 10.1016/j.ijleo.2015.08.228
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

232. Boost bulk-driven sense-amplifier flip-flop operating in ultra-wide voltage range

Accession number: 20151900815664
Authors: Deng, Xiaoying (1); Mo, Yanyan (1)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Nanhai Ave 3688, Shenzhen, Guangdong, China
Corresponding author: Deng, Xiaoying
Source title: Electronics Letters
Abbreviated source title: Electron. Lett.
Volume: 51
Issue: 9
Issue date: April 30, 2015
Publication year: 2015
Pages: 680-682
Language: English
ISSN: 00135194
CODEN: ELLEAK
Document type: Journal article (JA)
Publisher: Institution of Engineering and Technology

Abstract: A new boost bulk-driven sense-amplifier-based flip-flop (BBDSAFF) is presented. First, thanks to the boost and bulk-driven technique, the BBDSAFF consumes much lower power and can operate normally in the ultra-wide voltage range. Secondly, the adopted pseudo-PMOS dynamic technique in the RS latch output stage can greatly reduce the delay and improve the driving capability. The simulation results show advantages of high-speed, low power dissipation and very small and symmetrical rise/fall delay. Under the same simulation conditions, power dissipation, delay and PDP of the Strollo sense-amplifier-based flip-flop is 31 µW, 107 ps and 3.32 fJ whereas that of the proposed bulk-driven SAFF is 29 µW, 94 ps and 2.73 fJ. This low power consumption and high-speed BBDSAFF can be applied in various fields, such as ultra-dynamic voltage scaling VLSI, circuits, low power dissipation counter-clock systems and microprocessors. © 2015 The Institution of Engineering and Technology.
Number of references: 11
Main heading: Amplifiers (electronic)
Controlled terms: Electric losses - Flip flop circuits - Low power electronics - VLSI circuits - Voltage scaling
Uncontrolled terms: Driving capability - Dynamic techniques - Low-power consumption - Low-power dissipation - Rise/fall delays - Sense amplifier - Ultra dynamics - Voltage ranges
Classification code: 701.1 Electricity: Basic Concepts and Phenomena - 713 Electronic Circuits - 714 Electronic Components and Tubes - 714.2 Semiconductor Devices and Integrated Circuits - 715 Electronic Equipment, General

Purpose and Industrial - 716 Telecommunication; Radar, Radio and Television - 717 Optical Communication - 718 Telephone Systems and Related Technologies; Line Communications

DOI: 10.1049/el.2014.3845
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

233. Indoor environment applications for mobile robots using Kinect2.0

Accession number: 20152600977508
Authors: Zhang, Qi (1); Li, Baopu (1, 2, 3); Xu, Guo-Qing (1, 3); Zhou, Yimin (1); Wang, Ming (1); Meng, Max Q.-H. (3)
Author affiliation: (1) Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China; (2) Shenzhen University, Shenzhen, China; (3) Chinese University of Hong Kong, Hong Kong
Source title: Proceedings of the World Congress on Intelligent Control and Automation (WCICA)
Abbreviated source title: Proc. World Congr. Intelligent Control Autom. WCICA
Volume: 2015-March
Part number: 1 of 1
Issue: March
Monograph title: Proceeding of the 11th World Congress on Intelligent Control and Automation, WCICA 2014
Issue date: March 2, 2015
Publication year: 2015
Pages: 1462-1466
Article number: 7052934
Language: English
Document type: Conference article (CA)
Conference name: 2014 11th World Congress on Intelligent Control and Automation, WCICA 2014
Conference date: June 29, 2014 - July 4, 2014
Conference location: Shenyang, China
Conference code: 112312
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: The second generation of Kinect sensor is a revolutionary multiple cameras including RGB camera, infrared camera to differentiate depth, infrared camera and audio array. In this paper, we first introduce the differences between the Kinect and Kinect2.0 sensor. Then a system of Kinect2.0 based human interaction system for mobile robot is presented. The function of skeleton tracking of Kinect2.0 is used to identify a specific person in the depth image. Finally, people's heart rate detection method is proposed using RGB camera of Kinect2.0. Preliminary experiments verify that the designed measurement system is effective. © 2014 IEEE.
Number of references: 10
DOI: 10.1109/WCICA.2014.7052934
Compendex references: YES
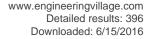**Database:** Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

234. Machine Learning-Based Coding Unit Depth Decisions for Flexible Complexity Allocation in High Efficiency Video Coding

Accession number: 20151700780602
Authors: Zhang, Yun (1); Kwong, Sam (2, 3); Wang, Xu (4); Yuan, Hui (5); Pan, Zhaoqing (6); Xu, Long (7)
Author affiliation: (1) Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China; (2) Department of Computer Science, City University of Hong Kong, Hong Kong, Hong Kong; (3) Shenzhen Research Institute, City University of Hong Kong, Hong Kong, Hong Kong; (4) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (5) School of Information Science and Engineering, Shandong University, Jinan, China; (6) Jiangsu Engineering Center of Network Monitoring, School of Computer and Software, Nanjing University of Information Science and Technology, Nanjing, China; (7) Key Laboratory of Solar Activity, National Astronomical Observatories, Chinese Academy of Sciences, Beijing, China
Source title: IEEE Transactions on Image Processing
Abbreviated source title: IEEE Trans Image Process
Volume: 24
Issue: 7
Issue date: July 1, 2015

Abstract: In this paper, we propose a machine learning-based fast coding unit (CU) depth decision method for High Efficiency Video Coding (HEVC), which optimizes the complexity allocation at CU level with given rate-distortion (RD) cost constraints. First, we analyze quad-tree CU depth decision process in HEVC and model it as a three-level of hierarchical binary decision problem. Second, a flexible CU depth decision structure is presented, which allows the performances of each CU depth decision be smoothly transferred between the coding complexity and RD performance. Then, a three-output joint classifier consists of multiple binary classifiers with different parameters is designed to control the risk of false prediction. Finally, a sophisticated RD-complexity model is derived to determine the optimal parameters for the joint classifier, which is capable of minimizing the complexity in each CU depth at given RD degradation constraints. Comparative experiments over various sequences show that the proposed CU depth decision algorithm can reduce the computational complexity from 28.82% to 70.93%, and 51.45% on average when compared with the original HEVC test model. The Bjontegaard delta peak signal-to-noise ratio and Bjontegaard delta bit rate are -0.061 dB and 1.98% on average, which is negligible. The overall performance of the proposed algorithm outperforms those of the state-of-the-art schemes. © 1992-2012 IEEE.

Number of references: 26
Main heading: Codes (symbols)
Controlled terms: Artificial intelligence - Binary trees - Decision theory - Efficiency - Electric distortion - Image coding - Learning systems - Signal distortion - Signal to noise ratio - Support vector machines - Video signal processing
Uncontrolled terms: Binary classifiers - Coding Unit - Comparative experiments - Complexity modeling - Decision algorithms - High-efficiency video coding - Peak signal to noise ratio - State-of-the-art scheme
Classification code: 711.1 Electromagnetic Waves in Different Media - 716.1 Information Theory and Signal Processing - 716.4 Television Systems and Equipment - 723 Computer Software, Data Handling and Applications - 913.1 Production Engineering - 921 Mathematics - 961 Systems Science
DOI: 10.1109/TIP.2015.2417498
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

235. Estimating JPEG compression history of bitmaps based on factor histogram

Accession number: 20151600745422
Authors: Yang, Jianquan (1); Zhu, Guopu (1); Huang, Jiwu (2); Zhao, Xi (3)
Author affiliation: (1) Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, GD, China; (2) College of Information Engineering, Shenzhen University, Shenzhen, GD, China; (3) School of Computer Science and Information Engineering, Tianjin University of Science and Technology, Tianjin, China
Corresponding author: Zhu, Guopu

Abstract: Estimation of JPEG compression history for bitmaps has drawn increasing attention in the past decade due to its extensive applications in image processing, image forensics and steganalysis. In this paper, we propose a novel statistic named factor histogram for estimating the JPEG compression history of bitmaps. In a statistical sense, the factor histogram decreases with the increase of its bin index for uncompressed bitmaps. Whereas, it exhibits a local maximum at the bin index corresponding to the quantization step for JPEG decompressed bitmaps, which makes itself no longer decrease. Based on these characteristics, we propose to identify decompressed bitmaps by measuring the

monotonicity of factor histogram, and to estimate the quantization step of each frequency by locating the bin index of the local maximum in factor histogram. Experimental results demonstrate that the proposed method outperforms the existing methods for a range of image sizes, meanwhile maintaining low computational cost. © 2015 Elsevier Inc.
Number of references: 25
Main heading: Graphic methods
Controlled terms: Image compression - Image processing - Steganography
Uncontrolled terms: Bit maps - Bitmap - Computational costs - Image forensics - JPEG compression - Local maximum - Monotonicity - Steganalysis
DOI: 10.1016/j.dsp.2015.03.014
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

236. A solution of dynamic VMs placement problem for energy consumption optimization based on evolutionary game theory

Accession number: 20150500465615
Authors: Xiao, Zhijiao (1, 2, 3); Jiang, Jianmin (1, 3); Zhu, Yingying (1, 3); Ming, Zhong (1, 2); Zhong, Shenghua (1, 3); Cai, Shubin (1, 2)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (2) Shenzhen Engineering Laboratory for Mobile Internet Application Middleware Technology, Shenzhen University, Shenzhen, China; (3) Research Institute of Future Media Computing, Shenzhen University, Shenzhen, China
Corresponding author: Ming, Zhong
Source title: Journal of Systems and Software
Abbreviated source title: J Syst Software
Volume: 101
Issue date: March 1, 2015
Publication year: 2015
Pages: 260-272
Language: English
ISSN: 01641212
CODEN: JSSODM
Document type: Journal article (JA)
Publisher: Elsevier Inc.
Abstract: Power saving of data centers has become an urgent problem in recent years. For a virtualized data center, optimizing the placement of virtual machines (VMs) dynamically is one of the most effective methods for power savings. Based on a deep study on VMs placement, a solution is proposed and described in this paper to solve the problem of dynamic placement of VMs toward optimization of their energy consumptions. A computationalmodel of energy consumption is proposed and built. A novel algorithm based on evolutionary game theory is also presented, which successfully addresses the challenges faced by dynamic placement of VMs. It is proved that the proposed algorithm can reach the optimal solutions theoretically. Experimental results also demonstrate that, by adjusting VMs placement dynamically, the energy consumption can be reduced correspondingly. In comparison with the existing state of the arts, our proposedmethod outperforms other five algorithms tested and achieves savings of 30-40% on energy consumption. © 2014 Elsevier Inc. All rights reserved.
Number of references: 22
Main heading: Game theory
Controlled terms: Algorithms - Energy utilization - Evolutionary algorithms - Problem solving
Uncontrolled terms: Energy consumption optimization - Evolutionary game theory - Novel algorithm - Optimal solutions - Placement problems - State of the art - Virtual machines - Virtualized data centers
Classification code: 525.3 Energy Utilization - 723 Computer Software, Data Handling and Applications - 921 Mathematics - 922.1 Probability Theory
DOI: 10.1016/j.jss.2014.12.030
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

237. Emergency vehicle scheduling problem with time utility in disasters

Accession number: 20152100860541

Authors: Gan, Xiaobing (1); Wang, Yan (1); Kuang, Junbiao (1); Yu, Ye (1); Niu, Ben (1, 2)
Author affiliation: (1) College of Management, Shenzhen University, Shenzhen, China; (2) Hefei Institute of Intelligent Machine, Chinese Academy of Sciences, Hefei, China
Corresponding author: Gan, Xiaobing
Source title: Mathematical Problems in Engineering
Abbreviated source title: Math. Probl. Eng.
Volume: 2015
Issue date: 2015
Publication year: 2015
Article number: 164194
Language: English
ISSN: 1024123X
E-ISSN: 15635147
Document type: Journal article (JA)
Publisher: Hindawi Publishing Corporation, 410 Park Avenue, 15th Floor, 287 pmb, New York, NY 10022, United States

Abstract: This paper presents a flexible emergency rescue system which is chiefly composed of three parts, namely, disaster assistance center, relief vehicles, and disaster areas. A novel objective of utility maximization is used to evaluate the entire system in disasters. Considering the uncertain road conditions in the relief distribution, we implement triangular fuzzy number to calculate the vehicle velocity. As a consequence, a fuzzy mathematical model is built to maximize the utility of emergency rescue system and then converted to the crisp counterpart. Finally, the results of numerical experiments obtained by particle swarm optimization (PSO) prove the validity of this proposed mathematical model. © 2015 Xiaobing Gan et al.
Number of references: 17
Main heading: Disasters
Controlled terms: Fuzzy sets - Particle swarm optimization (PSO) - Scheduling - Vehicles
Uncontrolled terms: Disaster assistance - Emergency rescue - Numerical experiments - Relief distribution - Triangular fuzzy numbers - Utility maximizations - Vehicle scheduling problem - Vehicle velocity
Classification code: 723 Computer Software, Data Handling and Applications - 912.2 Management
DOI: 10.1155/2015/164194
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

238. A population-based clustering technique using particle swarm optimization and K-means

Accession number: 20154801602947
Authors: Niu, Ben (1, 2); Duan, Qiqi (1); Tan, Lijing (3); Liu, Chao (4); Liang, Ping (5)
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Corresponding author: Niu, Ben(drniuben@gmail.com)
Source title: Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)
Abbreviated source title: Lect. Notes Comput. Sci.
Volume: 9140
Monograph title: Advances in Swarm and Computational Intelligence - 6th International Conference, ICSI 2015 held in conjunction with the 2nd BRICS Congress, CCI 2015, Proceedings
Issue date: 2015
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Conference name: 6th International Conference on Swarm Intelligence, ICSI 2015 held in conjunction with the 2nd BRICS Congress on Computational Intelligence, CCI 2015
Conference date: June 25, 2015 - June 28, 2015
Conference location: Beijing, China
Conference code: 157029
Sponsor: Peking University; Xian Jiaotong-Liverpool University
Publisher: Springer Verlag
Abstract: Population-based clustering techniques, which attempt to integrate particle swarm optimizers (PSOs) with K-Means, have been proposed in the literature. However, the performance of these hybrid clustering methods have not been extensively analyzed and compared with other competitive clustering algorithms. In the paper, five existing PSOs, which have shown promising performance for continuous function optimization, are hybridized separately with K-Means, leading to five PSO-KM-based clustering methods. Numeric experiments on nine real-life datasets show that, in the context of numeric data clustering, there exist no significant performance differences among these PSOs, though they often show significantly different search abilities in the context of numeric function optimization. These PSO-KM-based clustering techniques obtain better and more stable solutions than some individual-based counterparts, but at the cost of higher time complexity. To alleviate the above issue, some potential improvements are empirically discussed. © Springer International Publishing Switzerland 2015.
Number of references: 40
Main heading: Clustering algorithms
Controlled terms: Artificial intelligence - Cluster analysis - Particle swarm optimization (PSO)
Uncontrolled terms: Based clustering - Competitive clustering - Continuous function optimization - Function Optimization - Hybrid clustering - K-means - Particle swarm optimizers - Real life datasets
Classification code: 723 Computer Software, Data Handling and Applications - 723.4 Artificial Intelligence - 903.1 Information Sources and Analysis
DOI: 10.1007/978-3-319-20466-6_16
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

239. Triple-image encryption based on phase-truncated Fresnel transform and basic vector operation

Accession number: 20154901641144
Authors: Pan, Xuemei (1); Meng, Xiangfeng (1); Yang, Xiulun (1); Wang, Yurong (1); Peng, Xiang (2); He, Wenqi (2); Dong, Guoyan (3); Chen, Hongyi (4)
Author affiliation: (1) Department of Optics, School of Information Science and Engineering, Shandong Provincial Key Laboratory of Laser Technology and Application, Shandong University, Jinan, China; (2) College of Optoelectronics Engineering, Shenzhen University, Shenzhen, China; (3) College of Materials Science and Opto-Electronic Technology, University of Chinese Academy of Sciences, Beijing, China; (4) College of Electronic Science and Technology, Shenzhen University, Shenzhen, China
Corresponding author: Meng, Xiangfeng(xfmeng@sdu.edu.cn)
Source title: Applied Optics
Abbreviated source title: Appl. Opt.
Volume: 54
Issue: 28
Issue date: October 2015
Publication year: 2015
Pages: 8485-8493
Language: English
ISSN: 1559128X
E-ISSN: 21553165
CODEN: APOPAI
Document type: Journal article (JA)
Publisher: OSA - The Optical Society
Abstract: A triple-image encryption method is proposed that is based on phase-truncated Fresnel transform (PTFT), basic vector composition, and XOR operation. In the encryption process, two random phase masks, with one each placed at the input plane and the transform plane, are generated by basic vector resolution operations over the first and the second plaintext images, and then a ciphered image in the input plane is fabricated by XOR encoding for the third plaintext image. When the cryptosystem is illuminated by an on-axis plane, assisted by PTFT, the ciphered

image is finally encrypted into an amplitude-only noise-like image in the output plane. During decryption, possessing the correct private key, decryption keys, and the assistant geometrical parameter keys, and placing them at the corresponding correct positions, the original three plaintext images can be successfully decrypted by inverse PTFT, basic vector composition, and XOR decoding. Theoretical analysis and numerical simulations both verify the feasibility of the proposed method. © 2015 Optical Society of America.

Number of references: 39
Main heading: Image processing
Controlled terms: Cryptography - Geometry - Image coding - Inverse problems - Numerical methods - Vectors
Uncontrolled terms: Decryption keys - Fresnel transform - Image encryptions - Phase-truncated - Random phase masks - Vector operations - Vector resolutions - XOR operation
Classification code: 921 Mathematics
DOI: 10.1364/AO.54.008485
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

240. Steganalysis of LSB replacement for multivariate Gaussian covers

Accession number: 20160701912242
Authors: Xue, Bowen (1); Li, Xiaolong (1); Li, Bin (2); Guo, Zongming (1, 3)
Author affiliation: (1) Institute of Computer Science and Technology, Peking University, Beijing, China; (2) College of Information Engineering, Shenzhen University, Shenzhen; GD, China; (3) Cooperative Medianet Innovation Center, Shanghai, China
Corresponding author: Guo, Zongming(guozongming@pku.edu.cn)
Source title: 2015 IEEE China Summit and International Conference on Signal and Information Processing, ChinaSIP 2015 - Proceedings
Abbreviated source title: IEEE China Summit Int. Conf. Signal Inf. Process., ChinaSIP - Proc.
Monograph title: 2015 IEEE China Summit and International Conference on Signal and Information Processing, ChinaSIP 2015 - Proceedings
Issue date: August 31, 2015
Publication year: 2015
Pages: 836-840
Article number: 7230522
Language: English
ISBN-13: 9781479919482
Document type: Conference article (CA)
Conference name: IEEE China Summit and International Conference on Signal and Information Processing, ChinaSIP 2015
Conference date: July 12, 2015 - July 15, 2015
Conference location: Chengdu, China
Conference code: 117267
Sponsor: Institute of Electrical and Electronics Engineers Signal Processing Society (SPS)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Recently, some statistically optimal steganalyzers are proposed based on hypothesis testing theory, in which the cover pixels are supposed to be independent. However, the independent assumption is of limited interest since redundancy exists in natural images. In this paper, using a more appropriate image model considering pixel correlation, a new steganaly-sis method for the least significant bit replacement (LSB-R) steganography is proposed. First, the cover image is divided into non-overlapping equal-sized blocks and each block is modeled by a multivariate Gaussian distribution. Then, based on likelihood ratio test and formula derivation, a new detector of LSB-R is derived. The proposed detector is an extension of some previous works with improved detection performance. © 2015 IEEE.
Number of references: 19
Main heading: Gaussian distribution
Controlled terms: Information science - Pixels - Statistical tests - Steganography
Uncontrolled terms: Detection performance - Hypothesis testing - Image modeling - Least significant bits - Likelihood ratio tests - LSB replacement - Multivariate Gaussian Distributions - Steganalysis
Classification code: 723.2 Data Processing and Image Processing - 922.2 Mathematical Statistics
DOI: 10.1109/ChinaSIP.2015.7230522
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.

Data Provider: Engineering Village

241. Wafer-scale pixelated scintillator and specially designed data acquisition system for fiber optic taper array-coupled digital x-ray detector

Accession number: 20152400939207
Authors: Zhao, Zhigang (1); Li, Ji (1); Lei, Yaohu (1); Wang, Ru (1); Ren, Jianping (1); Qiao, Jian (1); Niu, Hanben (1)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Niu, Hanben
Source title: Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment
Abbreviated source title: Nucl Instrum Methods Phys Res Sect A
Volume: 795
Issue date: June 13, 2015
Publication year: 2015
Pages: 71-76
Article number: 57726
Language: English
ISSN: 01689002
CODEN: NIMAER
Document type: Journal article (JA)
Publisher: Elsevier
Abstract: Abstract A digital x-ray detector scheme based on a pixelated scintillator coupled with a fiber optic (FOT) array is suitable for many high-resolution x-ray imaging applications. However, certain challenges need to be addressed for fabrication of wafer-scale uniform pixelated x-ray scintillators. In addition, difficulties associated with implementation of the data acquisition system for acquiring output image data from the multiple image sensors used in the detector also need to be addressed. In this paper, a 2×2 FOT array-coupled digital x-ray detector scheme using a 5-in. pixelated scintillator is proposed. A novel fabrication setup along with the corresponding processes for fabricating the wafer-scale pixelated scintillator and implementation of a specially designed embedded data acquisition system based on a single embedded micro-processer (ARM) and four field-programmable gate array (FPGA) chips are discussed in detail. Preliminary experiments demonstrate that this pixelated scintillator-based digital x-ray detector scheme with an active imaging area of about 100 mm×100 mm shows considerable potential for use in high-resolution x-ray imaging. © 2015 Elsevier B.V.
Number of references: 20
Main heading: Data acquisition
Controlled terms: Fiber optics - Field programmable gate arrays (FPGA) - Scintillation counters - X ray analysis - X ray apparatus
Uncontrolled terms: Active imaging - Data acquisition system - Digital x-ray detector - Fiber optic tapers - High resolution - Multiple image - X-ray detector - Xray imaging
Classification code: 421 Strength of Building Materials; Mechanical Properties - 721.3 Computer Circuits - 723.2 Data Processing and Image Processing - 741.1.2 Fiber Optics - 741.3 Optical Devices and Systems - 801 Chemistry - 951 Materials Science
DOI: 10.1016/j.nima.2015.04.068
Database: Compendex
Data Provider: Engineering Village

242. Citywide traffic congestion estimation with social media

Accession number: 20161202138766
Authors: Wang, Senzhang (1); He, Lifang (2); Stenneth, Leon (3); Yu, Philip S. (4); Li, Zhoujun (1)
Author affiliation: (1) Beihang University, Beijing, China; (2) Shenzhen University, Shenzhen, China; (3) Nokia's HERE Connected Driving, Chicago; IL, United States; (4) University of Illinois at Chicago, Chicago; IL, United States
Source title: GIS: Proceedings of the ACM International Symposium on Advances in Geographic Information Systems
Abbreviated source title: GIS Proc. ACM Int. Symp. Adv. Geogr. Inf. Syst.
Volume: 03-06-November-2015
Monograph title: 23rd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, ACM SIGSPATIAL GIS 2015
Issue date: November 3, 2015
Publication year: 2015

Article number: a34
Language: English
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Document type: Conference article (CA)
Conference name: 23rd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, ACM SIGSPATIAL GIS 2015
Conference date: November 3, 2015 - November 6, 2015
Conference location: Seattle, WA, United states
Conference code: 119344
Sponsor: Esri; Facebook; Google; Microsoft; NVIDIA
Publisher: Association for Computing Machinery

Abstract: Conventional traffic congestion estimation approaches require the deployment of traffic sensors or large-scale probe vehicles. The high cost of deploying and maintaining these equipments largely limits their spatial-temporal coverage. This paper proposes an alternative solution with lower cost and wider spatial coverage by exploring traffic related information from Twitter. By regarding each Twitter user as a traffic monitoring sensor, various real-time traffic information can be collected freely from each corner of the city. However, there are two major challenges for this problem. Firstly, the congestion related information extracted directly from real-time tweets are very sparse due both to the low resolution of geographic location mentioned in the tweets and the inherent sparsity nature of Twitter data. Secondly, the traffic event information coming from Twitter can be multi-typed including congestion, accident, road construction, etc. It is non-trivial to model the potential impacts of diverse traffic events on traffic congestion. We propose to enrich the sparse real-time tweets from two directions: 1) mining the spatial and temporal correlations of the road segments in congestion from historical data, and 2) applying auxiliary information including social events and road features for help. We finally propose a coupled matrix and tensor factorization model to effectively integrate rich information for Citywide Traffic Congestion Eestimation (CTCE). Extensive evaluations on Twitter data and 500 million public passenger buses GPS data on nearly 700 mile roads of Chicago demonstrate the efficiency and effectiveness of the proposed approach.

Number of references: 25
Main heading: Traffic congestion
Controlled terms: Crashworthiness - Data mining - Factorization - Geographic information systems - Information systems - Motor transportation - Roads and streets - Social networking (online) - Tensors - Traffic control - Transportation
Uncontrolled terms: Alternative solutions - Auxiliary information - Congestion estimation - Geographic location - Real-time traffic information - Social media - Spatial and temporal correlation - Tensor factorization
Classification code: 406.2 Roads and Streets - 723 Computer Software, Data Handling and Applications - 723.2 Data Processing and Image Processing - 903.3 Information Retrieval and Use - 914.1 Accidents and Accident Prevention - 921 Mathematics - 921.1 Algebra
DOI: 10.1145/2820783.2820829
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

243. Joint inversion for the spatial fault slip distribution of the 2015 Nepal MW7.9 earthquake based on InSAR and GPS observations

Accession number: 20154901646893

Authors: Shan, Xin-Jian (1); Zhang, Guo-Hong (1); Wang, Chi-Sheng (2); Li, Yan-Chuan (1, 3); Qu, Chun-Yan (1); Song, Xiao-Gang (1); Yu, Lu (1); Liu, Yun-Hua (1)
Author affiliation: (1) State Key Laboratory of Earthquake Dynamics, Institute of Geology, CEA, Beijing, China; (2) Shenzhen University, Shenzhen, China; (3) China University of Petroleum (East China), Qingdao, China

Source title: Chinese Journal of Geophysics (Acta Geophysica Sinica)
Abbreviated source title: Chin. J. Geophys. Acta Geophys. Sin.
Volume: 58
Issue: 11
Issue date: November 1, 2015
Publication year: 2015
Pages: 4266-4276
Language: Chinese
ISSN: 00015733
E-ISSN: 08989591

Document type: Journal article (JA)
Publisher: Science Press
Abstract: An MW7.9 earthquake, located at the front of the India-Eurasia collision belt, struck Nepal on April 25th, 2015. Focal mechanisms from different organizations show a dip angle of 7°~10°, which indicate a typical Himalayan-type low-angle thrusting earthquake. Almost no surface ruptures were found after the earthquake, making it difficult to interpret the spatial characteristic of the coseismic slip distribution, and most importantly, the possible causative fault buried underneath the sub-surface. We seek to answer these questions by joint inversion of InSAR coseismic deformation observed by ALOS-2 and Sentinel-1A SAR satellites, as well as some GPS measurements. The method of joint inversion was used to analyze the spatial characteristic of the coseismic slip distribution and to infer the possible causative source fault of the 2015 Nepal earthquake. We collected the Sentinel-1A data immediately after the mainshock and processed them using the GAMMA software. Besides, the relevant ALOS-2 and GPS data were also collected. The quadtree sampling method was then used to resample the InSAR deformation results. In order to obtain a robust result and to reduce the uncertainties of the inversion, initial parameters for the fault were assigned according to focal mechanisms from Global CMT, USGS and GFZ. (1) The coseismic deformation field derived from geodetic data shows that the Nepal MW7.9 event is mainly distributed within a 150 km long and 100 km wide range, with two peak deformation centers aligned close to each other in north-south direction reaching about 1.2 m and about 0.8 m, respectively, and both of which are located on the hanging wall side, demonstrating a low-angle thrust. The InSAR results confirm that the surface trace of the causative source fault coincides with the MBT. Two GPS stations, namely KKN4 and NAST, about 80 km away from the epicenter on the hanging wall side, have peak displacements over 1 m. However, GPS stations at the far field decay very rapidly, which only have about 1 cm of coseismic displacements in both horizontal and vertical directions. (2) Based on the sensitivity iterative fitting method, a satisfactory fit to the GPS offsets and the InSAR displacements were achieved. Residuals for the ALOS-2 are between -10 cm and 10 cm, while residuals for the Sentinel-1A data are within -15 cm and 15 cm. Discrepancies arise from different coherences for C and L bands. Offsets for the GPS sites near the epicenter region are fitted well. However, sites away from the epicenter region have relatively poorer fitting especially in the vertical direction, which may be associated with the poor accuracy in GPS vertical measurements. (3) The inverted slip dislocations on the fault are mainly distributed in 150 km along strike and 70 km along down-dip direction. The maximum slip inverted reaches 5.59 m and the average is 0.94 m. The inverted dip angle of the fault model is 7° at shallow depth and 12° at deeper depth of 20 km. Results also show that with depth increasing, the dips of the causative fault increase as well, indicating reverse-listric shape of the fault. Slip more than 4 m is mainly concentrated between depths of 8 km and 10 km. Aftershocks are mainly distributed around the main rupture zone. The MW7.2 aftershock on May 12, 2015 struck the slip deficit region left by the Nepal mainshock, which precisely filled the rupture gap. The coseismic deformation field was derived for the Nepal earthquake and based on which the fault spatial slip distribution and the spatial characteristic of the coseismic slip distribution were inverted. The Nepal event ruptured a segment 50~60 km north of the MBT and at depth 8~9 km with an average dip angle of 9°, which, if projected onto the surface, is well aligned with the previously mapped fault MBT. And further north the Nepal rupture segment merges with MHT at depth of 18~20 km. We envision that the Nepal event has ruptured a segment of the MBT, which could be the causative fault. © 2015, Science Press. All right reserved.
Number of references: 19
Main heading: Fault slips
Controlled terms: Deformation - Delay circuits - Earthquake effects - Earthquakes - Faulting - Geodetic satellites - Geophysics - Global positioning system - Iterative methods - Spatial distribution - Tectonics
Uncontrolled terms: Co-seismic displacement - Coseismic deformation - Coseismic slip distribution - Deformation result - InSAR - Joint inversion - Slip dislocation - Spatial characteristics
Classification code: 405.3 Surveying - 481.1 Geology - 481.3 Geophysics - 484 Seismology - 484.1 Earthquake Measurements and Analysis - 921 Mathematics - 921.6 Numerical Methods
DOI: 10.6038/cjg20151131
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

244. Joint kernel dictionary and classifier learning for sparse coding via locality preserving K-SVD

Accession number: 20154501513997
Authors: Liu, Weiyang (1); Yu, Zhiding (2); Yang, Meng (3); Lu, Lijia (1); Zou, Yuexian (1)
Author affiliation: (1) School of ECE, Peking University, China; (2) Dept. of ECE, Carnegie Mellon University, United States; (3) College of Computer Science and Software Engineering, Shenzhen University, China
Corresponding author: Yang, Meng
Source title: Proceedings - IEEE International Conference on Multimedia and Expo

Abstract: We present a locality preserving K-SVD (LP-KSVD) algorithm for joint dictionary and classifier learning, and further incorporate kernel into our framework. In LP-KSVD, we construct a locality preserving term based on the relations between input samples and dictionary atoms, and introduce the locality via nearest neighborhood to enforce the locality of representation. Motivated by the fact that locality-related methods works better in a more discriminative and separable space, we map the original feature space to the kernel space, where samples of different classes become more separable. Experimental results show the proposed approach has strong discrimination power and is comparable or outperforms some state-of-the-art approaches on public databases. © 2015 IEEE.

Number of references: 26
Main heading: Algorithms
Uncontrolled terms: Classifier learning - Different class - Discriminative dictionaries - Kernel space - Locality-preserving - Nearest neighborhood - Public database - State-of-the-art approach
DOI: 10.1109/ICME.2015.7177438
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

245. A linear hybrid switched reluctance motor with zero cogging force

Accession number: 20154001321803
Authors: Zou, Y. (1, 2); Or, S. (1); Pan, J. (2)
Author affiliation: (1) Electrical Engineering, Hong Kong Polytechnic University, Hong Kong, Hong Kong; (2) Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China

Abstract: Linear permanent magnet motors (LPMM) and linear switched reluctance motors (LSRMs) are suitable for translational, direct-drive position control applications. Several linear permanent magnet motors (LPMMs) have been investigated [1-3]. However, there often exists unavoidable cogging forces from LPMMs that require additional control algorithms to compensate for high-precision, position control applications [4]. In [5], the cogging force can be improved within the range of 20 N. The linear switched reluctance motor is particularly suitable for long-stroke, position control applications owing to its simple and low cost machine topology. However, there are dominant force ripples and a higher force-to-volume ratio is hard to be achieved [5]. © 2015 IEEE.

Number of references: 7

246. Stitching interferometry of high numerical aperture cylindrical optics without using a fringe-Nulling routine

Authors: Peng, Junzheng (1, 2); Wang, Qingquan (2); Peng, Xiang (1); Yu, Yingjie (2)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (2) Department of Precision Mechanical Engineering, Lab of Applied Optics and Metrology, Shanghai University, Shanghai, China
Corresponding author: Yu, Yingjie(yingjieyu@staff.shu.edu.cn)
Abstract: Stitching interferometry is a common method for measuring the figure error of high numerical aperture optics. However, subaperture measurement usually requires a fringe-nulling routine, thus making the stitching procedure complex and time-consuming. The challenge when measuring a surface without a fringe-nulling routine is that the rays no longer perpendicularly hit the surface. This violation of the null-test condition can lead to high fringe density and introduce high-order misalignment aberrations into the measurement result. This paper demonstrates that the high-order misalignment aberrations can be characterized by low-order misalignment aberrations; then, an efficient method is proposed to separate the high-order misalignment aberrations from subaperture data. With the proposed method, the fringe-nulling routine is not required. Instead, the subaperture data is measured under a nonzero fringe pattern. Then, all possible misalignment aberrations are removed with the proposed method. Finally, the full aperture map is acquired by connecting all subaperture data together. Experimental results showing the feasibility of the proposed procedure are presented. © 2015 Optical Society of America.

247. A fast algorithm to estimate inverse consistent image transformation based on corresponding landmarks

Authors: Yang, Xuan (1); Zhang, Dian (1); Yao, Shuiyong (1); Wang, Bo (1)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, Guangdong, China
Corresponding author: Zhang, Dian

Abbreviated source title: Comput. Med. Imaging Graph.
Volume: 45
Issue date: October 2015
Publication year: 2015
Pages: 84-98
Article number: 1399
Language: English
ISSN: 08956111
E-ISSN: 18790771
CODEN: CMIGEY
Document type: Journal article (JA)
Publisher: Elsevier Ltd

Abstract: Inverse consistency is an important feature for non-rigid image transformation in medical imaging analysis. In this paper, a simple and efficient inverse consistent image transformation estimation algorithm is proposed to preserve correspondence of landmarks and accelerate convergence. The proposed algorithm estimates both the forward and backward transformations simultaneously in the way that they are inverse to each other based on the correspondence of landmarks. Instead of computing the inverse functions and the inverse consistent transformations, respectively, we combine them together, which can improve computation efficiency significantly. Moreover, radial basis functions (RBFs) based transformation is adopted in our algorithm, which can handle deformation with local or global support. Our algorithm maps one landmark to its corresponding position exactly using the forward and backward transformations. Moreover, our algorithm is employed to estimate the forward and backward transformations in robust point matching, as well to demonstrate the application of our algorithm in image registration. The experiment results of uniform grids and test images indicate the improvement of the proposed algorithm in the aspect of inverse consistency of transformations and the reduction of the computation time of the forward and the backward transformations. The performance of our algorithm applying to robust point matching is evaluated using both brain slices and lung slices. Our experiments show that by combing robust point matching with our algorithm, the registration accuracy can be improved and the smoothness of transformations can be preserved. © 2015 Elsevier Ltd.

Number of references: 37
Main heading: Image matching
Controlled terms: Algorithms - Image registration - Medical imaging - Radial basis function networks
Uncontrolled terms: Backward transformations - Computation efficiency - Consistent transformations - Forward transformations - Image transformations - Inverse consistency - Radial basis functions - Registration accuracy
Classification code: 723.2 Data Processing and Image Processing - 746 Imaging Techniques
DOI: 10.1016/j.compmedimag.2015.04.003
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

248. The dependant of electron injection ability on organic electron transporter for cesium carbonate based cathode structure

Accession number: 20151600765081
Authors: Luo, Xi (1); Chen, Wei (1); Zhao, Hong-Fei (1); Xu, Xi-Zhen (1); Liu, Si-Yang (1); Niu, Fang-Fang (1); Zeng, Peng-Ju (1); Lian, Jia-Rong (1)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Lian, Jia-Rong
Source title: Gongneng Cailiao/Journal of Functional Materials
Abbreviated source title: Gongneng Cailiao
Volume: 46
Issue: 3
Issue date: February 15, 2015
Publication year: 2015
Pages: 03086-03089
Language: Chinese
ISSN: 10019731
CODEN: GOCAEA
Document type: Journal article (JA)
Publisher: Journal of Functional Materials

Abstract: The electron injection ability of cesium carbonate based cathode structure has been studied by changing the organic electron transporters. It was shown that the organic light emitting devices using phenanthroline derivatives perform the largest current characteristics, and that with oxadiazole derivatives show the second large current, both of which exhibit much better electron injection capability than that of Alq3. Further studies indicate that the electron injection ability was irrelevant with energy distribution of each organic materials, thus a different chemical interaction between cesium carbonate and organic materials can be deduced happening at cathode interface, which would differ the electron injection barrier. For the metal chelate complex, the metal cation is expected involving this interfacial interaction because in that an abrupt change in electron injection has been found when changing organic materials from Alq3 to Liq. Here a strong influence on the electron injection ability for cesium carbonate cathode structure has been demonstrated by differing organic materials, which would give a hint for designing a novel organic electron transporter for this kind of cathode structure. ©, 2015, Journal of Functional Materials. All right reserved.
Number of references: 16
Main heading: Electrons
Controlled terms: Carbonation - Cathodes - Cesium - Chelation - Electrodes - Electron injection - Interfaces (materials) - Light emitting diodes - Optoelectronic devices - Organic light emitting diodes (OLED)
Uncontrolled terms: Cesium carbonates - Chemical interactions - Current characteristic - Electron-injection barrier - Interfacial interaction - Organic light-emitting devices - Oxadiazole derivatives - Phenanthroline derivatives
Classification code: 549.1 Alkali Metals - 701.1 Electricity: Basic Concepts and Phenomena - 704.1 Electric Components - 717.2 Optical Communication Equipment - 741.1 Light/Optics - 744.4.1 Semiconductor Lasers - 802.2 Chemical Reactions - 951 Materials Science
DOI: 10.3969/j.issn.1001-9731.2015.03.018
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

249. Observation of spectral self-imaging by nonlinear parabolic cross-phase modulation

Accession number: 20160601906663
Authors: Lei, Lei (1, 2); Huh, Jeonghyun (1); Cortés, Luis Romero (1); Maram, Reza (1); Wetzel, Benjamin (1, 3); Duchesne, David (1); Morandotti, Roberto (1); Azaña, José (1)
Author affiliation: (1) Institut National de la Recherche Scientifique (INRS), Energie, Matériaux et Télécommunications, Montréal; QC, Canada; (2) College of Electronic Science and Technology, Shenzhen University, Nanhai Road 3688, Shenzhen, Guangdong, China; (3) School of Mathematical and Physical Sciences, University of Sussex, Sussex House, Falmer, Brighton, United Kingdom
Corresponding author: Lei, Lei(lei.lei@emt.inrs.ca)
Source title: Optics Letters
Abbreviated source title: Opt. Lett.
Volume: 40
Issue: 22
Issue date: November 15, 2015
Publication year: 2015
Pages: 5403-5406
Language: English
ISSN: 01469592
E-ISSN: 15394794
CODEN: OPLEDP
Document type: Journal article (JA)
Publisher: OSA - The Optical Society
Abstract: We report an experimental demonstration of spectral selfimaging on a periodic frequency comb induced by a nonlinear all-optical process, i.e., parabolic cross-phase modulation in a highly nonlinear fiber. The comb free spectral range is reconfigured by simply tuning the temporal period of the pump parabolic pulse train. In particular, undistorted FSR divisions by factors of 2 and 3 are successfully performed on a 10 GHz frequency comb, realizing new frequency combs with an FSR of 5 and 3.3 GHz, respectively. The pump power requirement associated to the SSI phenomena is also shown to be significantly relaxed by the use of dark parabolic pulses. © 2015 Optical Society of America.
Number of references: 21
Main heading: Nonlinear optics
Controlled terms: Modulation - Optical pumping - Phase modulation
Uncontrolled terms: Cross phase modulation - Experimental demonstrations - Free spectral range - Frequency combs - GHz frequencies - Highly nonlinear fibers - Parabolic pulse - Self imaging
Classification code: 741.1.1 Nonlinear Optics

250. Learning a nonnegative sparse graph for linear regression

Authors: Fang, Xiaozhao (1); Xu, Yong (1, 2); Li, Xuelong (3); Lai, Zhihui (1, 4); Wong, Wai Keung (5, 6)
Author affiliation: (1) Bio-Computing Research Center, Shenzhen Graduate School, Harbin Institute of Technology, Shenzhen, China; (2) Key Laboratory of Network Oriented Intelligent Computation, Shenzhen, China; (3) State Key Laboratory of Transient Optics and Photonics, Xi'An Institute of Optics and Precision Mechanics, Chinese Academy of Sciences, Xi'an, China; (4) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (5) Institute of Textiles and Clothing, Hong Kong Polytechnic University, Hong Kong, Hong Kong; (6) Hong Kong Polytechnic University, Shenzhen Research Institute, Shenzhen, China
Corresponding author: Xu, Yong
Abstract: Previous graph-based semisupervised learning (G-SSL) methods have the following drawbacks: 1) they usually predefine the graph structure and then use it to perform label prediction, which cannot guarantee an overall optimum and 2) they only focus on the label prediction or the graph structure construction but are not competent in handling new samples. To this end, a novel nonnegative sparse graph (NNSG) learning method was first proposed. Then, both the label prediction and projection learning were integrated into linear regression. Finally, the linear regression and graph structure learning were unified within the same framework to overcome these two drawbacks. Therefore, a novel method, named learning a NNSG for linear regression was presented, in which the linear regression and graph learning were simultaneously performed to guarantee an overall optimum. In the learning process, the label information can be accurately propagated via the graph structure so that the linear regression can learn a discriminative projection to better fit sample labels and accurately classify new samples. An effective algorithm was designed to solve the corresponding optimization problem with fast convergence. Furthermore, NNSG provides a unified perceptiveness for a number of graph-based learning methods and linear regression methods. The experimental results showed that NNSG can obtain very high classification accuracy and greatly outperforms conventional G-SSL methods, especially some conventional graph construction methods. © 2015 IEEE.
Number of references: 53
Main heading: Graph theory
Controlled terms: Classification (of information) - Forecasting - Graphic methods - Learning systems - Linear regression - Optimization - Regression analysis - Supervised learning
Uncontrolled terms: Classification accuracy - Graph learning - Graph-construction method - Label propagation - Linear regression methods - Optimization problems - Semi- supervised learning - Semi-supervised classification
Classification code: 716.1 Information Theory and Signal Processing - 731.5 Robotics - 902.1 Engineering Graphics - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 921.5 Optimization Techniques - 922.2 Mathematical Statistics

251. A strategy of clustering modification directions in spatial image steganography

Authors: Li, Bin (1, 2); Wang, Ming (1, 2); Li, Xiaolong (3); Tan, Shunquan (4); Huang, Jiwu (1, 2)
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Source title: IEEE Transactions on Information Forensics and Security
Abbreviated source title: IEEE Trans. Inf. Forensics Secur.
Volume: 10
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Issue date: September 1, 2015
Publication year: 2015
Pages: 1905-1917
Article number: 7109899
Language: English
ISSN: 15566013
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Most of the recently proposed steganographic schemes are based on minimizing an additive distortion function defined as the sum of embedding costs for individual pixels. In such an approach, mutual embedding impacts are often ignored. In this paper, we present an approach that can exploit the interactions among embedding changes in order to reduce the risk of detection by steganalysis. It employs a novel strategy, called clustering modification directions (CMDs), based on the assumption that when embedding modifications in heavily textured regions are locally heading toward the same direction, the steganographic security might be improved. To implement the strategy, a cover image is decomposed into several subimages, in which message segments are embedded with well-known schemes using additive distortion functions. The costs of pixels are updated dynamically to take mutual embedding impacts into account. Specifically, when neighboring pixels are changed toward a positive/negative direction, the cost of the considered pixel is biased toward the same direction. Experimental results show that our proposed CMD strategy, incorporated into existing steganographic schemes, can effectively overcome the challenges posed by the modern steganalyzers with high-dimensional features. © 2005-2012 IEEE.
Number of references: 37
Main heading: Pixels
Controlled terms: Costs - Steganography
Uncontrolled terms: Additive distortion - Distortion functions - High dimensional feature - modification direction - Positive/negative - Steganalysis - Steganographic schemes - Steganographic security
Classification code: 723.2 Data Processing and Image Processing - 723.5 Computer Applications - 911 Cost and Value Engineering; Industrial Economics
DOI: 10.1109/TIFS.2015.2434600
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

252. Overshoot Stress on Ultra-Thin HfO2High-$_\kappa$ Layer and Its Impact on Lifetime Extraction

Accession number: 20161002074970
Authors: Wan, Guangxing (1, 2); Duan, Tianli (1); Zhang, Shuxiang (1, 2); Jiang, Lingli (1); Tang, Bo (2); Yan, J. (2); Zhao, Chao (2); Zhu, Huilong (2); Yu, Hongyu (1, 3)
Author affiliation: (1) South University of Science and Technology of China, Shenzhen, China; (2) Key Laboratory of Microelectronics Devices and Integrated Technology, Institute of Microelectronics, Chinese Academy of Sciences, Beijing, China; (3) Shenzhen University, Shenzhen, China
Corresponding author: Yu, Hongyu(yu.hy@sustc.edu.cn)
Source title: IEEE Electron Device Letters
Abbreviated source title: IEEE Electron Device Lett
Volume: 36
Issue: 12
Issue date: December 2015
Publication year: 2015
Pages: 1267-1270
Article number: 7298368
Language: English
ISSN: 07413106
CODEN: EDLEDZ
Document type: Journal article (JA)

Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: Overshoot stress (stimulating the actual IC operating condition) on an ultra-thin HfO2(EOT ˷ 0.8 nm) high-$_\kappa$ layer is investigated, which reveals that overshoot is of great importance to high-$_\kappa$ layer leakage degradation. The dynamic stress-induced leakage current is correlated with traps generation and recovery, which is dependent on stress input and release. A degradation model based on the oxygen vacancies is proposed to interpret the experimental observation. © 2015 IEEE.

Number of references: 16
Main heading: Hafnium oxides
Controlled terms: Oxygen vacancies
Uncontrolled terms: Degradation model - Dynamic stress - Operating condition - overshoot - SILC - Ultra-thin
Classification code: 804 Chemical Products Generally - 933.1 Crystalline Solids
DOI: 10.1109/LED.2015.2490719
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

253. A tunable and switchable wavelength spacing of multi-wavelength erbium doped fiber laser by exploiting nonlinear polarization rotation

Accession number: 20153301175885
Authors: Zhang, Min (1); Hu, Qifan (2); Zheng, Wanjun (3)
Author affiliation: (1) Shenzhen Key Laboratory of Laser Engineering, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (2) College of Electronic Science and Technology, Shenzhen University, Shenzhen, China; (3) Guangdong Institute of Science and Technology, Jinwan District Zhuhai Avenue, Zhuhai, China
Source title: Proceedings of SPIE - The International Society for Optical Engineering
Abbreviated source title: Proc SPIE Int Soc Opt Eng
Volume: 9655
Part number: 1 of 1
Monograph title: Fifth Asia-Pacific Optical Sensors Conference, APOS 2015
Issue date: 2015
Publication year: 2015
Article number: 965549
Language: English
ISSN: 0277786X
E-ISSN: 1996756X
CODEN: PSISDG
ISBN-13: 9781628418651
Document type: Conference article (CA)
Conference name: 5th Asia-Pacific Optical Sensors Conference, APOS 2015
Conference date: May 20, 2015 - May 22, 2015
Conference location: Jeju, Korea, Republic of
Conference code: 113227
Sponsor: et al.; FIBERPRO, Inc.; JT, Inc.; NineOne Co., Ltd.; SeongKyeong Photonics; Taihan Fiberoptics Co., Ltd.
Publisher: SPIE
Abstract: A novel multi-wavelength fiber laser was achieved simultaneously tunable and switchable outputs of wavelength spacing with an Erbium-doped fiber amplifiers (EDFA) based on nonlinear polarization rotation (NPR) effect. We described and proved the tunable of wavelength spacing in detail by using different length of polarization maintaining fiber (PMF). The switchable outputs was simply realized an interchange among multi-wavelength operations by adjusting the polarization controller (PC) in the ring cavity. The tunable and switchable multi-wavelength fiber ring laser could stably operate in room temperature, and the peak power variations in each wavelength were measured to be less than 1dB. © 2015 Copyright SPIE.
Number of references: 8
Main heading: Erbium doped fiber amplifiers
Controlled terms: Erbium - Fiber amplifiers - Fiber lasers - Fibers - Optical sensors - Polarization - Polarization-maintaining fiber - Ring lasers
Uncontrolled terms: Er-doped - Multi wavelength fiber laser - Multi-wavelength lasers - Multi-wavelength operation - Multiwavelength erbium-doped fiber lasers - Nonlinear polarization rotation - Polarization controllers - Switchable multi wavelengths

Classification code: 547.2 Rare Earth Metals - 741.1 Light/Optics - 741.1.2 Fiber Optics - 744 Lasers - 801 Chemistry - 812 Ceramics, Refractories and Glass - 817 Plastics and Other Polymers: Products and Applications

DOI: 10.1117/12.2203106

Database: Compendex

Data Provider: Engineering Village

254. Energy efficiency optimization for MIMO distributed antenna systems

Accession number: 20162302457258

Authors: Ren, Hong (1); Liu, Nan (1); Pan, Cunhua (1); He, Chunlong (2)

Author affiliation: (1) National Mobile Communications Research Laboratory, Southeast University, Nanjing; 210096, China; (2) College of Information Engineering, Shenzhen University, Shenzhen; 518060, China

Source title: 2015 IEEE Globecom Workshops, GC Wkshps 2015 - Proceedings

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Language: English

ISBN-13: 9781467395267

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Conference date: December 6, 2015 - December 10, 2015

Conference location: San Diego, CA, United states

Conference code: 119593

Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: In this paper, we propose a transmit covariance optimization method to maximize the energy efficiency (EE) for the single-user distributed antenna system, where both the distributed antenna (DA) ports and the user are equipped with multiple antennas. Unlike previous related works, both the rate requirement and DA port selection are taken into consideration. Given this setup, we first propose an optimal transmit covariance optimization method to solve the EE optimization problem under fixed set of active DA ports and then the active DA port selection algorithm. For the transmit covariance optimization method, we split this problem into three subproblems, i.e., rate maximization problem, EE maximization problem without rate constraints, and power minimization problem. Then, a novel distance-based DA port selection method is proposed to determine the optimal set of active DA ports. Simulation results show that the performance of the proposed DA port selection is almost identical to the optimal exhaustive search method with significantly reduced computational complexity, and significantly outperforms the existing EE optimization methods. © 2015 IEEE.

Number of references: 27

Main heading: Energy efficiency

Controlled terms: Antennas - Optimization

Uncontrolled terms: Distributed antenna system - Distributed antennas - Energy efficiency optimizations - Maximization problem - Optimization method - Optimization problems - Power minimization - Rate constraints

Classification code: 525.2 Energy Conservation - 921.5 Optimization Techniques

DOI: 10.1109/GLOCOMW.2015.7413985

Compendex references: YES

Database: Compendex

Data Provider: Engineering Village

255. Joint regularized nearest points for image set based face recognition

Accession number: 20154401452382

Authors: Yang, Meng (1); Liu, Weiyang (2); Shen, Linlin (1)

Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (2) School of Electronic and Computer Engineering, Peking University, China

Source title: 2015 11th IEEE International Conference and Workshops on Automatic Face and Gesture Recognition, FG 2015

Abbreviated source title: IEEE Int. Conf. Workshops Autom. Face Gesture Recognit., FG

Monograph title: 2015 11th IEEE International Conference and Workshops on Automatic Face and Gesture Recognition, FG 2015

Abstract: Face recognition based on image set has attracted much attention due to its promising performance to overcome various variations. Recently, (collaborative) regularized nearest points (C)RNP has achieved the state-of-art performance by measuring the between-set distance as the distance between nearest points generated in each image set. However, the nearest point of the query set in RNP changes in computing its distance to nearest points of different gallery image sets, which may result in that a wrong gallery image set can also has a small between-set distance; CRNP used collaborative representation to overcome this issue but it doesn't explicitly minimize the between-set distance. In order to solve these issues and fully exploit the advantages of nearest point based approaches, in this paper a novel joint regularized nearest points (JRNP) is proposed for face recognition based on image sets. In JRNP, the nearest point in the query set keeps the same when computing its distance to the image sets of different classes; at the same time, it explicitly minimize the between-set distance of facial images. An efficient algorithm was proposed to solve this problem, and the classification is then based on the joint distance between the regularized nearest points in image sets. Extensive experiments on benchmark databases were conducted on benchmark databases (e.g., Honda/UCSD, CMU Mobo, and YouTube databases). The experimental results clearly show that our JRNP leads the performance in face recognition based on image sets. © 2015 IEEE.

256. Design of a terahertz even splitter and its tolerance analysis

Authors: Huang, Hai-Xuan (1, 2); Xu, Ping (1, 2); Ruan, Shuang-Chen (1, 2); Yang, Tuo (1, 2); Yuan, Xia (1, 2); Huang, Yan-Yan (1, 2)
Author affiliation: (1) College of Electronic Science and Technology Shenzhen University, Shenzhen, China; (2) Institute of Micro-Nano Optoelectronic Technology, Shenzhen University, Shenzhen, China
Corresponding author: Xu, Ping

Abstract: A novel method is presented in this paper to realize terahertz even beam splitting by using a subwavelength binary simple periodic rectangular structure, for making comprehensive application of both the RCWA (Rigorous

Couple-Wave Analysis) and the GA (Genetic Algorithm). By applying RCWA, the efficiency of each diffraction order can be numerically solved by using the structure parameters. To design an even beam splitter with a subwavelength structure is to find the optimal duty cycle f, period d, the grating depth h1 and the substrate thickness h2 to approach the minimum zero-order diffraction efficiency, the maximum sum of each non-zero-order diffraction efficiency, and the uniform distribution. Considering the three goals above, an evaluation function is established. GA is applied to optimize the evaluation function F, and then the optimal parameters of the splitter are obtained. When its period, groove depth, substrate thickness and duty ratio respectively equal to 269.7 μm, 175.2 μm, 18.1 μm and 0.409, the normal-incident TE-polarized terahertz plane wave with its frequency equal to 2.52 THz is divided evenly into the diffraction orders ±1 and ±2. It has a total efficiency up to 92.23% with a preferable result of reducing zero-order diffraction efficiency to 0.192% and an error of uniformity down to 6.51×10^{-6}, indicating an excellent performance of diffraction efficiency, uniformity and zero-order suppression as a terahertz even splitter. These results break the limitation of realizing even beam splitting in which the traditional scalar theory applies. In addition, this paper exposes the law of influence of the structure parameters, including ridge width, groove width, groove depth, duty ratio and substrate thickness, on the diffraction efficiency and its uniformity. It is found that only a small deviation of the structure parameters, corresponding to a deviation of ridge width a, groove width b, groove depth h1, and substrate thickness h2, less than 1 μm from the optimum design values, the element maintains good beam splitting performance. P0 is permitted to suppress to less than 2%, the error of uniformity U is better than 19.60%, and the diffraction efficiency maintains higher than 79.10%. With a substantial deviation from the design values of the structure parameters, the performance of the splitter will severely degrade and need to be redesigned. ©, 2015, Chinese Physical Society. All right reserved.

Number of references: 26
Page count: 7
Main heading: Periodic structures
Controlled terms: Design - Diffraction - Diffraction efficiency - Efficiency - Fits and tolerances - Function evaluation - Genetic algorithms - Substrates - Terahertz waves
Uncontrolled terms: Evaluation function - GA (genetic algorithm) - Rectangular structure - Sub-wavelength - Sub-wavelength structures - Tera Hertz - Uniform distribution - Zero-order diffraction
Classification code: 408 Structural Design - 461 Bioengineering and Biology - 601 Mechanical Design - 711 Electromagnetic Waves - 711.1 Electromagnetic Waves in Different Media - 723 Computer Software, Data Handling and Applications - 801 Chemistry - 913.1 Production Engineering - 921 Mathematics - 921.6 Numerical Methods - 933 Solid State Physics
DOI: 10.7498/aps.64.154212
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

257. Noncoherent Relaying in Energy Harvesting Communication Systems

Authors: Liu, Peng (1, 2); Gazor, Saeed (3); Kim, Il-Min (3); Kim, Dong In (4)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, China; (2) Department of Electrical Engineering, Stanford University, Stanford; CA, United States; (3) Department of Electrical and Computer Engineering, Queen's University, Kingston; ON, Canada; (4) School of Information and Communication Engineering, Sungkyunkwan University (SKKU), Suwon, Korea, Republic of

Abstract: In energy harvesting (EH) relay networks, the coherent communication requires accurate estimation/ tracking of the instantaneous channel state information (CSI) which consumes extra power. As a remedy, we propose two noncoherent EH relaying protocols based on the amplify-and-forward (AF) relaying, namely, power splitting noncoherent AF (PS-NcAF) and time switching noncoherent AF (TS-NcAF), which do not require any instantaneous CSI. We develop a noncoherent framework of simultaneous wireless information and power transfer (SWIPT),

embracing PS-NcAF and TS-NcAF in a unified form. For arbitrary M-ary noncoherent frequency-shift keying (FSK) and differential phase-shift keying (DPSK), we derive maximum-likelihood detectors (MLDs) for PS-NcAF and TS-NcAF in a unified form, which involves integral evaluations yet serves as the optimum performance benchmark. To avoid expensive integral computations, we propose a closed-form detector using the Gauss-Legendre approximation, which achieves almost identical performance as the MLD but at substantially lower complexity. These EH-based noncoherent detectors achieve full diversity in Rayleigh fading. Numerical results demonstrate that our proposed PS-NcAF and TS-NcAF may outperform the conventional grid-powered relay system under the same total power constraint. Various insights which are useful for the design of practical SWIPT relaying systems are obtained. Interestingly, PS-NcAF outperforms TS-NcAF in the single-relay case, whereas TS-NcAF outperforms PS-NcAF in the multi-relay case. © 2015 IEEE.

Number of references: 41
Main heading: Energy harvesting
Controlled terms: Benchmarking - Broadband networks - Channel state information - Communication channels (information theory) - Complex networks - Frequency shift keying - Maximum likelihood - Maximum likelihood estimation - Optical communication - Phase shift - Phase shift keying - Phase shifters - Rayleigh fading
Uncontrolled terms: Amplify-and-forward relaying - Coherent communication - Differential phase-shift keying - Information and power transfers - Instantaneous channel state informations - Maximum likelihood detectors - noncoherent - Noncoherent frequency shift keying
Classification code: 525.5 Energy Conversion Issues - 713.5 Electronic Circuits Other Than Amplifiers, Oscillators, Modulators, Limiters, Discriminators or Mixers - 716.1 Information Theory and Signal Processing - 716.3 Radio Systems and Equipment - 717.1 Optical Communication Systems - 722 Computer Systems and Equipment - 922 Statistical Methods - 922.1 Probability Theory
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Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

258. Experimental study on multicolor two-photon excited fluorescence microscopy

Accession number: 20151000596711
Authors: Qiu, Jun-Peng (1); Liang, Run-Fu (1); Peng, Xiao (1); Li, Ya-Hui (2); Liu, Li-Xin (2); Yin, Jun (1); Qu, Jun-Le (1); Niu, Han-Ben (1)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (2) School of Physics and Optoelectronic Engineering, Xidian University, Xi'an, China
Corresponding author: Yin, Jun
Abstract: Two-photon excited fluorescence (TPEF) microscopy is a nonlinear optical microscopy technique. The advantages of TPEF microscopy include high temporal and spatial resolutions, high signal-to-noise ratio and inherent three-dimensional sectioning. In traditional TPEF microscopy, a wavelength tunable ultrashort pulsed laser is used as an excitation source. In practical applications, sample usually contains various fluorophores or unknown components. Therefore the excitation wavelength of the ultrafast laser has to be tuned to achieve optimal excitation efficiencies of various fluorophores. In order to acquire the fluorescent signals of different fluorophores simultaneously, we develop a multicolor TPEF microscope system based on a supercontinuum laser source. In experiments, TPEF images of Lily rhizome sample slide stained by two fluorescent dyes with different excitation and emission wavelengths are obtained without tuning the wavelength. Experimental results show that the high-contrast TPEF images of the sample with various fluorophores can be obtained simultaneously by using the multicolor TPEF microscope compared with by using traditional TPEF microscopy. The system is simple in structure, easy in operation, and can provide rich information

about the sample, which allows it to be widely used in life and material sciences. ©, 2015, Institute of Physics, Chinese Academy of Sciences. All right reserved.

Number of references: 13
Main heading: Fluorescence microscopy
Controlled terms: Fluorescence - Fluorophores - Laser excitation - Microscopic examination - Nonlinear optics - Photonic crystal fibers - Photons - Pulsed lasers - Signal to noise ratio - Ultrafast lasers - Ultrashort pulses
Uncontrolled terms: Excitation wavelength - High signal-to-noise ratio - Nonlinear optical microscopy - Super continuum - Supercontinuum laser - Two-photon excited fluorescence - Two-photon excited fluorescence microscopies - Ultrashort-pulsed laser
Classification code: 461.9.1 Immunology - 716.1 Information Theory and Signal Processing - 741.1 Light/Optics - 741.1.1 Nonlinear Optics - 744.1 Lasers, General - 744.9 Laser Applications - 746 Imaging Techniques - 951 Materials Science
DOI: 10.7498/aps.64.048701
Database: Compendex
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Data Provider: Engineering Village

259. Thin-Core-Fiber-Based Long-Period Fiber Grating for High-Sensitivity Refractive Index Measurement

Authors: Fu, Cailing (1); Zhong, Xiaoyong (1); Liao, Changrui (1); Wang, Yiping (1); Wang, Ying (1); Tang, Jian (1); Liu, Shen (1); Wang, Qiao (1)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Liao, Changrui(cliao@szu.edu.cn)
Abstract: We experimentally demonstrated the fabrication of asymmetric long-period fiber gratings (LPFGs) in thin core fiber by use of focused CO_2laser beam. The proposed device exhibits a high extinction ratio of over 25 dB at the resonant wavelength and a narrowed 3-dB bandwidth of only 8.7 nm, which is nearly one order of magnitude smaller than that of LPFGs in conventional single-mode fibers. It also exhibits a high polarization-dependent loss of over 20 dB at resonant wavelength. The temperature and external refractive index (RI) sensitivity of the proposed structure are measured to be 46 pm/°C, within a temperature range from 25 °C to 100 °C, and 1047.3 nm/RIU, within the RI range from 1.400 to 1.440, respectively. The temperature induced error is $\sim8\%$ for RI measurement. Such long LPFGs may find potential applications of highly sensitive RI sensors in the fields of chemical and biomedical sensing. © 2009-2012 IEEE.

Number of references: 21
Main heading: Diffraction gratings
Controlled terms: Carbon dioxide - Fiber optics - Fibers - Laser beams - Refractive index - Single mode fibers
Uncontrolled terms: Conventional single-mode fibers - External refractive indices - Fiber optics components - Fiber optics sensors - Long period fiber grating - Polarization dependent loss - Refractive index measurement - Thin-core fibers
Classification code: 741 Light, Optics and Optical Devices - 744.8 Laser Beam Interactions - 804.2 Inorganic Compounds
DOI: 10.1109/JPHOT.2015.2493721
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

260. AN 1/2regularized low-rank representation for hyperspectral imagery classification

Accession number: 20160601896198
Authors: Jia, Sen (1); Zhang, Xiujun (2); Deng, Lin (2); Shu, Zhenqiu (3)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, China; (2) College of Information Engineering, Shenzhen University, China; (3) School of Computer Science and Engineering, Nanjing University of Science and Technology, China
Source title: Proceedings - International Conference on Image Processing, ICIP
Abbreviated source title: Proc. Int. Conf. Image Process. ICIP
Volume: 2015-December
Monograph title: 2015 IEEE International Conference on Image Processing, ICIP 2015 - Proceedings
Issue date: December 9, 2015
Publication year: 2015
Pages: 1777-1780
Article number: 7351106
Language: English
ISSN: 15224880
ISBN-13: 9781479983391
Document type: Conference article (CA)
Conference name: IEEE International Conference on Image Processing, ICIP 2015
Conference date: September 27, 2015 - September 30, 2015
Conference location: Quebec City, QC, Canada
Conference code: 117806
Sponsor: The Institute of Electrical and Electronics Engineers on Signal Processing Society
Publisher: IEEE Computer Society
Abstract: Hundreds of narrow contiguous spectral bands collected by a hyperspectral sensor has provided the opportunity to identify the various materials present on the surface. Spatial information, that means the adjacent pixels belong to the same class with a high probability, is a valuable complement to the spectral information. In this paper, by decomposing each pixel and the spatial neighborhood into a low-rank form, the spatial information can be efficiently integrated into the spectral signatures. Meanwhile, in order to describe the low-rank structure of the decomposed data more precisely, an 1/2norm regularization is introduced and a discrete algorithm is proposed to solve the combined optimization problem. Experimental results on real hyperspectral data have demonstrated the effectiveness and versatility of the proposed spatial information-fused approach for hyperspectral imagery classification. © 2015 IEEE.
Number of references: 19
DOI: 10.1109/ICIP.2015.7351106
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

261. Systematic design method of planar switched reluctance motors

Accession number: 20154001322758
Authors: Cao, G. (1); Zheng, H. (1); Huang, S. (1, 2); Qiu, H. (1); Wu, C. (1); Duan, J. (3)
Author affiliation: (1) Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China; (2) College of Electrical Engineering, Southwest Jiaotong University, Chengdu, China; (3) State Key Laboratory of High Performance Complex Manufactory, Central South University, Changsha, China
Source title: 2015 IEEE International Magnetics Conference, INTERMAG 2015
Abbreviated source title: IEEE Int. Magn. Conf., INTERMAG
Monograph title: 2015 IEEE International Magnetics Conference, INTERMAG 2015
Issue date: July 14, 2015
Publication year: 2015
Article number: 7157474
Language: English
ISBN-13: 9781479973224
Document type: Conference article (CA)
Conference name: 2015 IEEE International Magnetics Conference, INTERMAG 2015
Conference date: May 11, 2015 - May 15, 2015
Conference location: Beijing, China
Conference code: 113931
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: In advanced manufacture industry, the planar motors have been developed as an attractive candidate to two-dimensional (2-D) positioning devices, since they have advantages of direct drive, low friction, and no backlash compared to the conventional 2-D positioning devices. Several types of the planar motors have been proposed, which are the induction planar motors, the synchronous permanent-magnet planar motors, the variable reluctance planar motors, and the DC planar motors [1]-[5]. Among them, planar switched reluctance motors (PSRMs) show merits of high precision, low cost, low heat loss, and simple structure, therefore PSRMs are promising planar motors in 2-D positioning devices. PSRMs have been firstly proposed by J. F. Pan and N. C. Cheung, et al. [4], [5], several position controllers have been designed for PSRMs [6]-[8], the core loss of a PSRM has been analyzed [9], and an optimized design of a PSRM has been performed to minimize electromagnetic force ripple [10]. However, a systematic design method for PSRMs has not been proposed so far. For PSRMs, the systematic method provides theoretical foundation for selection of machine dimensions and considerable reference to the design and optimization. © 2015 IEEE.
Number of references: 11
DOI: 10.1109/INTMAG.2015.7157474
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

262. Elliptic cylindrical silicon nanowire hybrid surface plasmon polariton waveguide

Accession number: 20153601236839
Authors: Zhang, Li (1); Xiong, Qiulin (1); Li, Xiaopeng (1); Ma, Junxian (1)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Ma, Junxian
Abstract: We researched an elliptic cylindrical silicon nanowire hybrid surface plasmon polariton waveguide and evaluated its mode characteristics using the finite element method software COMSOL. The waveguide consists of three parts: an elliptic cylindrical silicon nanowire, a silver film layer, and a silica covering layer between them. All of the components are surrounded by air. After optimizing the geometrical parameters of the waveguide, we can achieve the waveguide's strong field confinement (ranging from γ_2?270 to γ_2?27) and long propagation distances (119-485 µm). In order to further understand the impact of the waveguide's architecture on its performance, we also studied the ridge hybrid waveguide. The results show that the ridge waveguide has moderate local field confinement ranging from γ_2?190 to γ_2?20 and its maximum propagation distance is about 340 µm. We compared the elliptic cylindrical and ridge nanowire hybrid waveguides with the cylindrical hybrid waveguide that we studied before. The elliptic cylindrical waveguide achieves a better trade-off between reasonable mode confinement and maximum propagation length in the three waveguides. The researched hybrid surface plasmon polaritons waveguides are useful to construct devices such as a directional coupler and may find potential applications in photonic integrated circuits or other novel SPP devices. © 2015 Optical Society of America.
Number of references: 26
Main heading: Ridge waveguides
Controlled terms: Coupled circuits - Economic and social effects - Electromagnetic wave polarization - Finite element method - Geometry - Guided electromagnetic wave propagation - Integrated circuits - Nanowires - Optical waveguides - Particle optics - Phonons - Photonic devices - Photonic integration technology - Photons - Plasmons - Quantum theory - Silicon - Silver - Surface plasmon resonance - Waveguides
Uncontrolled terms: Finite element method softwares - Hybrid waveguides - Mode characteristics - Photonic integrated circuits - Propagation distances - Propagation lengths - Silicon nanowires - Surface plasmons
Classification code: 547.1 Precious Metals - 711 Electromagnetic Waves - 712.1.1 Single Element Semiconducting Materials - 713.5 Electronic Circuits Other Than Amplifiers, Oscillators, Modulators, Limiters, Discriminators or Mixers - 714.2 Semiconductor Devices and Integrated Circuits - 714.3 Waveguides - 717 Optical Communication - 744 Lasers - 761 Nanotechnology - 921 Mathematics - 921.6 Numerical Methods - 931.3 Atomic and Molecular Physics - 931.4 Quantum Theory; Quantum Mechanics - 933 Solid State Physics - 971 Social Sciences

Data Provider: Engineering Village

263. Ultra-high sensitivity zinc oxide nanocombs for on-chip room temperature carbon monoxide sensing

Authors: Pan, Xiaofang (1, 3); Zhao, Xiaojin (2)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen; 518060, China; (2) College of Electronic Science and Technology, Shenzhen University, Shenzhen; 518060, China; (3) Department of ECE, The Hong Kong University of Science and Technology, Clear Water Bay, Hong Kong
Corresponding author: Zhao, Xiaojin
Abstract: In this paper, we report an on-chip gas sensor based on novel zinc oxide (ZnO) nanocombs for carbon monoxide (CO) sensing. With ZnO gas sensing nanocombs fully integrated on a single silicon chip, the concept of low cost complementary-metal-oxidesemiconductor (CMOS) microsensor capable of on-chip gas sensing and processing is enabled. Compared with all previous implementations, the proposed ZnO nanocombs feature much larger effective sensing area and exhibit ultra-high sensitivity even at the room temperature. Specifically, at room temperature, we demonstrate peak sensitivities as high as 7.22 and 8.93 for CO concentrations of 250 ppm and 500 ppm, respectively. As a result, by operating the proposed ZnO-nanocomb-based gas sensor at the room temperature, the widely adopted power consuming heating components are completely removed. This leads to not only great power saving, but also full compatibility between the gas sensor and the on-chip circuitry in term of acceptable operating temperature. In addition, the reported fast response/recovery time of ~200 s/~50 s (250 ppm CO) makes it well suited to real-life applications. © 2015 by the authors; licensee MDPI, Basel, Switzerland
Number of references: 29
Main heading: Zinc oxide
Controlled terms: Carbon - Carbon monoxide - Chemical detection - Gas detectors - Gas sensing electrodes - Gases - Zinc
Uncontrolled terms: CMOS Compatible - CO concentrations - CO gas sensor - Operating temperature - Oxide semiconductor - Real-life applications - Room temperature - Ultra-high-sensitivity
Classification code: 546.3 Zinc and Alloys - 801 Chemistry - 801.4.1 Electrochemistry - 804 Chemical Products Generally - 804.2 Inorganic Compounds - 931.2 Physical Properties of Gases, Liquids and Solids
DOI: 10.3390/s150408919
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

264. Robust Ellipse Fitting via Half-Quadratic and Semidefinite Relaxation Optimization

Authors: Liang, Junli (1); Wang, Yunlong (2); Zeng, Xianju (3)
Author affiliation: (1) School of Electronics and Information, Northwestern Polytechnical University, Xi'an, China; (2) School of Automation and Information, Xi'an University of Technology, Xi'an, China; (3) College of Management, Shenzhen University, Shenzhen, China
Corresponding author: Liang, Junli

Abstract: Ellipse fitting is widely applied in the fields of computer vision and automatic manufacture. However, the introduced edge point errors (especially outliers) from image edge detection will cause severe performance degradation of the subsequent ellipse fitting procedure. To alleviate the influence of outliers, we develop a robust ellipse fitting method in this paper. The main contributions of this paper are as follows. First, to be robust against the outliers, we introduce the maximum correntropy criterion into the constrained least-square (CLS) ellipse fitting method, and apply the half-quadratic optimization algorithm to solve the nonlinear and nonconvex problem in an alternate manner. Second, to ensure that the obtained solution is related to an ellipse, we introduce a special quadratic equality constraint into the aforementioned CLS model, which results in the nonconvex quadratically constrained quadratic programming problem. Finally, we derive the semidefinite relaxation version of the aforementioned problem in terms of the trace operator and thus determine the ellipse parameters using semidefinite programming. Some simulated and experimental examples are presented to illustrate the effectiveness of the proposed ellipse fitting approach. © 2015 IEEE.

265. Band selection of hyperspectral imagery using a weighted fast density peak-based clustering approach

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Conference name: 5th International Conference on Intelligence Science and Big Data Engineering, IScIDE 2015
Conference date: June 14, 2015 - June 16, 2015
Conference location: Suzhou, China
Conference code: 152189
Publisher: Springer Verlag
Abstract: Based on the search strategy of representative bands in Hyperspectral Imagery, various existing unsupervised band selection approaches are mainly classified into two parts: ranking-based and clustering-based ones. Recently, a fast density peak-based clustering (abbreviated as FDPC) algorithm has been proposed. The product of two factors (the computation of local density and intra-cluster distance) is sorted in decreasing order and cluster centers are recognized as points with anomalously large values, hence the FDPC algorithm can be considered as a ranking-based clustering method. In this paper, the FDPC algorithm has been modified to make it suitable for hyperspectral band selection by weighting the normalized local density and intra-cluster distance. It is called a weighted fast density peak-based clustering (W-FDPC) method. Experimental results demonstrate that the bands selected by W-FDPC approach can achieve higher overall classification accuracies than FDPC and other state-of-the-art band selection techniques. © Springer International Publishing Switzerland 2015.
Number of references: 18
Main heading: Clustering algorithms
Controlled terms: Algorithms - Big data - Cluster analysis - Remote sensing - Spectroscopy
Uncontrolled terms: Band selection - Based clustering - Classification accuracy - Cluster centers - Density-based Clustering - Hyper-spectral imageries - Search strategies - State of the art
Classification code: 723 Computer Software, Data Handling and Applications - 723.2 Data Processing and Image Processing - 903.1 Information Sources and Analysis
DOI: 10.1007/978-3-319-23989-7_6
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

266. Sponge-like carbon containing nitrogen and iron provides a non-precious oxygen reduction catalyst

Accession number: 20151300696614
Authors: Wang, Hui (1); Wang, Wei (1); Key, Julian (2); Ji, Shan (2); Ma, Yuanyuan (1); Khotseng, Lindiwe (2); Lv, Weizhong (3); Wang, Rongfang (1)
Author affiliation: (1) College of Chemistry and Chemical Engineering, Northwest Normal University, Lanzhou, China; (2) South African Institute for Advanced Materials Chemistry, University of the Western Cape, Private Bag X17, Bellville; Cape Town, South Africa; (3) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Wang, Rongfang
Source title: Journal of Solid State Electrochemistry
Abbreviated source title: J. Solid State Electrochem.
Volume: 19
Issue: 4
Issue date: April 1, 2015
Publication year: 2015
Pages: 1181-1186
Language: English
ISSN: 14328488
Document type: Journal article (JA)
Publisher: Springer New York LLC
Abstract: Sponge-like nitrogen-containing carbon (SNC) was synthesized via a template-free approach through pyrolyzing a mixture of bipyridine and iron (III) chloride. Transmission electron microscopy revealed that the prepared SNC comprised an interconnected highly porous three-dimensional framework. Using rotating disk electrode measurements to measure oxygen reduction activity and methanol tolerance, SNC was found to have a 22.2 mV more negative half-wave potential than that of commercial Pt/C and strong methanol tolerance. We conclude that SNC affords a promising "non-precious" oxygen reduction catalyst in alkaline medium. © 2015, Springer-Verlag Berlin Heidelberg.
Number of references: 34
Main heading: Sponge iron

Controlled terms: Carbon - Catalysts - Chlorine compounds - Electrocatalysts - Electrolytic reduction - Methanol - Nitrogen - Oxygen - Rotating disks - Transmission electron microscopy
Uncontrolled terms: Half-wave potential - Methanol tolerance - Nitrogen-containing carbons - Oxygen reduction catalysts - Oxygen reduction reaction - Rotating disk electrodes - Sponge-like - Three-dimensional frameworks
Classification code: 545.1 Iron - 601.2 Machine Components - 741.3 Optical Devices and Systems - 802.2 Chemical Reactions - 803 Chemical Agents and Basic Industrial Chemicals - 804 Chemical Products Generally - 804.1 Organic Compounds
DOI: 10.1007/s10008-014-2719-1
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

267. Preparation of amphiphobic coating by combining fluoroalkyl silane with nano-SiO2

Accession number: 20150700522359
Authors: Luo, Zhong-Kuan (1); Chen, Pu-Qi (1); Wang, Fang (1); Pang, Yan (1); Xu, Yang-Hai (1); Hong, Ying-Rui (1); Zhao, Xue (1)
Author affiliation: (1) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Luo, Zhong-Kuan
Source title: Physica Status Solidi (A) Applications and Materials Science
Abbreviated source title: Phys. Status Solidi A Appl. Mater. Sci.
Volume: 212
Issue: 2
Issue date: February 2015
Publication year: 2015
Pages: 259-264
Language: English
ISSN: 18626300
E-ISSN: 18626319
CODEN: PSSABA
Document type: Journal article (JA)
Publisher: Wiley-VCH Verlag
Abstract: Amphiphobic surfaces are being promisingly applied in numerous fundamental and industrial applications. A transparent amphiphobic coating was fabricated by combining fluoroalkyl silane copolymer (PFAS) with SiO2 nanoparticles. Dodecafluoroheptylmethacrylate (DFMA) and g-methacryloxypropyltrimethoxysilane (g-MPS) were monomers, and PFAS was prepared via free-radical polymerization. Tetraethoxysilane (TEOS) and SiO2 nanoparticles were added in PFAS solution to obtain a homogeneous hybrid sol. The hybrid sol was coated on glass surfaces. After drying, a transparent and amphiphobic hybrid coating was obtained. The visiblelight transmittance of the hybrid coating on the glass surface ranged from 85% to 90%. The contact angle (CA) of the hybrid coating for water, ethylene glycol and hexadecane were 1538, 1508, 1158. The hybrid coating had a great thermal stability below 280 °C. The hardness and adhesion of the hybrid coating could reach 1 grade and H, respectively. This is expected to be a facile, cost-effective method to obtain transparent amphiphobic surfaces. © 2015 WILEY-VCH Verlag GmbH & Co.
Number of references: 32
Main heading: Free radical polymerization
Controlled terms: Coatings - Cost effectiveness - Ethylene - Ethylene glycol - Free radicals - Glass - Nanoparticles - Silica - Sols
Uncontrolled terms: Cost-effective methods - Fluoroalkyl silanes - Glass surfaces - Hybrid coating - SiO2 - SiO2 Nanoparticles - Tetraethoxysilanes - Visible light
Classification code: 539 Metals Corrosion and Protection; Metal Plating - 708 Electric and Magnetic Materials - 761 Nanotechnology - 804 Chemical Products Generally - 804.1 Organic Compounds - 812 Ceramics, Refractories and Glass - 812.3 Glass - 815.2 Polymerization - 912.3 Operations Research - 933 Solid State Physics
DOI: 10.1002/pssa.201431577
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

268. Automatic leaf recognition from a big hierarchical image database

Accession number: 20151600746041
Authors: Wu, Huisi (1); Wang, Lei (1); Zhang, Feng (1); Wen, Zhenkun (1)

Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Wu, Huisi
Abstract: Automatic plant recognition has become a research focus and received more and more attentions recently. However, existing methods usually only focused on leaf recognition from small databases that usually only contain no more than hundreds of species, and none of them reported a stable performance in either recognition accuracy or recognition speed when compared with a big image database. In this paper, we present a novel method for leaf recognition from a big hierarchical image database. Unlike the existing approaches, our method combines the textural gradient histogram with the shape context to form a more distinctive feature for leaf recognition. To achieve efficient leaf image retrieval, we divided the big database into a set of subsets based on mean-shift clustering on the extracted features and build hierarchical k-dimensional trees (KD-trees) to index each cluster in parallel. Finally, the proposed parallel indexing and searching schemes are implemented with MapReduce architectures. Our method is evaluated with extensive experiments on different databases with different sizes. Comparisons to state-of-the-art techniques were also conducted to validate the proposed method. Both visual results and statistical results are shown to demonstrate its effectiveness. © 2015 Wiley Periodicals, Inc.
Number of references: 47
Main heading: Image retrieval
Controlled terms: Database systems - Trees (mathematics)
Uncontrolled terms: Gradient histograms - K-dimensional tree - Leaf recognition - Mean-Shift Clustering - Plant recognition - Recognition accuracy - Recognition speed - State-of-the-art techniques
DOI: 10.1002/int.21729
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

269. Application of disturbance of DNA fragments in swarm intelligence algorithm

Authors: Liu, Yanmin (1); Niu, Ben (2); Chan, Felix T.S. (3); Liu, Rui (1); changling, Sui (4)
Author affiliation: (1) School of Mathematics and Computer Science, Zunyi Normal College, Zunyi, China; (2) College of Management, Shenzhen University, Shenzhen, China; (3) Department of Industrial and System Engineering, Hong Kong Polytechnic University, Kowloon, Hong Kong; (4) College of Life Science, Zunyi Normal College, Zunyi, China
Corresponding author: Liu, Yanmin

Conference name: 11th International Conference on Intelligent Computing, ICIC 2015
Conference date: August 20, 2015 - August 23, 2015
Conference location: Fuzhou, China
Conference code: 139689
Sponsor: International Neural Network Society; National Science Foundation of China
Publisher: Springer Verlag

Abstract: Optimization problem is one of the most important problems encountered in the real world. In order to effectively deal with optimization problem, some intelligence algorithms have been put forward, for example, PSO, GA, etc. To effectively solve this kind of problem, in this paper, crossing strategy of DNA fragments is proposed to explore the effect on intelligence algorithms based on American genetic biologist Morgan theory. We mainly focus on DNA fragment decreasing strategy and DNA fragment increasing strategy based on disturbance in PSO. In order to test the role of the DNA mechanism, three test benchmarks were selected to conduct the analysis of convergence property and statistical property. The simulation results show that the PSO with DNA mechanism have an advantage on algorithm performance efficiency compared with the original proposed PSO. Therefore, DNA mechanism is an effective method for improving swarm Intelligence algorithm performance. © Springer International Publishing Switzerland 2015.

Number of references: 14
Main heading: Bioinformatics
Controlled terms: Algorithms - Artificial intelligence - Computation theory - DNA - Intelligent computing - Optimization - Particle swarm optimization (PSO)
Uncontrolled terms: Algorithm performance - Convergence properties - DNA fragment - Intelligence algorithms - Optimization problems - Statistical properties - Swarm Intelligence - Swarm intelligence algorithms
Classification code: 461.2 Biological Materials and Tissue Engineering - 461.8.2 Bioinformatics - 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 723.4 Artificial Intelligence - 921.5 Optimization Techniques
DOI: 10.1007/978-3-319-22186-1_70
Database: Compendex

Data Provider: Engineering Village

270. False alarm suppression of multipulsed laser ranging system with Geiger-mode detector

Accession number: 20153801292413

Authors: Luo, Hanjun (1, 2); Xu, Huigang (1); Xu, Benlian (1); Ouyang, Zhengbiao (2); Fu, Yadan (3)
Author affiliation: (1) School of Electric and Automatic Engineering, Changshu Institute of Technology, Changshu, Jiangsu, China; (2) College of Electronic Science and Technology, Shenzhen University, Shenzhen, Guangdong, China; (3) College of Computer Science, Nanjing University of Posts and Telecommunication, Nanjing, Jiangsu, China
Corresponding author: Luo, Hanjun

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Issue: 17
Issue date: June 10, 2015
Publication year: 2015
Pages: 5513-5519
Language: English
ISSN: 1559128X
E-ISSN: 21553165
CODEN: APOPAI
Document type: Journal article (JA)
Publisher: OSA - The Optical Society

Abstract: The false alarm probability is of great concern when designing and evaluating the performance of a multipulsed laser ranging system with a Geiger-mode avalanche photodiode. In this paper, based on the statistical distribution difference of the arrival time of the echo photons and noise in the time histogram, a false alarm suppression algorithm is presented. According to the data-processing method of the algorithm, the theoretical model of target detection and false alarm probability with a Poisson statistic and the system working at long dead time is established. With typical system design parameters, the target detection probability under different echo intensity and detection number is analyzed, and the influence of four main factors, namely, detection number, echo intensity, noise, and echo position, on the false alarm probability is investigated. The results show that multipulsed detection can improve the target detection probability, and using this developed algorithm, the false alarm probability can be effectively suppressed, to obtain an appropriate false alarm probability; it is suitable that the detection number is selected as

8; and stronger echo intensity, lower noise level, and a more frontal echo position can result in a lower false alarm probability. © 2015 Optical Society of America.

Number of references: 23
Main heading: Alarm systems
Controlled terms: Algorithms - Data handling - Errors - Geiger counters - Probability - Radar clutter - Range finding
Uncontrolled terms: Data processing methods - False alarm probability - Geiger mode avalanche photodiode - Multi-pulsed lasers - Statistical distribution - Suppression algorithm - Target detection probability - Theoretical modeling
Classification code: 711 Electromagnetic Waves - 723 Computer Software, Data Handling and Applications - 723.2 Data Processing and Image Processing - 731 Automatic Control Principles and Applications - 914.2 Fires and Fire Protection - 921 Mathematics - 922.1 Probability Theory - 943.2 Mechanical Variables Measurements - 944.7 Radiation Measuring Instruments
DOI: 10.1364/AO.54.005513
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

271. Robust twin boosting for feature selection from high-dimensional omics data with label noise

Accession number: 20150900577750

Authors: He, Shan (1); Chen, Huanhuan (1); Zhu, Zexuan (2); Ward, Douglas G. (3); Cooper, Helen J. (4); Viant, Mark R. (4); Heath, John K. (4); Yao, Xin (1)
Author affiliation: (1) CERCIA, School of Computer Science, University of Birmingham, United Kingdom; (2) College of Computer Science and Software Engineering, Shenzhen University, China; (3) School of Cancer Sciences, University of Birmingham, United Kingdom; (4) School of Biosciences, University of Birmingham, United Kingdom
Corresponding author: Zhu, Zexuan

Abstract: Omics data such as microarray transcriptomic and mass spectrometry proteomic data are typically characterized by high dimensionality and relatively small sample sizes. In order to discover biomarkers for diagnosis and prognosis from omics data, feature selection has become an indispensable step to find a parsimonious set of informative features. However, many previous studies report considerable label noise in omics data, which will lead to unreliable inferences to select uninformative features. Yet, to the best of our knowledge, very few feature selection methods are proposed to address this problem. This paper proposes a novel ensemble feature selection algorithm, robust twin boosting feature selection (RTBFS), which is robust to label noise in omics data. The algorithm has been validated on an omics feature selection test bed and seven real-world heterogeneous omics datasets, of which some are known to have label noise. Compared with several state-of-the-art ensemble feature selection methods, RTBFS can select more informative features despite label noise and obtain better classification results. RTBFS is a general feature selection method and can be applied to other data with label noise. MATLAB implementation of RTBFS and sample datasets are available at: http://www.cs.bham.ac.uk/szh/TReBFSMatlab.zip. © 2014 Elsevier Inc. All rights reserved.

Number of references: 74
Main heading: Feature extraction
Controlled terms: Equipment testing - Mass spectrometry
Uncontrolled terms: Boosting - Boosting feature selection - Classification results - Diagnosis and prognosis - Ensemble feature selections - Ensemble learning - Feature selection methods - High dimensionality
Classification code: 716 Telecommunication; Radar, Radio and Television - 801 Chemistry - 941 Acoustical and Optical Measuring Instruments - 942 Electric and Electronic Measuring Instruments - 943 Mechanical and

Miscellaneous Measuring Instruments - 944 Moisture, Pressure and Temperature, and Radiation Measuring Instruments
Data Provider: Engineering Village

272. Video motion characteristics based spatial-temporal salient region extraction method

Authors: Zhou, Ying (1, 2); Zhang, Ji-Hong (1); Liang, Yong-Sheng (2); Liu, Wei (2)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, China; (2) Shenzhen Key Laboratory of Visual Media Processing and Transmission, Shenzhen Institute of Information Technology, Shenzhen, China
Corresponding author: Zhou, Ying
Abstract: The human eyes only observe the salient regions of the video. According to this, the motion characteristics based spatial-temporal salient region extraction method was proposed. Spatial saliency map was extracted by analyzing the log spectrum of each frame in the frequency domain. Temporal saliency map was obtained by global motion estimation, block matching and then Gaussian filter. According to the human visual characteristics and the subjective perception of different motion characteristics, the final saliency region was fused dynamically by spatial and temporal saliency map. The experiment was analyzed from both subjective and objective indicators. Visual observation and quantitative indicators show that the method proposed in this paper can reflect the human visual attention area more accurately than other classical extraction methods.
Number of references: 11
Main heading: Video signal processing
Controlled terms: Extraction - Motion estimation
Uncontrolled terms: Motion characteristics - Region of saliency - Spatial saliencies - Temporal saliency - Video processing - Visual attention model
Classification code: 716.1 Information Theory and Signal Processing - 716.4 Television Systems and Equipment - 802.3 Chemical Operations
Database: Compendex
Data Provider: Engineering Village

273. An Adaptive High-Precision Tracking Controller for the Coupled Switched Reluctance Two-Finger Gripper

Authors: Zou, Y. (1, 2); Cheung, Norbert C. (2); Pan, J.F. (1)
Author affiliation: (1) Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China; (2) Department of Electrical Engineering, Hong Kong Polytechnic University, Hong Kong
Corresponding author: Pan, J.F.

Abstract: An adaptive high-precision position control algorithm with online system identification is implemented onto the switched reluctance, two-finger gripper with coupled magnetic paths. Theoretical investigation proves that the magnetic paths from the two fingers are highly coupled. Without the introduction of any decoupling scheme, the position control performance under the proportional integral differential controller and the adaptive controller is inspected and the control results are compared. Experimental results verify that, without introducing any decoupling mechanism, the adaptive controller is capable of independent control of each finger with a high-precision and uniform position control performance. © 1965-2012 IEEE.
Number of references: 11
Main heading: Adaptive control systems
Controlled terms: Algorithms - Controllers - Grippers - Identification (control systems) - Palmprint recognition - Position control - Religious buildings - Two term control systems
Uncontrolled terms: Adaptive Control - Adaptive controllers - Decoupling mechanism - High precision tracking - High-precision position - Proportional integral differential controllers - Switched reluctance - Theoretical investigations
Classification code: 402.2 Public Buildings - 723.5 Computer Applications - 731 Automatic Control Principles and Applications - 732.1 Control Equipment
DOI: 10.1109/TMAG.2015.2436399
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

274. Dynamic non-parametric joint sentiment topic mixture model

Accession number: 20151300679302
Authors: Fu, Xianghua (1); Yang, Kun (1); Huang, Joshua Zhexue (1); Cui, Laizhong (1)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, Guangdong, China
Corresponding author: Cui, Laizhong
Abstract: Abstract The reviews in social media are produced continuously by a large and uncontrolled number of users. To capture the mixture of sentiment and topics simultaneously in reviews is still a challenging task. In this paper, we present a novel probabilistic model framework based on the non-parametric hierarchical Dirichlet process (HDP) topic model, called non-parametric joint sentiment topic mixture model (NJST), which adds a sentiment level to the HDP topic model and detects sentiment and topics simultaneously from reviews. Then considered the dynamic nature of social media data, we propose dynamic NJST (dNJST) which adds time decay dependencies of historical epochs to the current epochs. Compared with the existing sentiment topic mixture models which are based on latent Dirichlet allocation (LDA), the biggest difference of NJST and dNJST is that they can determine topic number automatically. We implement NJST and dNJST with online variational inference algorithms, and incorporate the sentiment priors of words into NJST and dNJST with HowNet lexicon. The experiment results in some Chinese social media dataset show that dNJST can effectively detect and track dynamic sentiment and topics. © 2015 Elsevier B.V. All rights reserved.
Number of references: 54
Main heading: Data mining
Controlled terms: Dynamic models - Inference engines - Mixtures - Natural language processing systems - Social networking (online) - Statistics

Abstract: The performance of a CMT association degrades remarkably when the transmission capabilities of its paths are diverted. Based on the analysis of different network configurations, a transmission delay prediction based data allocation scheme is proposed to distribute data to different paths with a feasible delay measurement mechanism. To reduce the impact brought by out of order packet, the proposed scheme improves the data distribute process of inter and intra transmission round by accessing and predicting the arriving time of each packet in each path. The result of analysis and simulation reveal the performance of the presented scheme can achieve much better performance than the original round-robin scheme. © Copyright 2015, Institute of Software, the Chinese Academy of Sciences. All rights reserved.

Number of references: 23
Main heading: Forecasting
Controlled terms: Multipath propagation - Routers
Uncontrolled terms: Analysis and simulation - Concurrent multipath transfers - Data allocation - Network configuration - Out-of-order packets - Performance optimizations - Transmission capability - Transmission delays
Classification code: 711 Electromagnetic Waves - 716 Telecommunication; Radar, Radio and Television - 717 Optical Communication - 718 Telephone Systems and Related Technologies; Line Communications - 921 Mathematics
DOI: 10.13328/j.cnki.jos.004691
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

277. THz wave in double-metal-film waveguides and the application of wavelength analysis

Accession number: 20154901641134
Authors: Liu, Jiamin (1, 2, 3); Liang, Huawei (2, 3); Zhang, Min (2, 3); Su, Hong (2, 3)
Author affiliation: (1) College of Electronic Science and Technology, Shenzhen University, Shenzhen, China; (2) Shenzhen Key Laboratory of Laser Engineering, Shenzhen University, Shenzhen, China; (3) Key Lab. of Adv. Optical Precision Manufacturing Technology of Guangdong Higher Education Institutes, Shenzhen University, Shenzhen, China
Corresponding author: Liang, Huawei(hwliang@szu.edu.cn)

Abstract: We propose the double-metal-film waveguides for terahertz (THz) wave guiding. The loss and field features are analyzed. In the application of wavelength analysis, the formula of the wavelength has been derived, and it can be used to analyze the wavelength of the THz sources according to mode field distribution in the dielectric-substrate slab. The penetrating capability of the THz wave is also discussed for different structures. When there is more energy in the dielectric-substrate slab, it will be better for wavelength analysis. © 2015 Optical Society of America.

Number of references: 41
Main heading: Terahertz waves
Controlled terms: Dielectric materials - Metal analysis - Metallic films - Waveguides

Uncontrolled terms: Dielectric substrates - Different structure - Field features - Mode field distribution - THz sources - THz waves
Classification code: 708.1 Dielectric Materials - 711 Electromagnetic Waves - 714.3 Waveguides
DOI: 10.1364/AO.54.008406
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

278. A Unifying Model and Analysis of P2P VoD Replication and Scheduling

Accession number: 20153501207292
Authors: Zhou, Yipeng (1); Fu, Tom Z. J. (2); Chiu, Dah Ming (3)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (2) Advanced Digital Sciences Center (ADSC), Illinois, Singapore Pte. Ltd., Singapore, Singapore; (3) Department of Information Engineering, Chinese University of Hong Kong, Hong Kong
Source title: IEEE/ACM Transactions on Networking
Abbreviated source title: IEEE ACM Trans Networking
Volume: 23
Issue: 4
Issue date: August 1, 2015
Publication year: 2015
Pages: 1163-1175
Article number: 6819466
Language: English
ISSN: 10636692
CODEN: IEANEP
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: We consider a peer-to-peer (P2P)-assisted video-on-demand (VoD) system where each peer can store a relatively small number of movies to offload the server when these movies are requested. User requests are stochastic based on some movie popularity distribution. The problem is how to replicate (or place) content at peer storage to minimize the server load. Several variations of this replication problem have been studied recently with somewhat different conclusions. In this paper, we first point out and explain that the main difference between these studies is in how they model the scheduling of peers to serve user requests, and show that these different scheduling assumptions will lead to different "optimal" replication strategies. We then propose a unifying request scheduling model, parameterized by the maximum number of peers that can be used to serve a single request. This scheduling is called Fair Sharing with Bounded Degree (FSBD). Based on this unifying model, we can compare the different replication strategies for different degree bounds and see how and why different replication strategies are favored depending on the degree. We also propose a simple (primarily) distributed replication algorithm and show that this algorithm is able to adapt itself to work well for different degrees in scheduling. © 2015 IEEE.
Number of references: 23
Main heading: Scheduling
Controlled terms: Acoustic streaming - Distributed computer systems - Motion pictures - Peer to peer networks - Stochastic systems - Video on demand
Uncontrolled terms: Degree - Model and analysis - Peer to peer - Popularity distribution - Replication algorithm - Replication strategies - Request scheduling - Videoon-demand systems (VoD)
Classification code: 716.4 Television Systems and Equipment - 722 Computer Systems and Equipment - 722.4 Digital Computers and Systems - 742.1 Photography - 751.2 Acoustic Properties of Materials - 912.2 Management - 961 Systems Science
DOI: 10.1109/TNET.2014.2321422
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

279. An uneven illumination correction algorithm for optical remote sensing images covered with thin clouds

Accession number: 20154001327938
Authors: Shen, Xiaole (1, 2); Li, Qingquan (1); Tian, Yingjie (3); Shen, Linlin (4)

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Corresponding author: Shen, Linlin

Abstract: The uneven illumination phenomenon caused by thin clouds will reduce the quality of remote sensing images, and bring adverse effects to the image interpretation. To remove the effect of thin clouds on images, an uneven illumination correction can be applied. In this paper, an effective uneven illumination correction algorithm is proposed to remove the effect of thin clouds and to restore the ground information of the optical remote sensing image. The imaging model of remote sensing images covered by thin clouds is analyzed. Due to the transmission attenuation, reflection, and scattering, the thin cloud cover usually increases region brightness and reduces saturation and contrast of the image. As a result, a wavelet domain enhancement is performed for the image in Hue-Saturation-Value (HSV) color space. We use images with thin clouds in Wuhan area captured by QuickBird and ZiYuan-3 (ZY-3) satellites for experiments. Three traditional uneven illumination correction algorithms, i.e., multi-scale Retinex (MSR) algorithm, homomorphic filtering (HF)-based algorithm, and wavelet transform-based MASK (WT-MASK) algorithm are performed for comparison. Five indicators, i.e., mean value, standard deviation, information entropy, average gradient, and hue deviation index (HDI) are used to analyze the effect of the algorithms. The experimental results show that the proposed algorithm can effectively eliminate the influences of thin clouds and restore the real color of ground objects under thin clouds. © 2015 by the authors.

Number of references: 31
Main heading: Remote sensing
Controlled terms: Algorithms - Color - Image analysis - Image reconstruction - Restoration - Space optics - Wavelet analysis - Wavelet transforms
Uncontrolled terms: Homomorphic filtering - Hue saturation values - Image interpretation - Multi-scale Retinex - Optical remote sensing - Remote sensing images - Transmission attenuations - Uneven illuminations
Classification code: 741.1 Light/Optics - 921 Mathematics - 921.3 Mathematical Transformations
DOI: 10.3390/rs70911848
Database: Compendex

Data Provider: Engineering Village

280. HEp-2 cells classification via novel object graph based feature and random forest

Accession number: 20161802333362
Authors: Liu, Jingxin (1); Shen, Linlin (2); Qiu, Guoping (1); Shu, Jie (3)
Author affiliation: (1) University of Nottingham Ningbo China, China; (2) ShenZhen University, China; (3) North China University of Technology, China

Conference code: 119886
Publisher: Institution of Engineering and Technology
Abstract: Human Epithelial type 2 (HEp-2) cells are the most common substrates for anti-nuclear antibodies detection. Traditional manual diagnosis heavily depends on the experience of histopathologists, which is time consuming and subject to subjective mistakes. With the recent progress of digital scanners and dramatic development in computer vision techniques, computer-aided diagnosis has now become achievable. In this paper a novel automatic system is proposed to classify the HEp- 2 cell images into six categories. Along with a set of local gradient based textural descriptors, we introduce a novel objectbased method to decompose the binary image into primitive objects and represent them with a set of morphological features. Random forest is then applied for classification. The advantages of this system are as following: (1) robustness against the changes of intensity and rotation, (2) more discriminative information compared to normal morphological descriptors. We evaluate the proposed approach using the publicly available ICPR 2012 datasets. The experimental results show that the proposed method achieves comparable performance with the state-of-the-art methods.
Number of references: 19
Main heading: Computer aided diagnosis
Controlled terms: Chemical detection - Computer vision - Decision trees - Graphic methods - Signal processing
Uncontrolled terms: Computer vision techniques - HEp-2 - Morphological descriptors - Morphological features - Object graphs - Random forests - Spatial Pyramid Matching - State-of-the-art methods
Classification code: 461.1 Biomedical Engineering - 716.1 Information Theory and Signal Processing - 723.5 Computer Applications - 801 Chemistry - 961 Systems Science
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

281. Graphene nanoplatelets as rheology modifiers for polylactic acid: Graphene aspect-ratio-dependent nonlinear rheological behavior

Accession number: 20153601231315
Authors: Sabzi, Mohammad (1, 2); Jiang, Long (1); Nikfarjam, Nasser (3)
Author affiliation: (1) Department of Mechanical Engineering, North Dakota State University, Fargo; ND, United States; (2) College of Materials Science and Engineering, Shenzhen University, Shenzhen, China; (3) Department of Chemistry, Institute for Advanced Studies in Basic Sciences, Zanjan, Iran
Corresponding author: Jiang, Long
Source title: Industrial and Engineering Chemistry Research
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Pages: 8175-8182
Language: English
ISSN: 08885885
E-ISSN: 15205045
CODEN: IECRED
Document type: Journal article (JA)
Publisher: American Chemical Society
Abstract: Two types of graphene were used to make polylactic acid (PLA)-graphene nanocomposites with various concentrations of graphene through a solution casting method. Because of the differences in surface area, thickness, and aspect ratio between the two types of graphene, the graphene-graphene and graphene-polymer interactions were different in these two nanocomposites. As a result, the two types of graphene nanoplatelets assembled into different interconnected structures in the matrix. Steady-state shear, stepwise small-amplitude oscillatory shear (SAOS) and large-amplitude oscillatory shear (Laos), and frequency sweep tests immediately after the stepwise shear were used to determine and study the two different graphene aggregate structures. The disruption (under Laos) and recovery (under SAOS) of the structures were monitored and the great disparities between the two types of graphene were ascribed to their structural roots. The formation of a percolated graphene network structure in the matrix significantly altered the structural evolution under the stepwise shear. This multistep shear process was found to be a very sensitive tool to differentiate sample microstructures while traditional linear viscoelastic tests (i.e., SAOS) failed. © 2015 American Chemical Society.
Number of references: 46

Main heading: Graphene
Controlled terms: Aspect ratio - Nanocomposites - Polyesters - Polymer blends
Uncontrolled terms: Graphene nanocomposites - Graphene nanoplatelets - Interconnected structures - Large amplitude oscillatory shear - Polymer interactions - Rheological behaviors - Solution-casting method - Structural evolution
Classification code: 761 Nanotechnology - 804 Chemical Products Generally - 815.1 Polymeric Materials - 815.1.1 Organic Polymers - 933 Solid State Physics - 943 Mechanical and Miscellaneous Measuring Instruments
DOI: 10.1021/acs.iecr.5b01863
Database: Compendex
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Data Provider: Engineering Village

282. Robust spectrum sensing for noncircular signal in multiantenna cognitive receiversX

Accession number: 20150100396985
Authors: Huang, Lei (1); Xiao, Yu-Hang (2); Zhang, Q.T. (3)
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Source title: IEEE Transactions on Signal Processing
Abbreviated source title: IEEE Trans Signal Process
Volume: 63
Issue: 2
Issue date: January 15, 2015
Publication year: 2015
Pages: 498-511
Article number: 6960068
Language: English
ISSN: 1053587X
CODEN: ITPRED
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Although noncircular (NC) signals are frequently encountered in wireless communications, their statistical property has not yet been utilized in state-of-the-art methods for spectrum sensing. In this paper, a variant of Hadamard (HDM) ratio test is devised to exploit the NC property of the primary signals for spectrum sensing, which is named the NC-HDM algorithm. As the NC-HDM approach is able to exploit full statistical property of the NC signals and handle deviations from independent and identically distributed (IID) noise, it is superior to the state-of-the-art algorithms in detection accuracy and/or robustness. Moreover, performance analysis is conducted for the NC-HDM approach, including the invariant property, false-alarm probability and detection probability. That is, employing the moment-matching Box's Chi-square approximation, the false-alarm probability can be determined. Since the exact moments of the NC-HDM test statistic under the signal-absence hypothesis can be determined and all moments have been matched, the derived false-alarm probability is very accurate, leading to simple and precise computation of the theoretical decision threshold. On the other hand, as the first two exact moments of the NC-HDM test statistic under the signal-presence hypothesis can be precisely calculated, the detection probability based on moment-matching Beta approximation is quite accurate. Numerical results are included to demonstrate the superiority of the NC-HDM approach and validate our theoretical calculations.
Number of references: 47
Main heading: Signal detection
Controlled terms: Alarm systems - Errors - Probability - Statistical tests - Statistics - Wireless telecommunication systems
Uncontrolled terms: Beta distributions - Generalized Likelihood Ratio Test - Multiple antenna - Non-circular - Spectrum sensing
Classification code: 716 Telecommunication; Radar, Radio and Television - 716.1 Information Theory and Signal Processing - 717 Optical Communication - 914.2 Fires and Fire Protection - 922.1 Probability Theory - 922.2 Mathematical Statistics
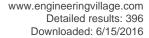**DOI:** 10.1109/TSP.2014.2371776
Database: Compendex
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283. Propagation of coupled super-Gaussian beam pairs in strong nonlocal media

Accession number: 20154601551298
Authors: Wang, Xinghua (1); Xu, Zhiyong (1); Wang, Qing (2)
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Corresponding author: Wang, Xinghua(jxwxh63@126.com)
Source title: Optik
Abbreviated source title: Optik
Volume: 126
Issue: 24
Issue date: December 2015
Publication year: 2015
Pages: 4977-4980
Language: English
ISSN: 00304026
Document type: Journal article (JA)
Publisher: Elsevier GmbH
Abstract: The propagation of two mutually incoherent coupled super-Gaussian (SG) beam pairs in strong nonlocal media was studied by variational approach and numerical simulation. For forming a SG vector solitary wave, the total initial power must be equal to the critical power and the ratio of the two beam widths should be equal to a certain value. The numerical results show that the normalized critical power is a monotonically increase function of the order of SG solitary wave. Therefore, the phase shift, which is effectively determined by the critical power, will increase quickly with the order of SG solitary wave increasing. Since the phase shift is large for the low-order SG solitary wave and SG beam has some characteristics different with Gaussian beam, this theoretical result maybe has some potential applications value. © 2015 Elsevier GmbH. All rights reserved.
Number of references: 20
Main heading: Gaussian beams
Controlled terms: Gaussian distribution - Nonlinear optics - Phase shift - Phase shifters - Solitons
Uncontrolled terms: Critical power - Low order - Nonlocal - Numerical results - Spatial optical solitons - Super-Gaussian - Two beams - Variational approaches
Classification code: 711 Electromagnetic Waves - 713.5 Electronic Circuits Other Than Amplifiers, Oscillators, Modulators, Limiters, Discriminators or Mixers - 741.1.1 Nonlinear Optics - 922.1 Probability Theory
DOI: 10.1016/j.ijleo.2015.09.058
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

284. A study on vibration recognition of nano-imaging system based on wavelet analysis

Accession number: 20160801981289
Authors: Liu, Yunchuan (1); Yang, Junshan (2); Niu, Hanben (1)
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Corresponding author: Niu, Hanben
Source title: Open Automation and Control Systems Journal
Abbreviated source title: Open Autom. Control Syst. J.
Volume: 7
Issue: 1
Issue date: October 9, 2015
Publication year: 2015
Pages: 1734-1739
Language: English
E-ISSN: 18744443
Document type: Journal article (JA)
Publisher: Bentham Science Publishers B.V., P.O. Box 294, Bussum, 1400 AG, Netherlands
Abstract: In order to intelligently diagnose the vibration types corresponding to various errors in nano-imaging process, so that the experimental personnel could take corresponding measures, in this paper, firstly, all types of vibration signals were decomposed and reconstructed in nano-imaging process based on the wavelet transform, thus extracting feature vectors of all types of vibration signals. Secondly, BP neural network model was established, and

network training was carried out with the obtained feature vectors as the input information of network and all types of vibration sources as the output information of the network, which was finally passed through the actual inspection. The results showed that, the feature value of all types of vibration signals extracted and obtained by wavelet feature has merged together with BP neural network model, whose network recognition result are basically consistent with actual vibration signals. According to the results, it could effectively recognize the all types of vibration signals during the nano-imaging process and has a higher practical guiding significance. © Liu et al.

Number of references: 7
Main heading: Vibration analysis
Controlled terms: Image processing - Neural networks - Signal processing - Wavelet analysis - Wavelet transforms
Uncontrolled terms: BP neural network model - Corresponding measures - Extracting features - Feature vectors - Guiding significances - Nano-imaging - Vibration - Vibration sources
Classification code: 716.1 Information Theory and Signal Processing - 921 Mathematics - 921.3 Mathematical Transformations
DOI: 10.2174/1874444301507011734
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

285. Magnetic-optical bifunctional CoPt3/Co multilayered nanowire arrays

Accession number: 20154701598686
Authors: Su, Yi-Kun (1); Yan, Zhi-Long (1); Wu, Xi-Ming (1); Liu, Huan (1); Ren, Xiao (2); Yang, Hai-Tao (2)
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Source title: Chinese Physics B
Abbreviated source title: Chin. Phys.
Volume: 24
Issue: 10
Issue date: September 20, 2015
Publication year: 2015
Article number: 107505
Language: English
ISSN: 16741056
Document type: Journal article (JA)
Publisher: Institute of Physics Publishing
Abstract: CoPt3/Co multilayered nanowire (NW) arrays are synthesized by pulsed electrodeposition into nanoporous anodic aluminum oxide (AAO) templates. The electrochemistry deposition parameters are determined by cyclic voltammetry to realize the well control of the ratio of Co to Pt and the length of every segment. The x-ray diffraction (XRD) patterns show that both Co and CoPt3NWs exhibit face-centered cubic (fcc) structures. In the UV-visible absorption spectra, CoPt3/Co NW arrays show a red-shift with respect to pure CoPt3NWs. Compared with the pure Co nanowire arrays, the CoPt3/Co multilayered nanowire arrays show a weak shape anisotropy and well-modulated magnetic properties. CoPt3/Co multilayered nanowires are highly encouraging that new families of bimetallic nanosystems may be developed to meet the needs of nanomaterials in emerging multifunctional nanotechnologies. © 2015 Chinese Physical Society and IOP Publishing Ltd.
Number of references: 21
Main heading: Nanotechnology
Controlled terms: Anodic oxidation - Cyclic voltammetry - Heterojunctions - Magnetic properties - Magnetism - Nanowires - X ray diffraction
Uncontrolled terms: Anodic aluminum oxide - Deposition Parameters - Face centered cubic structure - Multilayered nanowires - Optic properties - Pulsed electrodeposition - Shape anisotropy - UV visible absorption spectrum
Classification code: 539.2.1 Protection Methods - 701.2 Magnetism: Basic Concepts and Phenomena - 714.2 Semiconductor Devices and Integrated Circuits - 761 Nanotechnology - 801.4.1 Electrochemistry
DOI: 10.1088/1674-1056/24/10/107505
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

Engineering Village

286. Joint magnitude and phase constrained STAP approach

Accession number: 20154301450996
Authors: Xu, Jingwei (1); Zhu, Shengqi (1); Liao, Guisheng (1); Huang, Lei (2)
Author affiliation: (1) National Laboratory of Radar Signal Processing, Xidian University, Xi'an, China; (2) College of Information Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Xu, Jingwei
Source title: Digital Signal Processing: A Review Journal
Abbreviated source title: Digital Signal Process Rev J
Volume: 46
Issue date: November 2015
Publication year: 2015
Pages: 32-40
Language: English
ISSN: 10512004
CODEN: DSPREJ
Document type: Journal article (JA)
Publisher: Elsevier Inc.
Abstract: The performance of space-time adaptive processing (STAP) radar degrades dramatically when the target occurs in the training data. Traditional robust linearly constrained minimum variance (LCMV) STAP method uses magnitude constraint to maintain the mainlobe of the STAP beamformer. In this paper, a joint magnitude and phase constrained (MPC) STAP method is proposed with the phase constraint incorporated in the response vector of the beamformer. The explicit expression of the phase constraint is derived by exploring the conjugate symmetric characteristic of the adaptive weights. With joint magnitude and phase constraints imposed on several discrete points in the mainlobe region, the MPC-STAP approach has good robustness against target contamination. In addition, the linear-phase response can be guaranteed by the proposed method, which provides distortionless response in both spatial and temporal domains. Simulation results are provided to demonstrate the effectiveness of the proposed method. © 2015 Elsevier Inc.
Number of references: 33
Main heading: Space time adaptive processing
Controlled terms: Beamforming
Uncontrolled terms: Adaptive weights - Beam formers - Discrete points - Linear phase response - Linearly constrained minimum variance - Phase constraints - Temporal domain - Training data
Classification code: 711.2 Electromagnetic Waves in Relation to Various Structures - 716.1 Information Theory and Signal Processing
DOI: 10.1016/j.dsp.2015.08.011
Database: Compendex
Data Provider: Engineering Village

287. Switch-and-stay combining relaying for security enhancement in cognitive radio networks

Accession number: 20161902354573
Authors: Fan, Lisheng (1, 2); Zhang, Shengli (3); Duong, Trung Q. (4); Karagiannidis, George K. (5)
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Source title: 2015 IEEE Global Communications Conference, GLOBECOM 2015
Abbreviated source title: IEEE Glob. Commun. Conf., GLOBECOM
Monograph title: 2015 IEEE Global Communications Conference, GLOBECOM 2015
Issue date: February 23, 2016
Publication year: 2015
Article number: 7416972
Language: English
ISBN-13: 9781479959525
Document type: Conference article (CA)
Conference name: 58th IEEE Global Communications Conference, GLOBECOM 2015
Conference date: December 6, 2015 - December 10, 2015
Conference location: San Diego, CA, United states

Conference code: 119900
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Opportunistic relaying scheme (ORS), where the best relay is selected for dual-hop communication, has been widely considered as the global optimum relaying technique. However, due to the requirement of acquiring the full channel state information (CSI) of all links, ORS has increased the system's complexity and might be harmful to the network stability, especially for the large-scale networks. In this paper, we therefore proposed an alternative scheme, namely, secure switch-and-stay combining (SSSC) protocol for providing the best secure performance. In particular, a two-phase underlay cognitive relay network, where one out of two decode-and-forward (DF) is activated to assist the secure data transmission. The secure relay switching occurs when the relay cannot support the secure communication any longer. We study the system secure performance of SSSC protocol by deriving an analytical secrecy outage probability as well as an asymptotic expression in the high main-to-eavesdropper ratio (MER) region. It is shown that SSSC can substantially reduce the switching rate with lower channel estimation complexity, and approach the full diversity meanwhile. © 2015 IEEE.
Number of references: 19
Main heading: Network security
Controlled terms: Channel state information - Cognitive radio - Communication channels (information theory) - Complex networks - Relay control systems - Secure communication
Uncontrolled terms: Asymptotic expressions - Cognitive radio network - Cognitive relay networks - Estimation complexity - Opportunistic relaying - Secrecy outage probabilities - Security enhancements - Switch-and-stay combining
Classification code: 716.1 Information Theory and Signal Processing - 716.3 Radio Systems and Equipment - 722 Computer Systems and Equipment - 723 Computer Software, Data Handling and Applications - 731.1 Control Systems
DOI: 10.1109/GLOCOM.2014.7416972
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

288. A hybrid Artificial Bee Colony algorithm with bacterial foraging optimization

Accession number: 20161402187644
Authors: Li, L. (1); Zhang, F.F. (1); Liu, C. (2); Niu, B. (3)
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Source title: 2015 IEEE International Conference on Cyber Technology in Automation, Control and Intelligent Systems, IEEE-CYBER 2015
Abbreviated source title: IEEE Int. Conf. Cyber Technol. Autom., Control, Intell. Syst., CYBER
Monograph title: 2015 IEEE International Conference on Cyber Technology in Automation, Control and Intelligent Systems, IEEE-CYBER 2015
Issue date: October 2, 2015
Publication year: 2015
Pages: 127-132
Article number: 7287922
Language: English
ISBN-13: 9781479987290
Document type: Conference article (CA)
Conference name: 5th Annual IEEE International Conference on Cyber Technology in Automation, Control and Intelligent Systems, IEEE-CYBER 2015
Conference date: June 9, 2015 - June 12, 2015
Conference location: 390, Qingnian Street, Heping District, Shenyang, China
Conference code: 118337
Sponsor: Microcyber; Shenyang Institute of Automation Chinese Academy of Sciences; Siasun; ZKAV
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: The Artificial Bee Colony (ABC) algorithm is a new swarm optimization algorithm with good numerical functions optimization results. In order to enhance the performance ability of ABC algorithm, a hybrid ABC (HAB) algorithm is presented where swarming behavior of bacterial foraging optimization algorithm is introduced into the ABC algorithm to do local search. The performance of the proposed method is examined on well-known six numerical benchmark functions and the obtained results are compared with basic ABC algorithm and BFO algorithm. The experimental results show that the proposed approach is very effective method for solving numeric benchmark

functions and successful in terms of solution quality and convergence to the global optimum, especially on the multimodal functions. © 2015 IEEE.
Number of references: 12
Main heading: Optimization
Controlled terms: Algorithms - Artificial intelligence - Benchmarking - Evolutionary algorithms - Intelligent systems - Numerical methods
Uncontrolled terms: Artificial bee colonies - Artificial bee colony algorithms - Artificial bee colony algorithms (ABC) - Bacterial foraging optimization - Bacterial foraging optimization algorithms - Multi modal function - Swarm Intelligence - Swarm optimization algorithms
Classification code: 723.4 Artificial Intelligence - 921.5 Optimization Techniques - 921.6 Numerical Methods
DOI: 10.1109/CYBER.2015.7287922
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

289. Metal plate for guiding terahertz surface plasmon-polaritons and its sensing applications

Accession number: 20150100398841
Authors: Liu, Jiamin (1, 2, 3); Liang, Huawei (1, 2, 3); Zhang, Min (1, 2, 3); Su, Hong (1, 2, 3)
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Corresponding author: Liang, Huawei
Source title: Optics Communications
Abbreviated source title: Opt Commun
Volume: 339
Issue date: March 15, 2015
Publication year: 2015
Pages: 222-227
Language: English
ISSN: 00304018
CODEN: OPCOB8
Document type: Journal article (JA)
Publisher: Elsevier
Abstract: We report the guiding of THz surface plasmon-polaritons using metal plates. We theoretically study the transmission characteristics of the bare and dielectric coated metal plate and compared the difference between them. We propose coupling the THz SPPs on a bare metal plate using single dielectric film, and the highest theory coupling efficiency we get can be 45.64%. Moreover we study the hybrid plasmonic modes of a dielectric slab above the metal plate, and we find that the THz SPPs on metal plate is strongly affected by the dielectric slab. We further discuss the interesting phenomenon of the transmission spectrum influenced by the variation of air interval between the dielectric slab and metal plate.
Number of references: 21
Main heading: Plate metal
Controlled terms: Dielectric films - Electromagnetic wave polarization - Metals - Phonons - Photons - Plasmons - Quantum theory - Surface plasmon resonance - Waveguides
Uncontrolled terms: Coupling efficiency - Dielectric slabs - Planar - Sensing applications - Terahertz surfaces - THz surface plasmons - Transmission characteristics - Transmission spectrums
Classification code: 531 Metallurgy and Metallography - 535.1.2 Rolling Mill Practice - 708.1 Dielectric Materials - 711 Electromagnetic Waves - 714.3 Waveguides - 931.3 Atomic and Molecular Physics - 931.4 Quantum Theory; Quantum Mechanics
DOI: 10.1016/j.optcom.2014.11.046
Database: Compendex
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Data Provider: Engineering Village

290. Synchronization in moving pulse-coupled oscillator networks

Accession number: 20154901636053

Authors: Wang, Jingyi (1); Xu, Chen (2); Feng, Jianwen (3); Chen, Michael Z.Q. (4); Wang, Xiaofan (5); Zhao, Yi (3)
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Source title: IEEE Transactions on Circuits and Systems I: Regular Papers
Abbreviated source title: IEEE Trans. Circuits Syst. Regul. Pap.
Volume: 62
Issue: 10
Issue date: October 1, 2015
Publication year: 2015
Pages: 2544-2554
Article number: 07277178
Language: English
ISSN: 15498328
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: This paper presents the synchronization of a population of identical moving pulse-coupled oscillators (MPCOs) that are confined to move in a plane with mutual interactions, which are controlled by some pre-determined state threshold values and only take effect inside some known communication radii. The states are allowed to evolve in a nonlinear and periodical manner in accordance with a smooth, monotonically increasing and concave down function. Sufficient conditions are established for synchronization and the general effects of system parameters on the synchronization rate are further probed into. It is found that increasing signal strength causes the synchronization rate to initially decrease, then remain almost constant, then increase again until it finally decreases. Furthermore, with increasing speed modulus the synchronization rate initially decreases then increases. The synchronization rate, however, decreases with an increasing communication radius. Finally, as a real-world application, the proposed model is used to synchronize the different clocks in an ultra-wide bandwidth wireless ad hoc network. © 2015 IEEE.
Number of references: 47
Main heading: Synchronization
Controlled terms: Ad hoc networks - Clocks - Oscillators (mechanical) - Wireless ad hoc networks
Uncontrolled terms: Clock Synchronization - Communication radius - Mutual interaction - Pulse coupled oscillators - Real-world - Signal strengths - Synchronization rate - Ultrawide bandwidth
Classification code: 601.1 Mechanical Devices - 723 Computer Software, Data Handling and Applications - 943.3 Special Purpose Instruments - 961 Systems Science
DOI: 10.1109/TCSI.2015.2477576
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

291. Fiber bragg gratings fabricated by femtosecond laser micromachining methods

Accession number: 20161202125694
Authors: Liao, Changrui (1); He, Jun (1); Wang, Qiao (1); Zhang, Congzhe (1); Li, Zhengyong (1); Wang, Chao (1); Wang, Yiping (1)
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Corresponding author: Wang, Yiping(ypwang@szu.edu.cn)
Source title: 2015 Opto-Electronics and Communications Conference, OECC 2015
Abbreviated source title: Opto-Electron. Commun. Conf., OECC
Monograph title: 2015 Opto-Electronics and Communications Conference, OECC 2015
Issue date: November 30, 2015
Publication year: 2015
Article number: 7340203
Language: English
ISBN-13: 9781467379441
Document type: Conference article (CA)
Conference name: Opto-Electronics and Communications Conference, OECC 2015
Conference date: June 28, 2015 - July 2, 2015
Conference location: Shanghai, China
Conference code: 118434

Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: High quality FBGs have been fabricated in our lab using three types of femtosecond laser inscription techniques, i.e. Phase Mask method, Line-by-Line method and Point-by-Point method. It is found that Phase Mask method shows the best spectral quality and repeatability but the flexibility is poor; Line-by-Line method exhibits good flexibility where nearly all the grating parameters can be adjusted but the writing efficiency is low; Point-by-Point method owns the best inscription efficiency but the cladding mode resonance is hard to avoid. © 2015 IEEE.

Number of references: 4
Main heading: Ultrashort pulses
Controlled terms: Bragg gratings - Composite micromechanics - Efficiency - Fiber Bragg gratings - Micromachining
Uncontrolled terms: Cladding mode resonances - Femtosecond laser inscriptions - Femtosecond laser micromachining - line-by-line - Line-by-line method - Phase masks - point-by-point - Point-by-point method
Classification code: 604.2 Machining Operations - 741.3 Optical Devices and Systems - 913.1 Production Engineering - 931.1 Mechanics
DOI: 10.1109/OECC.2015.7340203
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

292. Application of Niching Genatic Extended Particle Filter in GPS/SINS integrated navigation

Accession number: 20161702296450
Authors: Cheng, Ying (1); Ding, Huijun (2); Li, Yongtao (1); Li, Ziyu (1)
Author affiliation: (1) Beijing Aerospace Control Center, Beijing, China; (2) Shenzhen University, Shenzhen, China
Source title: Proceedings - 5th International Conference on Instrumentation and Measurement, Computer, Communication, and Control, IMCCC 2015
Abbreviated source title: Proc. - Int. Conf. Instrum. Meas., Comput., Commun., Control, IMCCC
Monograph title: Proceedings - 5th International Conference on Instrumentation and Measurement, Computer, Communication, and Control, IMCCC 2015
Issue date: February 11, 2016
Publication year: 2015
Pages: 403-406
Article number: 7405871
Language: English
ISBN-13: 9781467377232
Document type: Conference article (CA)
Conference name: 5th International Conference on Instrumentation and Measurement, Computer, Communication, and Control, IMCCC 2015
Conference date: September 18, 2015 - September 20, 2015
Conference location: Qinhuangdao, China
Conference code: 119414
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Kalman filter is limited to apply to linear and Gaussian system only. Particle filter has the problem of degeneracy phenomenon and sample impoverishment caused by resampling. Aimed at solving problems above, this paper proposes Niching Genetic Algorithm Extended Particle Filter (NGA-EKPF), which improves resampling with niching genetic algorithm by integrating EKF to optimize importance distribution function. Theoretical analysis and computer simulation of positioning estimation precision in GPS/SINS integrated navigation system shows that algorithm proposed in this paper makes evident improvement in performance. © 2015 IEEE.
Number of references: 11
Main heading: Global positioning system
Controlled terms: Air navigation - Algorithms - Bandpass filters - Distribution functions - Genetic algorithms - Monte Carlo methods - Navigation systems
Uncontrolled terms: Estimation precision - Extended particle filters - Gaussian systems - Integrated navigation - Integrated navigation systems - Niching genetic algorithm - Resampling - Sample impoverishment
Classification code: 431.5 Air Navigation and Traffic Control - 703.2 Electric Filters - 922.1 Probability Theory - 922.2 Mathematical Statistics
DOI: 10.1109/IMCCC.2015.92
Compendex references: YES
Database: Compendex

293. A further investigation on the reliability of extreme learning machines

Accession number: 20152801028686
Authors: Hu, Yanxing (1); Wang, Yuan (1); You, Jane Jia (1); Liu, Jame N.K. (2); He, Yulin (3)
Author affiliation: (1) Department of Computing, Hong Kong Polytechnic University, Hong Kong; (2) Smart Solutions Experts, Hong Kong; (3) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China
Source title: IEEE International Conference on Data Mining Workshops, ICDMW
Abbreviated source title: IEEE Int. Conf. Data Mining Workshops, ICDMW
Volume: 2015-January
Part number: 1 of 1
Issue: January
Monograph title: Proceedings - 14th IEEE International Conference on Data Mining Workshops, ICDMW 2014
Issue date: January 26, 2015
Publication year: 2015
Pages: 1031-1037
Article number: 7022710
Language: English
ISSN: 23759232
E-ISSN: 23759259
Document type: Conference article (CA)
Conference name: 14th IEEE International Conference on Data Mining Workshops, ICDMW 2014
Conference date: December 14, 2014
Conference location: Shenzhen, China
Conference code: 112811
Publisher: IEEE Computer Society
Abstract: Research community has recently put more attention to the Extreme Learning Machines (ELMs) algorithm in Neural Network (NN) area. The ELMs are much faster than the traditional gradient-descent-based learning algorithms due to its analytical determination of output weights with the random choice of input weights and hidden layer bias. However, since the input weights and bias are randomly assigned and not adjusted, the ELMs model shows an instability if we repeat the experiments many times. Such instability makes the ELMs less reliable than other computational intelligence models. In our investigation, we try to solve this problem by using the Random Production in the first layer of the ELMs. Thus, we can reduce the chance of using random weight assignment in ELMs by removing the bias in the hidden layer. Experiment son different data sets demonstrate that the proposed model has higher stability and reliability than the classical ELMs. © 2014 IEEE.
Number of references: 21
Main heading: Learning algorithms
Controlled terms: Algorithms - Artificial intelligence - Data mining - Knowledge acquisition - Learning systems
Uncontrolled terms: Analytical determination - Extreme learning machine - Gradient descent - Neural network (nn) - Random projections - Random weight - Research communities - Stability and reliabilities
Classification code: 723 Computer Software, Data Handling and Applications
DOI: 10.1109/ICDMW.2014.117
Compendex references: YES
Database: Compendex

294. High-Sensitivity Gas Pressure Sensor Based on Fabry-Pérot Interferometer With a Side-Opened Channel in Hollow-Core Photonic Bandgap Fiber

Accession number: 20160902010056
Authors: Tang, Jian (1); Yin, Guolu (1); Liao, Changrui (1); Liu, Shen (1); Li, Zhengyong (1); Zhong, Xiaoyong (1); Wang, Qiao (1); Zhao, Jing (1); Yang, Kaiming (1); Wang, Yiping (1)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Wang, Yiping(ypwang@szu.edu.cn)
Source title: IEEE Photonics Journal
Abbreviated source title: IEEE Photon. J.

Volume: 7
Issue: 6
Issue date: December 1, 2015
Publication year: 2015
Article number: 6803307
Language: English
ISSN: 19430655
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: We demonstrate a high-sensitivity gas pressure sensor by use of an in-fiber Fabry-Pérot interferometer (FPI) based on hollow-core photonic bandgap fiber (HC-PBF) with a side-opened channel. The FPI was constructed by splicing a thin piece of HC-PBF between two stander single-mode fibers. Then, a side-opened channel was drilled through the hollow core of the HC-PBF by use of a femtosecond laser. Such an FPI with a side-opened channel greatly enhanced the gas pressure sensitivity up to 4.24 nm/MPa, which is two orders of magnitude higher than that of FPI with an enclosed cavity. In addition, the effects of cavity length on the gas pressure sensing performance were also studied. A shorter cavity gives rise to broader measurement range while offering larger detection limit, and vice versa. The structure size is tens of micrometers, which makes it possible to develop an ultracompact high-sensitivity gas pressure sensor. © 2009-2012 IEEE.
Number of references: 23
Main heading: Photonic bandgap fibers
Controlled terms: Energy gap - Fabry-Perot interferometers - Fibers - Gases - Interferometers - Pressure sensors - Single mode fibers - Spontaneous emission
Uncontrolled terms: Cavity length - Detection limits - Gas pressure sensor - High sensitivity - Hollow core-photonic bandgap fibers - Measurement range - Orders of magnitude - Structure sizes
Classification code: 711 Electromagnetic Waves - 741.1.2 Fiber Optics - 941.3 Optical Instruments - 944.3 Pressure Measuring Instruments
DOI: 10.1109/JPHOT.2015.2489926
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

295. First-principles study of AlN crystal codoped with Na and O

Accession number: 20150600487796
Authors: Xu, Baisheng (1); Yan, Zheng (1); Wu, Honglei (1); Zheng, Ruisheng (1)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen; Guangdong, China
Corresponding author: Zheng, Ruisheng
Source title: Kuei Suan Jen Hsueh Pao/Journal of the Chinese Ceramic Society
Abbreviated source title: Kuei Suan Jen Hsueh Pao
Volume: 43
Issue: 1
Issue date: January 1, 2015
Publication year: 2015
Pages: 65-69
Language: Chinese
ISSN: 04545648
CODEN: KSYHA5
Document type: Journal article (JA)
Publisher: Chinese Ceramic Society
Abstract: The crystalline structure, the density of states and the band structure of wurtzite Na doped AlN and Na:O co-doped AlN were investigated by the first-principles full-potential linear augmented plane-wave method based on the density functional theory. The calculated results reveal that Na doped and Na: O co-doped AlN both are direct band-gap semiconductors with p-type conduction property, their lattice structures expand in comparison to intrinsic AlN and Na:O co-doped AlN has smaller lattice constants than Na doped AlN. The density of states nearby the top of the valence band for Na doped AlN shows an intense localization feature, which does not favor the improvement of the hole concentration. Compared to Na doped AlN, the density of states nearby the top of the valence band for Na:O co-doped AlN reduces, and the acceptor level becomes shallower, which favor the achievement of p-type AlN. ©, 2015, Chinese Ceramic Society. All right reserved.
Number of references: 16

Main heading: Aluminum nitride
Controlled terms: Density functional theory - Doping (additives) - Electronic structure - Energy gap - Hole concentration - Lattice constants - Semiconductor doping - Sodium - Valence bands - Zinc sulfide
Uncontrolled terms: Crystalline structure - Direct band gap semiconductors - First principles - First-principles study - Full potential linear augmented plane wave methods - Lattice structures - P-Type conduction - P-type doping
Classification code: 549.1 Alkali Metals - 701.1 Electricity: Basic Concepts and Phenomena - 714.2 Semiconductor Devices and Integrated Circuits - 801 Chemistry - 804.2 Inorganic Compounds - 931.3 Atomic and Molecular Physics - 933.1.1 Crystal Lattice - 933.3 Electronic Structure of Solids
DOI: 10.14062/j.issn.0454-5648.2015.01.10
Database: Compendex

Data Provider: Engineering Village

296. Multiple-image authentication with a cascaded multilevel architecture based on amplitude field random sampling and phase information multiplexing

Accession number: 20153801287882

Authors: Fan, Desheng (1); Meng, Xiangfeng (1); Wang, Yurong (1); Yang, Xiulun (1); Pan, Xuemei (1); Peng, Xiang (2); He, Wenqi (2); Dong, Guoyan (3); Chen, Hongyi (4)
Author affiliation: (1) Department of Optics, Sch. of Info. Sci. and Eng. and Shandong Prov. Key Laboratory of Laser Technology and Application, Shandong University, Jinan, China; (2) College of Optoelectronics Engineering, Shenzhen University, Shenzhen, China; (3) College of Materials Science and Opto-Electronic Techology, University of Chinese Academy of Sciences, Beijing, China; (4) College of Electronic Science and Technology, Shenzhen University, Shenzhen, China
Corresponding author: Meng, Xiangfeng

Abstract: A multiple-image authentication method with a cascaded multilevel architecture in the Fresnel domain is proposed, in which a synthetic encoded complex amplitude is first fabricated, and its real amplitude component is generated by iterative amplitude encoding, random sampling, and space multiplexing for the low-level certification images, while the phase component of the synthetic encoded complex amplitude is constructed by iterative phase information encoding and multiplexing for the high-level certification images. Then the synthetic encoded complex amplitude is iteratively encoded into two phase-Type ciphertexts located in two different transform planes. During high-level authentication, when the two phase-Type ciphertexts and the high-level decryption key are presented to the system and then the Fresnel transform is carried out, a meaningful image with good quality and a high correlation coefficient with the original certification image can be recovered in the output plane. Similar to the procedure of high-level authentication, in the case of low-level authentication with the aid of a low-level decryption key, no significant or meaningful information is retrieved, but it can result in a remarkable peak output in the nonlinear correlation coefficient of the output image and the corresponding original certification image. Therefore, the method realizes different levels of accessibility to the original certification image for different authority levels with the same cascaded multilevel architecture. © 2015 Optical Society of America.
Number of references: 35
Main heading: Authentication
Controlled terms: Amplitude modulation - Architecture - Cryptography - Encoding (symbols) - Image coding - Iterative methods - Multiplexing - Security of data
Uncontrolled terms: Architecture-based - Cascaded multilevel - Complex amplitude - Correlation coefficient - Fresnel domains - Fresnel transform - Non-linear correlations - Phase information
Classification code: 402 Buildings and Towers - 716 Telecommunication; Radar, Radio and Television - 717 Optical Communication - 718 Telephone Systems and Related Technologies; Line Communications - 723 Computer Software, Data Handling and Applications - 723.2 Data Processing and Image Processing - 921.6 Numerical Methods
DOI: 10.1364/AO.54.003204

297. A primer on physical-layer network coding

Authors: Liew, Soung Chang (1); Lu, Lu (1); Zhang, Shengli (2)
Author affiliation: (1) Chinese University of Hong Kong, Hong Kong; (2) Shenzhen University, China
Corresponding author: Liew, Soung Chang

Abstract: The concept of physical-layer network coding (PNC) was proposed in 2006 for application in wireless networks. Since then it has developed into a subfield of communications and networking with a wide following. This book is a primer on PNC. It is the outcome of a set of lecture notes for a course for beginning graduate students at The Chinese University of Hong Kong. The target audience is expected to have some prior background knowledge in communication theory and wireless communications, but not working knowledge at the research level. Indeed, a goal of this book/course is to allow the reader to gain a deeper appreciation of the various nuances of wireless communications and networking by focusing on problems arising from the study of PNC. Specifically, we introduce the tools and techniques needed to solve problems in PNC, and many of these tools and techniques are drawn from the more general disciplines of signal processing, communications, and networking: PNC is used as a pivot to learn about the fundamentals of signal processing techniques and wireless communications in general. We feel that such a problem-centric approach will give the reader a more in-depth understanding of these disciplines and allow him/her to see first-hand how the techniques of these disciplines can be applied to solve real research problems. As a primer, this book does not cover many advanced materials related to PNC. PNC is an active research field and many new results will no doubt be forthcoming in the near future. We believe that this book will provide a good contextual framework for the interpretation of these advanced results should the reader decide to probe further into the field of PNC. © 2015 by Morgan & Claypool.

298. Quantitative analysis of laser-induced breakdown spectroscopy of Pb in water using particle swarm optimization algorithm

Authors: Sun, Luogeng (1); Liu, Lixin (1); Zhu, Ming (2); Wang, Menghan (2); Wang, Qi (2); Peng, Xiao (2); Qu, Junle (2)

Author affiliation: (1) School of Physics and Optoelectronic Engineering, Xidian University, Xi'an, China; (2) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Liu, Lixin(lxliu@xidian.edu.cn)
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Abbreviated source title: Optoelectron. Glob. Conf., OGC
Monograph title: 2015 Optoelectronics Global Conference, OGC 2015
Issue date: November 24, 2015
Publication year: 2015
Article number: 7336840
Language: English
ISBN-13: 9781467377324
Document type: Conference article (CA)
Conference name: Optoelectronics Global Conference, OGC 2015
Conference date: August 29, 2015 - August 31, 2015
Conference location: Shenzhen, China
Conference code: 118363
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: In this study, a particle swarm optimization (PSO) algorithm was implemented to quantitatively analyze the Lead (Pb) concentration in water. Thirty-five samples with different concentrations of $Pb(NO_3)_2$ were detected by laser-induced breakdown spectroscopy (LIBS). The strong spectral line of 405.78 nm was selected as the analytical line. The PSO algorithm was created, trained and tested by IPb. The results have shown that PSO algorithm has many advantages. The Mean Relative Error Percentage (MREP) and the Relative Standard Deviation (RSD) of the test results obtained by PSO algorithm are better than those obtained by Genetic Algorithms (GA) and Ant Colony Optimization algorithm (ACO). © 2015 IEEE.
Number of references: 14
Main heading: Particle swarm optimization (PSO)
Controlled terms: Algorithms - Ant colony optimization - Artificial intelligence - Atomic emission spectroscopy - Genetic algorithms - Laser induced breakdown spectroscopy - Lead - Optimization - Optoelectronic devices - Pollution
Uncontrolled terms: Ant Colony Optimization algorithms - Laserinduced breakdown spectroscopy (LIBS) - Mean relative error - Particle swarm optimization algorithm - Pb concentration - PSO algorithms - Relative standard deviations - Spectral line
Classification code: 546.1 Lead and Alloys - 723.4 Artificial Intelligence - 741.3 Optical Devices and Systems - 921.5 Optimization Techniques - 931.1 Mechanics
DOI: 10.1109/OGC.2015.7336840
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

299. Recursive autoencoder with hownet lexicon for sentence-level sentiment analysis

Accession number: 20161102084509
Authors: Fu, Xianghua (1); Xu, Yingying (1)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen Guangdong, China
Source title: ACM International Conference Proceeding Series
Abbreviated source title: ACM Int. Conf. Proc. Ser.
Volume: 07-09-Ocobert-2015
Monograph title: Proceedings of the ASE BigData and SocialInformatics 2015, ASE BD and SI 2015
Issue date: October 7, 2015
Publication year: 2015
Article number: a20
Language: English
ISBN-13: 9781450337359
Document type: Conference article (CA)
Conference name: ASE BigData and SocialInformatics, ASE BD and SI 2015
Conference date: October 7, 2015 - October 9, 2015
Conference location: Kaohsiung, Taiwan
Conference code: 118806
Publisher: Association for Computing Machinery

Abstract: Semantic word representations have been very useful but usually ignore the syntactic relationship. In the task of sentiment analysis, compositional vector representations require more structure information from natural language text and richer supervised training for more accuracy predictions. However, labeled data are generally expensive to acquire in reality. To remedy this, we propose a new method that train our model based on fully labeled parse tree using supervised learning without manual annotation. Our method not only significantly reduces the burden of manual labeling, but also allows the compositionality to capture syntactic and semantic information jointly. We show the effectiveness of this model on the task of sentence-level sentiment classification and conduct preliminary experiments to investigate its performance. Lastly, it can accurately predict the sentiment distribution and outperforms other approaches. © 2015 ACM.
Number of references: 23
Main heading: Data mining
Controlled terms: Forestry - Natural language processing systems - Semantics - Syntactics - Trees (mathematics)
Uncontrolled terms: Deep learning - HowNet lexicons - Parse trees - Sentiment analysis - Word embedding
Classification code: 723.2 Data Processing and Image Processing - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory
DOI: 10.1145/2818869.2818908
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

300. CPPStreaming: A cloud-assisted peer-to-peer live streaming system

Accession number: 20161402178044
Authors: Cui, Laizhong (1); Li, Genghui (1); Fu, Xianghua (1); Lu, Nan (1)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Fu, Xianghua(fuxh@szu.edu.cn)
Source title: Proceedings - 2015 IEEE 17th International Conference on High Performance Computing and Communications, 2015 IEEE 7th International Symposium on Cyberspace Safety and Security and 2015 IEEE 12th International Conference on Embedded Software and Systems, HPCC-CSS-ICESS 2015
Abbreviated source title: Proc. - IEEE Int. Conf. High Perform. Comput. Commun., IEEE Int. Symp. Cyberspace Saf. Secur., IEEE Int. Conf. Embed. Softw. Syst., HPCC/ICESS/CSS
Monograph title: Proceedings - 2015 IEEE 17th International Conference on High Performance Computing and Communications, 2015 IEEE 7th International Symposium on Cyberspace Safety and Security and 2015 IEEE 12th International Conference on Embedded Software and Systems, HPCC-CSS-ICESS 2015
Issue date: November 23, 2015
Publication year: 2015
Pages: 7-13
Article number: 7336136
Language: English
ISBN-13: 9781479989362
Document type: Conference article (CA)
Conference name: 17th IEEE International Conference on High Performance Computing and Communications, IEEE 7th International Symposium on Cyberspace Safety and Security and IEEE 12th International Conference on Embedded Software and Systems, HPCC-ICESS-CSS 2015
Conference date: August 24, 2015 - August 26, 2015
Conference location: New York, NY, United states
Conference code: 118453
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Although P2P has been the main solution for livestreaming distribution, the dynamic restricts the performance. Cloud computing is a new promising solution, which could be introduced as a supplement for P2P. It is a good direction on combining cloud computing and P2P to leverage the livestreaming system performance. However, for seeking the design of the hybrid system architecture and deployment for good transmission performance, there has been no mature and integral solution so far. In this paper, we design a cloud-assisted P2P livestreaming system called CPPStreaming by combing two state-of-the-art video distribution technologies: cloud computing and P2P. We introduce a two layer framework of CPPStreaming, including the cloud layer and P2P layer. As for the two layers respectively, we propose the corresponding formation and evolution method. For the system deployment, we formulate the leasing cloud servers strategy for an optimal problem and propose a greedy algorithm based on the heuristic solution for solving it. The experiment results show that our system can out perform two classical P2P live streaming systems, in terms of the transmission performance and the reduction of cross-region traffic. © 2015 IEEE.

Number of references: 24
Main heading: Distributed computer systems
Controlled terms: Cloud computing - Clouds - Computers - Embedded software - Embedded systems - Hybrid systems - Peer to peer networks - Video streaming
Uncontrolled terms: Formation and evolutions - Heuristic solutions - Integral solutions - Live streaming - Peer-to-peer live streaming - System architectures - Transmission performance - Video distribution
Classification code: 443 Meteorology - 722 Computer Systems and Equipment - 722.4 Digital Computers and Systems - 723 Computer Software, Data Handling and Applications - 921 Mathematics
DOI: 10.1109/HPCC-CSS-ICESS.2015.25
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

301. Bounds on direct and indirect effects of treatment on a continuous endpoint

Accession number: 20160201771236
Authors: Luo, Peng (1); Geng, Zhi (2)
Author affiliation: (1) Shenzhen University, Nanshan District, Shenzhen, China; (2) School of Mathematical Sciences, Peking University, Beijing, China
Source title: ACM Transactions on Intelligent Systems and Technology
Abbreviated source title: ACM Trans. Intell. Syst. Technolog.
Volume: 7
Issue: 2
Issue date: December 1, 2015
Publication year: 2015
Article number: 20
Language: English
ISSN: 21576904
E-ISSN: 21576912
Document type: Journal article (JA)
Publisher: Association for Computing Machinery
Abstract: Direct effect of a treatment variable on an endpoint variable and indirect effect through a mediate variable are important concepts for understanding a causal mechanism. However, the randomized assignment of treatment is not sufficient for identifying the direct and indirect effects, and extra assumptions and conditions are required, such as the sequential ignorability assumption without unobserved confounders or the sequential potential ignorability assumption. But these assumptions may not be credible in many applications. In this article, we consider the bounds on controlled direct effect, natural direct effect, and natural indirect effect without these extra assumptions. Cai et al. [2008] presented the bounds for the case of a binary endpoint, and we extend their results to the general case for an arbitrary endpoint. © 2015 ACM.
Number of references: 17
Uncontrolled terms: Bound - Causal inferences - Ignorability - Indirect effects - Mediation analysis
DOI: 10.1145/2668134
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

302. Circularly Polarized Patch Antenna with Frequency Reconfiguration

Accession number: 20154101344962
Authors: Gu, Hui (1); Wang, Jianpeng (1); Ge, Lei (2)
Author affiliation: (1) Ministerial Key Laboratory of JGMT, Nanjing University of Science and Technology, Nanjing, China; (2) College of Electronic Science and Technology, Shenzhen University, Shenzhen, China
Source title: IEEE Antennas and Wireless Propagation Letters
Abbreviated source title: IEEE Antennas Wirel. Propag. Lett.
Volume: 14
Issue date: 2015
Publication year: 2015
Pages: 1770-1773
Article number: 7086279

Language: English
ISSN: 15361225
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: A novel circularly polarized (CP) patch antenna with frequency reconfiguration is presented. The antenna consists of a rectangular patch etched with a rectangular-ring slot. Four pairs of varactor diodes are symmetrically placed along the slot. Two orthogonal resonant modes of the patch antenna are simultaneously excited by a single coaxial probe feed. By varying the capacitance values of the varactor diodes with single DC voltage, the resonant frequencies of the two modes can be simultaneously changed. Moreover, by introducing a specific difference between the length and width of the rectangular-ring slot, good CP performances can be obtained over a broad frequency tuning range. A prototype was fabricated and measured. The measured results indicate that a continuously tunable CP operating frequency from 1.92 to 2.51 GHz and stable broadside radiation patterns can be achieved. The measured efficiency rises from about 47% to about 61% as the operating frequency increases from 1.92 to 2.51 GHz. © 2015 IEEE.
Number of references: 19
Main heading: Microstrip antennas
Controlled terms: Capacitance - Circular polarization - Directional patterns (antenna) - Microwave antennas - Natural frequencies - Slot antennas - Varactors
Uncontrolled terms: Broadside radiations - Capacitance values - Circularly polarized - Coaxial probe feed - Frequency tuning range - Operating frequency - Reconfigurable antenna - Rectangular patch
Classification code: 701.1 Electricity: Basic Concepts and Phenomena - 714.2 Semiconductor Devices and Integrated Circuits
DOI: 10.1109/LAWP.2015.2423321
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

303. Flexible and enhanced thermal conductivity of a Al2O3@polyimide hybrid film via coaxial electrospinning

Accession number: 20150900577292
Authors: Xia, Jianwen (1, 2); Zhang, Guoping (1, 3); Deng, Libo (1); Yang, Haipeng (2); Sun, Rong (1); Wong, Ching-Ping (1, 3)
Author affiliation: (1) Shenzhen College of Advanced Technology, University of Chinese Academy of Sciences, Shenzhen, China; (2) College of Materials Science and Engineering, Shenzhen University, Shenzhen, China; (3) School of Materials Science and Engineering, Georgia Institute of Technology, 771 Ferst Drive, Atlanta; GA, United States
Corresponding author: Zhang, Guoping
Source title: RSC Advances
Abbreviated source title: RSC Adv.
Volume: 5
Issue: 25
Issue date: 2015
Publication year: 2015
Pages: 19315-19320
Language: English
E-ISSN: 20462069
CODEN: RSCACL
Document type: Journal article (JA)
Publisher: Royal Society of Chemistry
Abstract: A novel core-shell structure of Al2O3nanoparticles (NPs) attached on poly(amic acid) (PAA) fiber has been successfully developed by facile coaxial electrospinning technology for the first time. The as-prepared PAA fiber went through imidization to prepare the Al2O3@polyimide (Al2O3@PI) film. The resultant films with different Al2O3contents are characterized by scanning electron microscopy, Fourier transform infrared spectroscopy, thermal gravimetric analysis, and dynamical mechanical analysis. The results indicated that the Al2O3NPs could uniformly decorate the surface of fibers with a diameter of about 1 μm, which enhanced the thermal and mechanical properties of the fiber-based films. In particular, the flexible film with a high content of Al2O3of 59.3 wt% presents a high storage modulus (2.11 GPa) and excellent thermal stability (474 °C at 5% mass loss) as well as superior in plane thermal conductivity of 9.66 W m-1K-1. Finally, compared with pure PI film, the Al2O3@PI fiber-based film exhibits excellent thermal transfer

ability in light emitting diode packaging. Therefore, the novel Al2O3@PI fiber-based film with integrated properties of insulation, thermal conductivity and flexibility can be used for wearable electronics and power devices. This journal is © The Royal Society of Chemistry.

Data Provider: Engineering Village

304. Spin-orbit interaction of light in metasuface

Authors: Yi, Xu-Nong (1, 2); Li, Ying (1); Ling, Xiao-Hui (1); Zhang, Zhi-You (1); Fan, Dian-Yuan (1)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (2) College of Physics and Electronic Information Engineering, Hubei Engineering University, Xiaogan, China
Corresponding author: Li, Ying(queenly@vip.sina.com)
Abstract: Spin-orbit interaction of light in metasurface is investigated in this paper. We theoretically analyze the transfromation of circularly and linearly polarized light by metasurface with Jones matrix. The results indicate that the interaction of light with spatially inhomogeneous and anisotropic metasurface leads to a coupling of spin-orbital angular momentum. The nanostructrues of metasurfaces are arranged at a definite rate of rotation, which induces an additional space-variant geometrical phase (i.e., Pancharatnam-Berry phase). The Pancharatnam-Berry phase is dependent on the polarization handedness of the incident wave. This characteristic can result in spin-dependent split. A left/right-circular polarized beam is transfromed into a right/left-circular polarized vortex beam by the metasurfaces. In the convertion process, the sign of spin angular momentum of photons is inversed. At the same time, each photon can acquire orbital angular momentum from the inhomogeneous and anisotropic media. The case that a linearly polarized beam inputs the metasurfaces also is considered. A linearly polarized wave can be regarded as the linear superposition of left-circular and right-circular polarized wave. The two circularly plarized components are respectively converted into circularly polarized vortex beam with reverse polarization handedness. The coherent superposition of the two output components forms a cylindrical vector beam. Finally, we adopt the combination of a metasurface and spiral phase plate to verify the theoretical results. The vortex phase can be eliminated by the spiral phase plate when a left-circular polarized light is input, while topological charge of vortex phase will increase when a right-circular polarized light is input. For the case of inputting linearly polarized beam, one of the two outputing circularly polarized components can be eliminated by the helical phase through using the spiral phase plate, while the topological charge of another component increases. It results in the fact that the intensity pattern splits into two parts. The central part does not have helical phase, while the ambient ring-shaped intensity has helical phase. In order to judge the polarization handedness of output wave, the Stokes parameter S3is measured by inserting a Glan laser polarizer and a quarter wave plate

behind the spiral phase plate. The experimental results are in good agreement with theoretical analyses. These results are helpful for understanding the manipulation of light with metasurface. © 2015 Chinese Physical Society.
Number of references: 30
Main heading: Light
Controlled terms: Angular momentum - Anisotropic media - Anisotropy - Circular polarization - Fruits - Light polarization - Momentum - Optical devices - Photons - Polarization - Topology - Vortex flow
Uncontrolled terms: Circular polarized waves - Coherent superpositions - Linearly polarized light - Orbital angular momentum - Pancharatnam-Berry phase - Spin orbit interactions - Vector beams - Vortex beams
Classification code: 631.1 Fluid Flow, General - 711 Electromagnetic Waves - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 821.4 Agricultural Products - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 931 Classical Physics; Quantum Theory; Relativity - 951 Materials Science
DOI: 10.7498/aps.64.244202
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

305. Joint range and angle estimation using MIMO radar with frequency diverse array

Accession number: 20152400934669
Authors: Xu, Jingwei (1); Liao, Guisheng (1); Zhu, Shengqi (1); Huang, Lei (2); So, Hing Cheung (3)
Author affiliation: (1) National Laboratory of Radar Signal Processing, Xidian University, Xi'an, Shaanxi, China; (2) College of Information Engineering, Shenzhen University, Shenzhen, China; (3) Department of Electronic Engineering, City University of Hong Kong, Hong Kong, Hong Kong
Source title: IEEE Transactions on Signal Processing
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Volume: 63
Issue: 13
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Publication year: 2015
Pages: 3396-3410
Article number: 7084678
Language: English
ISSN: 1053587X
CODEN: ITPRED
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Phased array is widely used in radar systems with its beam steering fixed in one direction for all ranges. Therefore, the range of a target cannot be determined within a single pulse when range ambiguity exists. In this paper, an unambiguous approach for joint range and angle estimation is devised for multiple-input multiple-output (MIMO) radar with frequency diverse array (FDA). Unlike the traditional phased array, FDA is capable of employing a small frequency increment across the array elements. Because of the frequency increment, the transmit steering vector of the FDA-MIMO radar is a function of both range and angle. As a result, the FDA-MIMO radar is able to utilize degrees-of-freedom in the range-angle domains to jointly determine the range and angle parameters of the target. In addition, the Cramér-Rao bounds for range and angle are derived, and the coupling between these two parameters is analyzed. Numerical results are presented to validate the effectiveness of the proposed approach. © 2015 IEEE.
Number of references: 44
Main heading: MIMO radar
Controlled terms: Codes (symbols) - Degrees of freedom (mechanics) - Feedback control - Frequency estimation - MIMO systems - Radar - Radar signal processing - Radar systems - Telecommunication repeaters
Uncontrolled terms: Angle estimation - Array elements - frequency diverse array - Frequency increments - Multiple input multiple output (MIMO) radars - Numerical results - Range ambiguity - Steering vector
Classification code: 716.2 Radar Systems and Equipment - 718.1 Telephone Systems and Equipment - 723.2 Data Processing and Image Processing - 731.1 Control Systems - 731.5 Robotics - 751 Acoustics, Noise. Sound
DOI: 10.1109/TSP.2015.2422680
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

306. Triphenylamine-based broad band-gap polymers for bulk-heterojunction polymer solar cells

Authors: Zhang, Bin (1); Liang, Junfei (2); Hu, Liwen (2); Peng, Feng (2); Chen, Guiting (2); Yang, Wei (2)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (2) Institute of Polymer Optoelectronic Materials and Devices, State Key Laboratory of Luminescent Materials and Devices, South China University of Technology, Guangzhou, China
Corresponding author: Zhang, Bin
Abstract: Three triphenylamine-based broad band-gap polymers P1, P2, and P3 were designed and synthesized by Suzuki polycondensation. The optical band gaps of P1, P2, and P3 were 1.90, 19.5, and 1.99 eV, respectively. The calculated highest occupied molecular orbit energy levels of P1, P2, and P3 were -5.31, -5.29, and -5.32 eV, respectively, by cyclic voltammogram characterization. The hole mobilities of P1, P2, and P3 were $1.6 \times 10\text{-}4$, $5.9 \times 10\text{-}5$, and $4.1 \times 10\text{-}5$ cm2 v-1 s-1, respectively, by the space charge-limited current method. The polymer solar cells were fabricated under the device architecture of ITO/PEDOT:PSS/polymer:PC61BM or PC71BM/(PFN)/Al. All solar cells displayed the high open circuit voltages, where the highest ones can reach 0.90 V for P1 and P2. The P1- and P2-based solar cells gave the best power conversion efficiency of 3.37 and 3.34 %, respectively. © 2015, Springer Science+Business Media New York.

307. Loss-averse newsvendor model under supply uncertainty with additive demand

Authors: Ma, Lijun (1); Li, Jingjing (1); Qin, Guanglun (1); Jiang, Xing (1)
Author affiliation: (1) College of Management, Shenzhen University, Shenzhen, China

Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: Based on the traditional newsvendor model, we study the production decisions for a loss-averse retailer under supply and additive demand uncertainties in a fashion supply chain. We demonstrate the existences of the optimal order quantity and price. With numerical study, we show that under the loss-averse behavior, the higher the loss-averse degree, the lower the optimal order quantity, the higher the optimal price. Moreover, we analyze the effect of other parameters on the retailer's optimal decisions. © 2015 IEEE.

Number of references: 8

Main heading: Supply chains

Uncontrolled terms: Additive demands - Newsvendor models - Newsvendors - Optimal decisions - Optimal order quantity - Production decisions - Supply uncertainty

Classification code: 912 Industrial Engineering and Management - 913 Production Planning and Control; Manufacturing

DOI: 10.1109/ICSSSM.2015.7170253

Compendex references: YES

Database: Compendex

Compilation and indexing terms, Copyright 2016 Elsevier Inc.

Data Provider: Engineering Village

308. Study on tunable color temperature white led light source with ultra-high color rendering index

Accession number: 20154801627283

Authors: Chen, Jiangbo (1); Yu, Jianhua (2); Gao, Yafei (1); Zhang, Yiyang (1); Lu, Xiuyan (1)

Author affiliation: (1) College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (2) College of Electronic Science and Technology, Shenzhen University, Shenzhen, China

Corresponding author: Yu, Jianhua(jyu@szu.edu.cn)

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Article number: 1023002

Language: Chinese

ISSN: 02532239

CODEN: GUXUDC

Document type: Journal article (JA)

Publisher: Chinese Optical Society

Abstract: The emission spectrum of light emitting diode (LED) are calculated by using the LED spectral model of Ohno, and then the spectral combination of multi-LEDs has been investigated theoretically and experimentally. In the experiment, the warm white light, which is obtained by blue LED die exciting green and orange phosphor, and red, cyan, blue LED light are mixed. By respectively controlling the duty ratio of the pulse width modulation (PWM) signals, the drive currents and luminous flux of each LED can be adjusted. A mixed white light source with ultra-high color rendering index has been realized for the first time, whose color temperature can be tunable within the range of 2700 K to 6500 K, Ra is between 95 to 98, all special CRIs (R1~R15) are more than 90, and luminous efficiency of radiation (LER) is between 286 lm/W to 336 lm/W. The consistency of experimental measurements and theoretical simulation are very well. © 2015, Chinese Optical Society. All right reserved.

Number of references: 19

Page count: 7

Main heading: Light emitting diodes

Controlled terms: Color - Color image processing - Counting circuits - Emission spectroscopy - Light sources - Optoelectronic devices - Pulse width modulation - Voltage control

Uncontrolled terms: Color rendering index - Color temperatures - Luminous efficacy of radiation - Luminous efficiency - Spectral combination - Theoretical simulation - Tunable color - White light sources

Classification code: 713.4 Pulse Circuits - 714.2 Semiconductor Devices and Integrated Circuits - 731.3 Specific Variables Control - 741.1 Light/Optics - 741.3 Optical Devices and Systems

DOI: 10.3788/AOS201535.1023002

Compendex references: YES

Database: Compendex

Compilation and indexing terms, Copyright 2016 Elsevier Inc.

309. N-doped porous carbon material made from fish-bones and its highly electrocatalytic performance in the oxygen reduction reaction

Accession number: 20152400927476

Authors: Wang, Hui (1); Wang, Kai (1); Song, Huihui (1); Li, Hao (2); Ji, Shan (3); Wang, Zihan (1); Li, Shunxi (1); Wang, Rongfang (1)
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Source title: RSC Advances
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Issue date: 2015
Publication year: 2015
Pages: 48965-48970
Language: English
E-ISSN: 20462069
CODEN: RSCACL
Document type: Journal article (JA)
Publisher: Royal Society of Chemistry

Abstract: A N-doped porous carbon material was prepared by pyrolysis of fish bones, a natural material and sustainable source. The morphology and structure of the N-doped porous carbon were investigated by scanning electron microscopy, X-ray diffraction, Raman spectroscopy and N2 isotherms. The mass content of N in the obtained sample measured by X-ray photoelectron spectroscopy is about 6.02%. Electrochemical characterization reveals that the obtained N-doped porous carbon possesses excellent catalytic activity towards oxygen reduction reaction in alkaline medium, as well as long-term stability in catalysis. © The Royal Society of Chemistry 2015.

Number of references: 32
Main heading: X ray photoelectron spectroscopy
Controlled terms: Bone - Catalyst activity - Doping (additives) - Electrolytic reduction - Fish - Porous materials - Reduction - Scanning electron microscopy - X ray diffraction
Uncontrolled terms: Alkaline medium - Electrocatalytic performance - Electrochemical characterizations - Long term stability - Morphology and structures - Natural materials - Oxygen reduction reaction - Porous carbon materials
Classification code: 461 Bioengineering and Biology - 461.2 Biological Materials and Tissue Engineering - 471 Marine Science and Oceanography - 741.1 Light/Optics - 801 Chemistry - 802.2 Chemical Reactions - 821 Agricultural Equipment and Methods; Vegetation and Pest Control - 822 Food Technology - 931.3 Atomic and Molecular Physics - 951 Materials Science
DOI: 10.1039/c5ra09144f
Database: Compendex

310. A multimodal optimization and surprise based consensus community detection algorithm

Accession number: 20161002047046

Authors: Jia, Guanbo (1); He, Shan (1); Zhu, Zexuan (2); Liu, Jing (3); Tang, Ke (4)
Author affiliation: (1) School of Computer Science, University of Birmingham, Birmingham, United Kingdom; (2) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (3) Institute of Intelligent Information Processing, Xidian University, Xi'an, China; (4) School of Computer Science and Technology, University of Science and Technology of China, Hefei, China
Corresponding author: He, Shan(s.he@cs.bham.ac.uk)

Source title: GECCO 2015 - Companion Publication of the 2015 Genetic and Evolutionary Computation Conference
Abbreviated source title: GECCO - Companion Publ. Genet. Evol. Comput. Conf.
Monograph title: GECCO 2015 - Companion Publication of the 2015 Genetic and Evolutionary Computation Conference
Issue date: July 11, 2015

Publication year: 2015
Pages: 1407-1408
Language: English
ISBN-13: 9781450334884
Document type: Conference article (CA)
Conference name: 17th Genetic and Evolutionary Computation Conference, GECCO 2015
Conference date: July 11, 2015 - July 15, 2015
Conference location: Madrid, Spain
Conference code: 118007
Sponsor: ACM SIGEVO
Publisher: Association for Computing Machinery, Inc

Abstract: A new community structure measure called Surprise has been proposed to address the resolution limit problem of modularity. However, our analysis shows that, similar to modularity, Surprise also suffers from the so-called extreme degeneracy problem, which leads to unstable module identification results. To solve this problem, we propose a novel Multimodal Optimization and Surprise based Consensus Community Detection (MOSCCoD) algorithm. Experimental results show that MOSCCoD has overcome the extreme degeneracy problem of Surprise and shown a very competitive performance in terms of stability and accuracy.

Number of references: 9
Main heading: Problem solving
Controlled terms: Algorithms - Cluster analysis - Complex networks - Evolutionary algorithms - Optimization - Population dynamics
Uncontrolled terms: Community detection - Community detection algorithms - Community structures - Competitive performance - Consensus clustering - Extreme degeneracy - Module identifications - Multi-modal optimization
Classification code: 722 Computer Systems and Equipment - 723 Computer Software, Data Handling and Applications - 921.5 Optimization Techniques - 971 Social Sciences
DOI: 10.1145/2739482.2764656
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

311. Microstructured optical fiber devices for gas pressure measurements

Accession number: 20161302149452

Authors: Wang, Yiping (1); Tang, Jiang (1); Liao, Changrui (1); Liu, Shen (1); Sun, Bing (1); Li, Zhengyong (1); Zhong, Xiaoyong (1)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Wang, Yiping(ypwang@szu.edu.cn)

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Abbreviated source title: Optoelectron. Glob. Conf., OGC
Monograph title: 2015 Optoelectronics Global Conference, OGC 2015
Issue date: November 24, 2015
Publication year: 2015
Article number: 7336870
Language: English
ISBN-13: 9781467377324
Document type: Conference article (CA)
Conference name: Optoelectronics Global Conference, OGC 2015
Conference date: August 29, 2015 - August 31, 2015
Conference location: Shenzhen, China
Conference code: 118363
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: We proposed and experimentally demonstrated five kinds of gas pressure sensors based on in-fiber devices, including a long period fiber grating written in air-core bandgap fiber, a fiber-Tip air bubble, a polymer-capped Fabry-Perot interferometer, an inflated long period fiber grating and a twin-core fiber-based Mach-Zehnder interferometer, which exhibited a sensitivity of 137, 1036, 1130, 1680, 9600 pm/MPa, respectively. © 2015 IEEE.

Number of references: 8
Main heading: Fibers
Controlled terms: Diffraction gratings - Fabry-Perot interferometers - Interferometers - Mach-Zehnder interferometers - Optical fibers - Optoelectronic devices - Photonic bandgap fibers - Pressure sensors

Uncontrolled terms: Air bubbles - Bandgap fibers - Gas pressure measurement - Gas pressure sensor - In-fiber devices - Long period fiber grating - Micro-structured optical fibers - Twin core fiber
Classification code: 741.1.2 Fiber Optics - 741.3 Optical Devices and Systems - 941.3 Optical Instruments - 944.3 Pressure Measuring Instruments
DOI: 10.1109/OGC.2015.7336870
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

312. Gabor feature based dictionary fusion for hyperspectral imagery classification

Accession number: 20161302152892
Authors: Jia, Sen (1); Hu, Jie (1); Tang, Guihua (1); Shen, Linlin (1); Deng, Lin (2)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (2) College of Information Engineering, Shenzhen University, Shenzhen, China
Source title: International Geoscience and Remote Sensing Symposium (IGARSS)
Abbreviated source title: Dig Int Geosci Remote Sens Symp (IGARSS)
Volume: 2015-November
Monograph title: 2015 IEEE International Geoscience and Remote Sensing Symposium, IGARSS 2015 - Proceedings
Issue date: November 10, 2015
Publication year: 2015
Pages: 433-436
Article number: 7325793
Language: English
CODEN: IGRSE3
ISBN-13: 9781479979295
Document type: Conference article (CA)
Conference name: IEEE International Geoscience and Remote Sensing Symposium, IGARSS 2015
Conference date: July 26, 2015 - July 31, 2015
Conference location: Milan, Italy
Conference code: 117585
Sponsor: The Institute of Electrical and Electronics Engineers Geoscience and Remote Sensing Society (IEEE GRSS)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Multiple kinds of features extracted from hyperspectral imagery (HSI) have shown great potential for pixel-oriented classification. However, two difficulties can be encountered during the classification process. Firstly, it is time consuming to directly utilize the large amount of features. Secondly, because each kind of feature is usually processed individually, the high-level relationship among different features is not completely configured, decreasing the performance eventually. In this paper, a new strategy to fuse the features and exploit dictionary learning for HSI classification is proposed. Based on the high-level relationship, the extracted Gabor features have been integrated into a more compact and more discriminative representation through a Fisher-based criterion. Experimental results have shown that the fused features can not only produce competitive performance for HSI classification, but also greatly reduce the computational complexity. © 2015 IEEE.
Number of references: 10
DOI: 10.1109/IGARSS.2015.7325793
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

313. Sliding-mode position control of medium-stroke voice coil motor based on system identification observer

Accession number: 20154701584033
Authors: Pan, Jianfei (1, 2); Or, Siu Wing (1); Zou, Yu (1, 2); Cheung, Norbert Chow (1)
Author affiliation: (1) Department of Electrical Engineering, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong; (2) Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China
Corresponding author: Or, Siu Wing(eeswor@polyu.edu.hk)
Source title: IET Electric Power Applications
Abbreviated source title: IET Electr Power Appl

Abstract: This study presents the performance improvement in the position control of a medium-stroke voice coil motor (VCM) using a sliding-mode controller (SMC) with a system identification observer (SIO). The proposed VCM is developed with a full stroke of 24 mm, and its non-linear electro-magneto-mechanical characteristics are analysed by the threedimensional finite element method. A least-squares-based SIO is introduced into the VCM control system prior to the position regulation of the SMC in order to achieve a shorter rise time of 29 ms and a smaller steady-state error of < ±2 μm under a square-wave excitation of 20 mm amplitude and 0.5 Hz frequency. An experimental verification between the SMC and a traditional proportion-integral-differential controller is carried out. The results demonstrate improved dynamic and static tracking responses in the SMC under load-free, frequency-varying operations. & The Institution of Engineering and Technology 2015.

Number of references: 32
Main heading: Position control
Controlled terms: Controllers - Excited states - Finite element method - Religious buildings - Sliding mode control - Speech recognition
Uncontrolled terms: Engineering and technology - Experimental verification - Mechanical characteristics - Position regulation - Sliding mode controller - Square wave excitation - Steady state errors - Three-dimensional finite element method
Classification code: 402.2 Public Buildings - 731.1 Control Systems - 731.3 Specific Variables Control - 732.1 Control Equipment - 751.5 Speech - 921.6 Numerical Methods - 931.3 Atomic and Molecular Physics
DOI: 10.1049/iet-epa.2014.0486
Compendex references: YES
Database: Compendex

Data Provider: Engineering Village

314. Sparse and low-rank coupling image segmentation model via nonconvex regularization

Accession number: 20151800799550
Authors: Zhang, Xiujun (1); Xu, Chen (2); Li, Min (3); Sun, Xiaoli (3)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Nanhai Ave 3688, Shenzhen, Guangdong, China; (2) Institute of Intelligent Computing Science, Shenzhen University, Nanhai Ave 3688, Shenzhen, Guangdong, China; (3) College of Mathematics and Computing Science, Shenzhen University, Nanhai Ave 3688, Shenzhen, Guangdong, China
Corresponding author: Xu, Chen

Abstract: This paper investigates how to boost region-based image segmentation by inheriting the advantages of sparse representation and low-rank representation. A novel image segmentation model, called nonconvex regularization based sparse and low-rank coupling model, is presented for such a purpose. We aim at finding the optimal solution which is provided with sparse and low-rank simultaneously. This is achieved by relaxing sparse representation problem as L1/2 norm minimization other than the L1 norm minimization, while relaxing low-rank representation problem as the S1/2 norm minimization other than the nuclear norm minimization. This coupled model

can be solved efficiently through the Augmented Lagrange Multiplier (ALM) method and half-threshold operator. Compared to the other state-of-the-art methods, the new method is better at capturing the global structure of the whole data, the robustness is better and the segmentation accuracy is also competitive. Experiments on two public image segmentation databases well validate the superiority of our method. © 2015 World Scientific Publishing Company.
Number of references: 34
Main heading: Image segmentation
Controlled terms: Lagrange multipliers
Uncontrolled terms: Augmented lagrange multipliers - Image segmentation model - Low-rank representations - Nonconvex - Nuclear norm minimizations - Region based image segmentation - Sparse representation - State-of-the-art methods
Classification code: 741.1 Light/Optics - 921 Mathematics
DOI: 10.1142/S0218001415550046
Compendex references: YES
Database: Compendex
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315. CO2laser writing of long period fiber grating in air-core photonic bandgap fiber as gas pressure sensor

Accession number: 20161302149441
Authors: Tang, Jian (1); Yin, Guolu (1); Liu, Shen (1); Zhong, Xiaoyong (1); Liao, Changrui (1); Wang, Yiping (1)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Wang, Yiping(ypwang@szu.edu.cn)
Source title: 2015 Optoelectronics Global Conference, OGC 2015
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Monograph title: 2015 Optoelectronics Global Conference, OGC 2015
Issue date: November 24, 2015
Publication year: 2015
Article number: 7336859
Language: English
ISBN-13: 9781467377324
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Conference name: Optoelectronics Global Conference, OGC 2015
Conference date: August 29, 2015 - August 31, 2015
Conference location: Shenzhen, China
Conference code: 118363
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: We reported a gas pressure sensor based on CO2-laser-induced long period fiber grating (LPFG) in an air-core photonic bandgap fiber (PBF). The LPFG was inscribed by use of an improved CO2laser system with an ultra-precision two-dimensional scanning technique, which produced single side periodic collapses in the micro-structured cladding of the air-core PBF. Such LPFG was utilized to measure the gas pressure with a sensitivity of-137 pm/MPa. A simulation model was built to study the gas pressure response mechanism of this kind LPFG. The stress distribution along the LPFG revealed that the outer gas pressure can lead to a stress concentration at the collapsed area and then transfer into the silica wall of the air-hole, which finally results in a shift of the resonant wavelength. © 2015 IEEE.
Number of references: 15
Main heading: Photonic bandgap fibers
Controlled terms: Carbon dioxide - Diffraction gratings - Energy gap - Fibers - Gases - Hole concentration - Optoelectronic devices - Pressure sensors - Spontaneous emission - Stress concentration
Uncontrolled terms: Air core - Gas pressure sensor - Laser writing - Long period fiber grating - Resonant wavelengths - Simulation model - Two-dimensional scanning - Ultra precision
Classification code: 701.1 Electricity: Basic Concepts and Phenomena - 711 Electromagnetic Waves - 741.3 Optical Devices and Systems - 804.2 Inorganic Compounds - 944.3 Pressure Measuring Instruments - 951 Materials Science
DOI: 10.1109/OGC.2015.7336859
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

316. A novel hybrid multi-objective immune algorithm with adaptive differential evolution

Authors: Lin, Qiuzhen (1); Zhu, Qingling (1); Huang, Peizhi (1); Chen, Jianyong (1); Ming, Zhong (1); Yu, Jianping (1)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Chen, Jianyong
Abstract: In this paper, we propose a novel hybrid multi-objective immune algorithm with adaptive differential evolution, named ADE-MOIA, in which the introduction of differential evolution (DE) into multi-objective immune algorithm (MOIA) combines their respective advantages and thus enhances the robustness to solve various kinds of MOPs. In ADE-MOIA, in order to effectively cooperate DE with MOIA, we present a novel adaptive DE operator, which includes a suitable parent selection strategy and a novel adaptive parameter control approach. When performing DE operation, two parents are respectively picked from the current evolved and dominated population in order to provide a correct evolutionary direction. Moreover, based on the evolutionary progress and the success rate of offspring, the crossover rate and scaling factor in DE operator are adaptively varied for each individual. The proposed adaptive DE operator is able to improve both of the convergence speed and population diversity, which are validated by the experimental studies. When comparing ADE-MOIA with several nature-inspired heuristic algorithms, such as NSGA-II, SPEA2, AbYSS, MOEA/D-DE, MIMO and D2MOPSO, simulations show that ADE-MOIA performs better on most of 21 well-known benchmark problems. © 2015 Published by Elsevier Ltd.
Number of references: 57
Main heading: Evolutionary algorithms
Controlled terms: Algorithms - Heuristic algorithms - Multiobjective optimization - Optimization
Uncontrolled terms: Adaptive differential evolutions - Adaptive parameters - Bench-mark problems - Convergence speed - Differential Evolution - Evolutionary progress - Immune algorithms - Population diversity
Classification code: 723 Computer Software, Data Handling and Applications - 723.1 Computer Programming - 921 Mathematics - 921.5 Optimization Techniques
DOI: 10.1016/j.cor.2015.04.003
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

317. Two-step reliability test based unitary root-MUSIC for direction-of-arrival estimation

Authors: Qian, Cheng (1); Huang, Lei (2); Xiao, Yuhang (1); So, H.C. (3)
Author affiliation: (1) Department of Electronic and Information Engineering, Shenzhen Graduate School, Harbin Institute of Technology, Shenzhen, China; (2) College of Information Engineering, Shenzhen University, Shenzhen, China; (3) Department of Electronic Engineering, City University of Hong Kong, Hong Kong, Hong Kong
Corresponding author: Huang, Lei

Document type: Journal article (JA)
Publisher: Elsevier Inc.

Abstract: A two-step reliability test (TSRT) based unitary root-MUSIC algorithm for direction-of-arrival (DOA) estimation is proposed in this paper. We combine the conventional beamforming and unitary root-MUSIC to compute the DOA estimates and employ the pseudo-noise resampling (PR) technique to construct a DOA estimator bank. Unlike the standard reliability test, we devise the TSRT which retains the successful DOA estimates of a given DOA estimator separately to construct a DOA estimate set that is used to determine the final DOA estimates. Compared to the existing PR based DOA estimation methods, our solution can achieve better threshold performance by using fewer PR runs. Furthermore, the TSRT can be easily applied to other DOA estimation methods. Simulations verify the effectiveness of the proposed scheme. © 2015 Elsevier Inc. All rights reserved.

Number of references: 25
Main heading: Direction of arrival
Controlled terms: Algorithms - Estimation - Reliability - Wavelet analysis
Uncontrolled terms: Direction of arrivalestimation(DOA) - Low-complexity - Resampling - Robust estimation - Root-MUSIC
DOI: 10.1016/j.dsp.2015.02.005
Compendex references: YES
Database: Compendex
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318. Overcoming the challenge of variety: Big data abstraction, the next evolution of data management for AAL communication systems

Accession number: 20150500460050
Authors: Mao, Rui (1); Xu, Honglong (1); Wu, Wenbo (2); Li, Jianqiang (3); Li, Yan (1); Lu, Minhua (1)
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Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: With the extensive use of information technology in AAL communication systems, a data management model has recently embodied the 3-V characteristics of big data: volume, velocity, and variety. A lot of work has been done on volume and velocity, but not as much has been reported on variety. To handle the variety of data, universal solutions with acceptable performance are usually much more cost effective than customized solutions. To achieve universality, a basic idea is to first define a universal abstraction that covers a wide range of data types, and then build a universal system for universal abstraction. Traditional database management systems commonly use a multidimensional data type, or feature vectors, as a universal abstraction. However, many new data types in AAL systems cannot be abstracted into multidimensional space. To find a more universal data abstraction and build more universal systems, we propose the concept of big data abstraction, with metric space as a universal abstraction for AAL data types. Furthermore, to demonstrate how metricspace data abstraction works, we survey the state of the art in metric space indexing, a fundamental task in data management. Finally, open research issues are discussed. © 2015 IEEE.

Number of references: 8
Main heading: Information management
Controlled terms: Abstracting - Big data - Computer aided language translation - Cost effectiveness - Information use - Set theory - Topology
Uncontrolled terms: Acceptable performance - Customized solutions - Management Model - Metric space indexing - Multi-dimensional space - Multidimensional data - State of the art - Universal solutions

Data Provider: Engineering Village

319. Research on temporal resolution of pulse-dilation framing tube

Authors: Bai, Yanli (1, 2); Long, Jinghua (3); Cai, Houzhi (1); Liao, Yubo (1); Lei, Yunfei (1); Liu, Jinyuan (1)
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Corresponding author: Long, Jinghua(jhlong@szu.edu.cn)
Abstract: The physical and technology temporal resolution of pulse dilation frame tube were studied by the classic formula, the mean field theory and the pulse dilation model. The influence of the parameters on temporal resolution was analyzed, which are the initial energy, the cathode biased, the ramp pulse and the drift distance, etc. The effect of the physical and technology temporal resolution in picosecond (ps) and the sub-ps time scale and the possibility of achieving sub-ps of temporal resolution were discussed. The results show that the physical and technology temporal resolution are restricted each other. The temporal resolution of tube is decided by the technology temporal resolution when temporal resolution is 5 ps time scale. The temporal resolution of tube is decided by the physical and technology temporal resolution when the temporal resolution is sub-ps time scale. © 2015, Editorial Board of Journal of Infrared and Laser Engineering. All right reserved.
Data Provider: Engineering Village

320. A sensorless vector strategy for the PMSM using improved sliding mode observer and fuzzy PI speed controller

Authors: Deng, Hui (1); Cao, Guang-Zhong (1); Huang, Su-Dan (1, 2); Shi, Lai-Juan (3); He, Zhi-Ming (4)
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Conference name: 6th International Conference on Power Electronics Systems and Applications, PESA 2015
Conference date: December 15, 2015 - December 17, 2015
Conference location: Hong Kong, Hong kong
Conference code: 119372
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: To reduce the cost and obtain accurate rotor position of the permanent magnet synchronous motor (PMSM), a sensorless vector strategy for the PMSM using an improved sliding mode observer (SMO) and a fuzzy PI speed controller is proposed. The mathematical model of the PMSM is firstly presented. Then, a sigmoid function is applied to the improved SMO for overcoming chattering, and the observer of back electromotive force instead of the low-pass filter is introduced to the SMO. The stability of the improved SMO is further proved with the Lyapunov function. Additionally, the fuzzy PI speed controller is designed. The simulation is performed based on MATLAB, and the experiment is carried out under the developed test rig based on DSP TMS320F2808. The effectiveness of the proposed strategy is finally verified. © 2015 IEEE.
Number of references: 13
Main heading: Sensorless control
Controlled terms: Controllers - Low pass filters - Lyapunov functions - Magnets - MATLAB - Permanent magnets - Power electronics - Sliding mode control - Speed control - Synchronous motors - Vector control (Electric machinery) - Water craft
Uncontrolled terms: Back electromotive force - FUZZY-PI - Permanent Magnet Synchronous Motor - Rotor position - Sensorless vector control - Sigmoid function - Sliding mode observers - TMS320F2808
Classification code: 674.1 Small Marine Craft - 703.2 Electric Filters - 704.1 Electric Components - 705.3.1 AC Motors - 731 Automatic Control Principles and Applications - 732.1 Control Equipment - 921 Mathematics
DOI: 10.1109/PESA.2015.7398907
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

321. A fast-response/recovery ZnO hierarchical nanostructure based gas sensor with ultra-high room-temperature output response

Accession number: 20144800244911
Authors: Pan, Xiaofang (1); Zhao, Xiaojin (1, 2); Chen, Jiaqi (1); Bermak, Amine (1); Fan, Zhiyong (1)
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Abbreviated source title: Sens Actuators, B Chem
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CODEN: SABCEB
Document type: Journal article (JA)
Publisher: Elsevier
Abstract: In this paper, a ZnO hierarchical nanostructure based gas sensor is presented. The proposed implementation features short response/recovery time and ultra-high output response at room temperature (RT). In order to take the advantages of complementary-metal-oxide-semiconductor (CMOS) process in terms of miniaturization and cost-effectiveness, a novel fabrication recipe, consisting of CMOS-compatible techniques, is proposed to form a patterned triple-layer metal, which functions as both interconnection electrodes and catalyst for our reported ZnO hierarchical nanostructure. This enables rapid and local growth of ZnO hierarchical nanostructure directly on a single silicon chip. Reported peak RT output response of 32 (20 ppm NO2) provides a significant 28-fold improvement over

the traditional widely adopted nanowire-based gas sensor. Meanwhile, a time efficient gas sensor is also validated by the presented temporal performance with a response and recovery time of 72 s and 69 s, respectively. In addition, compared with the previously demonstrated gas sensors operating at 200-300 °C, the proposed RT sensing completely removes the power-hungry heater and eliminates the related thermal reliability issues. Moreover, the demonstrated process flow well addresses the challenging issues of the traditional mainstream "drop-cast" method, including poor yield, non-uniformity of device performance and low efficiency caused by inevitable manual microscope inspection.
Number of references: 54
Main heading: Gas detectors
Controlled terms: Chemical sensors - Gas sensing electrodes - Gases - Nanostructures - Nanowires - Zinc oxide
Uncontrolled terms: Device performance - Gas sensing - Hierarchical Nanostructures - Metal oxide semiconductors (CMOS) - Response and recovery time - Response/recovery time - Temporal performance - Thermal reliability
Classification code: 761 Nanotechnology - 801 Chemistry - 801.4.1 Electrochemistry - 804.2 Inorganic Compounds - 931.2 Physical Properties of Gases, Liquids and Solids - 933 Solid State Physics
DOI: 10.1016/j.snb.2014.08.089
Database: Compendex
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Data Provider: Engineering Village

322. Analysis of phase noise in CMOS ring oscillator due to substrate noise

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Authors: Deng, Xiaoying (1); Lin, Xin (1); Mo, Yanyan (1); Zhu, Mingcheng (1)
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Abbreviated source title: IEEE Dallas Circuits Syst. Conf.: Enabling Technol. Connect. World, DCAS
Monograph title: 2015 IEEE Dallas Circuits and Systems Conference: Enabling Technologies for a Connected World, DCAS 2015
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Conference name: 11th IEEE Dallas Circuits and Systems Conference, DCAS 2015
Conference date: October 12, 2015 - October 13, 2015
Conference location: Dallas, TX, United states
Conference code: 118730
Sponsor: Dallas Section of the IEEE; IEEE Circuits and Systems Dallas Chapter; IEEE Solid State Circuits Society Dallas Chapter
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: A novel method is presented for analyzing and modeling the phase noise of CMOS ring oscillators. It leads to the conclusion that the phase noise caused by substrate noise has a 1/f 4 frequency dependency, and that the impact of substrate noise on phase noise performance depends largely on the switching time in the digital circuitry dominating the substrate noise. The proposed method is utilized to study the phase noise in a single-ended ring oscillator, which is fabricated in the SMIC 0.13 μm 1P6M standard CMOS process. The substrate noise is coupled from a digital counter circuit that is adjacent to the ring oscillator and operates at a controllable frequency that determines the switching rate for the aggressing signal. The proposed substrate-noise model is verified through measurements. The measurement show that the-40 dB/decade characteristics of the ring-oscillator's phase noise are more apparent as the switching rate is increased, whereas when the switching rate is reduced, the phase noise exhibits a steeper slope of-60dB/decade. © 2015 IEEE.
Number of references: 9
Main heading: Phase noise
Controlled terms: CMOS integrated circuits - Oscillators (electronic) - Reconfigurable hardware - Switching
Uncontrolled terms: Counter circuits - Digital circuitry - Frequency dependencies - Phase noise performance - Ring oscillator - Standard CMOS process - Substrate noise - Substrate Noise Model
Classification code: 701.2 Magnetism: Basic Concepts and Phenomena - 713.2 Oscillators - 714.2 Semiconductor Devices and Integrated Circuits - 721.3 Computer Circuits
DOI: 10.1109/DCAS.2015.7356599
Compendex references: YES
Database: Compendex

323. Virtual machine image content aware I/O optimization for mobile virtualization

Authors: Chen, Renhai (1); Wang, Yi (2); Hu, Jingtong (3); Liu, Duo (4); Shao, Zili (1); Guan, Yong (5)
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Corresponding author: Shao, Zili

Abstract: Mobile virtualization introduces extra layers in software stacks, which leads to performance degradation. Especially, each I/O operation has to pass through several software layers to reach the NAND-flash-based storage systems. This paper targets at optimizing I/O for mobile virtualization, since I/O becomes one of major performance bottlenecks that seriously affects the performance of mobile devices. Among all the I/O operations, a large percentage is updating metadata. Frequent updating metadata not only degrades overall I/O performance but also severely reduces flash memory lifetime. In this paper, we propose a novel I/O optimization techniqueto identify the metadata of a guest file system which is storedin a VM (Virtual Machine) image file and frequently updated. Then, these metadata are stored in a small additional NVM(Non-Volatile Memory) which is faster and more endurableto greatly improve flash memory's performance and lifetime. To the best of our knowledge, this is the first work to identifythe file system metadata from regular data in a guest OS VMimage file under mobile virtualization. The proposed schemeis evaluated on a real hardware embedded platform. Theexperimental results show that the proposed techniques canimprove write performance to 45.21% in mobile devices withvirtualization. © 2015 IEEE.

324. Quantum private comparison with a malicious third party

Authors: Sun, Zhiwei (1); Yu, Jianping (1); Wang, Ping (2); Xu, Lingling (3); Wu, Chunhui (4)
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Corresponding author: Sun, Zhiwei
Abstract: In this paper, we will show that quantum private comparison protocol is secure when a malicious third party is presented. The security of the protocol is considered in a cheat-sensitive model, in which the TP is kept honest by the possibility of being caught cheating. Besides, we enhance the privacy of the quantum private comparison protocol, where the participants' inputs and the comparison result can be preserved. Furthermore, in contrast to pervious protocols requiring a large amount of quantum resources, such as entanglement and quantum memory, our protocol is based on BB84 protocol, which is more feasible for practical applications. Finally, we analyze the security of the presented protocol. © 2015, Springer Science+Business Media New York.

325. Marginal patch alignment for dimensionality reduction

Authors: Xu, Jie (1, 2); Xie, Shengli (1); Zhu, Wenkang (3)
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Corresponding author: Xu, Jie(njxujie@aliyun.com)
Abstract: Patch alignment (PA) framework provides us a useful way to obtain the explicit mapping for dimensionality reduction. Under the PA framework, we propose the marginal patch alignment (MPA) for dimensionality reduction. MPA performs the optimization from the part to the whole. In the phase of the patch optimization, the marginal

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between-class and within-class local neighborhoods of each training sample are selected to build the local marginal patches. By performing the patch optimization, on the one hand, the contributions of each sample for optimal subspace selection are distinguished. On the other hand, the marginal structure information is exploited to extract discriminative features such that the marginal distance between the two different categories is enlarged in the low transformed subspace. In the phase of the whole alignment, a trick is performed to unify all of the local patches into a globally linear system and make MPA obtain the whole optimization. The experimental results on the Yale face database, the UCI Wine dataset, the Yale-B face database, and the AR face database, show the effectiveness and efficiency of MPA. © 2015 Springer-Verlag Berlin Heidelberg

Main heading: Alignment
Controlled terms: Classification (of information) - Database systems - Linear systems
Uncontrolled terms: Dimensionality reduction - Discriminative features - Effectiveness and efficiencies - Local neighborhoods - Margin - Patch alignment framework - Structure information - Yale face database
Classification code: 601.1 Mechanical Devices - 716.1 Information Theory and Signal Processing - 723.3 Database Systems - 961 Systems Science
DOI: 10.1007/s00500-015-1944-6
Database: Compendex
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Data Provider: Engineering Village

326. Ferroelectric polymer thin films for organic electronics

Authors: Mai, Manfang (1, 2); Ke, Shanming (1); Lin, Peng (1); Zeng, Xierong (1, 2)
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Corresponding author: Ke, Shanming
Abstract: The considerable investigations of ferroelectric polymer thin films have explored new functional devices for flexible electronics industry. Polyvinylidene fluoride (PVDF) and its copolymer with trifluoroethylene (TrFE) are the most commonly used polymer ferroelectric due to their well-defined ferroelectric properties and ease of fabrication into thin films. In this study, we review the recent advances of thin ferroelectric polymer films for organic electronic applications. Initially the properties of ferroelectric polymer and fabrication methods of thin films are briefly described. Then the theoretical polarization switching models for ferroelectric polymer films are summarized and the switching mechanisms are discussed. Lastly the emerging ferroelectric devices based on P(VDF-TrFE) films are addressed. Conclusions are drawn regarding future work on materials and devices. © 2015 Manfang Mai et al.
Number of references: 98
Main heading: Polymer films
Controlled terms: Electronics industry - Ferroelectric films - Ferroelectricity - Flexible electronics - Polymers - Semiconducting films - Thin films
Uncontrolled terms: Fabrication method - Ferroelectric polymer films - Ferroelectric polymers - Ferroelectric property - Organic electronics - Polarization switching - Polyvinylidene fluorides - Switching mechanism
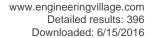**Classification code:** 701.1 Electricity: Basic Concepts and Phenomena - 708.1 Dielectric Materials - 712.1 Semiconducting Materials - 714.2 Semiconductor Devices and Integrated Circuits - 715 Electronic Equipment, General Purpose and Industrial - 815.1 Polymeric Materials
DOI: 10.1155/2015/812538
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

327. Land subsidence over oilfields in the Yellow River Delta

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Corresponding author: Li, Qingquan

Abstract: Subsidence in river deltas is a complex process that has both natural and human causes. Increasing human activities like aquaculture and petroleum extraction are affecting the Yellow River delta, and one consequence is subsidence. The purpose of this study is to measure the surface displacements in the Yellow River delta region and to investigate the corresponding subsidence source. In this paper, the Stanford Method for Persistent Scatterers (StaMPS) package was employed to process Envisat ASAR images collected between 2007 and 2010. Consistent results between two descending tracks show subsidence with a mean rate up to 30 mm/yr in the radar line of sight direction in Gudao Town (oilfield), Gudong oilfield and Xianhe Town of the delta, each of which is within the delta, and also show that subsidence is not uniform across the delta. Field investigation shows a connection between areas of non-uniform subsidence and of petroleum extraction. In a 9 km2 area of the Gudao Oilfield, a poroelastic disk reservoir model is used to model the InSAR derived displacements. In general, good fits between InSAR observations and modeled displacements are seen. The subsidence observed in the vicinity of the oilfield is thus suggested to be caused by fluid extraction.

Number of references: 70
Main heading: Subsidence
Controlled terms: Coastal zones - Extraction - Oil fields - Rivers - Synthetic aperture radar
Uncontrolled terms: Complex Processes - Field investigation - Persistent scatterers - Petroleum extraction - Poroelastic deformation - Reservoir modeling - Surface displacement - Yellow River delta
Classification code: 405 Construction Equipment and Methods; Surveying - 407.2 Waterways - 471 Marine Science and Oceanography - 511 Oil Field Equipment and Production Operations - 716.2 Radar Systems and Equipment - 802.3 Chemical Operations
DOI: 10.3390/rs70201540
Compendex references: YES
Database: Compendex

Data Provider: Engineering Village

328. Termination and non-termination specification inference

Authors: Le, Ton Chanh (1); Qin, Shengchao (2, 3); Chin, Wei-Ngan (1)
Author affiliation: (1) Department of Computer Science, National University of Singapore, Singapore, Singapore; (2) School of Computing, Teesside University, United Kingdom; (3) Shenzhen University, China

Abstract: Techniques for proving termination and non-termination of imperative programs are usually considered as orthogonal mechanisms. In this paper, we propose a novel mechanism that analyzes and proves both program termination and non-termination at the same time. We first introduce the concept of second-order termination constraints and accumulate a set of relational assumptions on them via a Hoare-style verification. We then solve these assumptions with case analysis to determine the (conditional) termination and nontermination scenarios expressed in some specification logic form. In contrast to current approaches, our technique can construct a summary of terminating and non-terminating behaviors for each method. This enables modularity and reuse for our termination and non-termination proving processes. We have tested our tool on sample programs from a recent termination competition, and compared favorably against state-of-the-art termination analyzers. Copyright is held by the owner/author(s). Publication rights licensed to ACM.

Number of references: 47
Main heading: Specifications
Controlled terms: Computational linguistics - Computer programming languages - Formal logic - Java programming language
Uncontrolled terms: Biabductive inference - Hoare Logic - Imperative programs - Non terminations - Program termination - Specification inferences - Specification logic - Style verifications
Classification code: 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 723.1.1 Computer Programming Languages - 902.2 Codes and Standards
DOI: 10.1145/2737924.2737993
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

329. Analysis and detection of fake views in online video services

Accession number: 20151000612555
Authors: Chen, Liang (1); Zhou, Yipeng (2); Chiu, Dah Ming (3)
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Corresponding author: Chen, Liang
Abstract: Online video-on-demand(VoD) services invariably maintain a view count for each video they serve, and it has become an important currency for various stakeholders, from viewers, to content owners, advertizers, and the online service providers themselves. There is often significant financial incentive to use a robot (or a botnet) to

artificially create fake views. How can we detect fake views? Can we detect them (and stop them) efficiently? What is the extent of fake views with current VoD service providers? These are the questions we study in this article. We develop some algorithms and show that they are quite effective for this problem. © 2015 ACM.
Number of references: 23
Main heading: Video on demand
Controlled terms: Social networking (online)
Uncontrolled terms: Advertizers - Fake view - Financial incentives - On-line service - Online video - Service provider
Classification code: 716.4 Television Systems and Equipment - 723 Computer Software, Data Handling and Applications
DOI: 10.1145/2700290
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

330. A novel multi-objective particle swarm optimization with multiple search strategies

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Authors: Lin, Qiuzhen (1); Li, Jianqiang (1); Du, Zhihua (1); Chen, Jianyong (1); Ming, Zhong (1)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Li, Jianqiang
Source title: European Journal of Operational Research
Abbreviated source title: Eur J Oper Res
Volume: 247
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Issue date: December 16, 2015
Publication year: 2015
Pages: 732-744
Article number: 13080
Language: English
ISSN: 03772217
CODEN: EJORDT
Document type: Journal article (JA)
Publisher: Elsevier
Abstract: Recently, multi-objective particle swarm optimization (MOPSO) has shown the effectiveness in solving multi-objective optimization problems (MOPs). However, most MOPSO algorithms only adopt a single search strategy to update the velocity of each particle, which may cause some difficulties when tackling complex MOPs. This paper proposes a novel MOPSO algorithm using multiple search strategies (MMOPSO), where decomposition approach is exploited for transforming MOPs into a set of aggregation problems and then each particle is assigned accordingly to optimize each aggregation problem. Two search strategies are designed to update the velocity of each particle, which is respectively beneficial for the acceleration of convergence speed and the keeping of population diversity. After that, all the non-dominated solutions visited by the particles are preserved in an external archive, where evolutionary search strategy is further performed to exchange useful information among them. These multiple search strategies enable MMOPSO to handle various kinds of MOPs very well. When compared with some MOPSO algorithms and two state-of-the-art evolutionary algorithms, simulation results show that MMOPSO performs better on most of test problems. © 2015 Elsevier B.V. and Association of European Operational Research Societies (EURO) within the International Federation of Operational Research Societies (IFORS).
Number of references: 40
Main heading: Multiobjective optimization
Controlled terms: Agglomeration - Algorithms - Evolutionary algorithms - Optimization - Particle swarm optimization (PSO)
Uncontrolled terms: Acceleration of convergence - Decomposition approach - Evolutionary search strategy - Multi objective particle swarm optimization - Multiobjective optimization problems (MOPs) - Multiple objective programming - Multiple search - Nondominated solutions
DOI: 10.1016/j.ejor.2015.06.071
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

331. Superluminal pulse reflection from graphene covered lossless dielectric slab

Accession number: 20150800557874
Authors: Jiang, Leyong (1); Xiang, Yuanjiang (1); Dai, Xiaoyu (1); Wen, Shuangchun (2)
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Corresponding author: Dai, Xiaoyu
Abstract: Group delay of the optical pulse reflected from the graphene covered lossless dielectric slab is studied, and large negative group delay is demonstrated near a resonance of the slab due to the graphene sheet appearing on the surface of dielectric slab, even if the dielectric slab is lossless. It is shown that even a single-layer graphene (as thin as 0.34 nm) can allow for a greatly change of the optical pulse reflection property. It is important that the negative group delay can be actively tuned through electrical or chemical modification of the charge carrier density of the graphene. Numerical calculations further indicate that the group delay can be negatively reduced via addition of the number of the layers of graphene sheets and negatively enhanced at the surface plasmon polaritons frequency for different incident angles. © 2014 IEEE.
Number of references: 36
Main heading: Group delay
Controlled terms: Chemical modification - Dielectric materials - Electromagnetic wave polarization - Graphene - Laser pulses - Phonons - Photons - Plasmons - Quantum theory - Reflection - Surface plasmon resonance
Uncontrolled terms: Dielectric slabs - Lossless dielectrics - Negative group delay - Numerical calculation - Pulse reflection - Superluminal - Superluminal pulse reflection - Surface plasmon polaritons
Classification code: 703.1 Electric Networks - 708.1 Dielectric Materials - 711 Electromagnetic Waves - 744.1 Lasers, General - 761 Nanotechnology - 802.2 Chemical Reactions - 804 Chemical Products Generally - 931.3 Atomic and Molecular Physics - 931.4 Quantum Theory; Quantum Mechanics
DOI: 10.1109/JQE.2015.2396301
Database: Compendex
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Data Provider: Engineering Village

332. Large Energy Storage Density and High Thermal Stability in a Highly Textured (111)-Oriented Pb0.8Ba0.2ZrO3 Relaxor Thin Film with the Coexistence of Antiferroelectric and Ferroelectric Phases

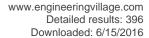**Accession number:** 20152600980950
Authors: Peng, Biaolin (1, 2, 3); Zhang, Qi (4, 5); Li, Xing (3); Sun, Tieyu (3); Fan, Huiqing (6); Ke, Shanming (1); Ye, Mao (1, 2); Wang, Yu (3); Lu, Wei (1); Niu, Hanben (2); Zeng, Xierong (1); Huang, Haitao (3)
Author affiliation: (1) Shenzhen Key Laboratory of Special Functional Materials, Shenzhen Engineering Laboratory for Advanced Technology of Ceramics, College of Materials Science and Engineering, Shenzhen, China; (2) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (3) Department of Applied Physics, Hong Kong Polytechnic University, Kowloon, Hong Kong; (4) Department of Manufacturing and Materials, Cranfield University, Cranfield, Bedfordshire, United Kingdom; (5) State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, Wuhan; Hubei, China; (6) State Key Laboratory of Solidification Processing, School of Materials Science and Engineering, Northwestern Polytechnical University, Xi'an, China
Corresponding author: Zeng, Xierong

Abstract: A highly textured (111)-oriented Pb0.8Ba0.2ZrO3 (PBZ) relaxor thin film with the coexistence of antiferroelectric (AFE) and ferroelectric (FE) phases was prepared on a Pt/TiOx/SiO2/Si(100) substrate by using a sol-gel method. A large recoverable energy storage density of 40.18 J/cm3 along with an efficiency of 64.1% was achieved at room temperature. Over a wide temperature range of 250 K (from room temperature to 523 K), the variation of the energy density is within 5%, indicating a high thermal stability. The high energy storage performance was endowed by a large dielectric breakdown strength, great relaxor dispersion, highly textured orientation, and the coexistence of FE and AFE phases. The PBZ thin film is believed to be an attractive material for applications in energy storage systems over a wide temperature range (Graph Presented). © 2015 American Chemical Society.

Number of references: 33
Main heading: Storage (materials)
Controlled terms: Antiferroelectricity - Electric breakdown - Energy storage - Ferroelectricity - Lead - Sol-gel process - Sol-gels - Thermodynamic stability - Thin films - Zirconium alloys
Uncontrolled terms: Anti ferroelectrics - Dielectric breakdown strength - Energy storage density - Energy storage systems - High thermal stability - Relaxors - textured - Wide temperature ranges
Classification code: 546.1 Lead and Alloys - 549.3 Nonferrous Metals and Alloys excluding Alkali and Alkaline Earth Metals - 641.1 Thermodynamics - 694.4 Storage - 701.1 Electricity: Basic Concepts and Phenomena - 702 Electric Batteries and Fuel Cells - 714.2 Semiconductor Devices and Integrated Circuits - 804 Chemical Products Generally - 813.1 Coating Techniques
DOI: 10.1021/acsami.5b02790
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333. Side-opened suspended core fiber-based surface plasmon resonance sensor

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Authors: Wang, Guanjun (1, 2); Wang, Chao (1); Liu, Shen (1); Zhao, Jing (1); Liao, Changrui (1); Xu, Xizhen (1); Liang, Haijian (1); Yin, Guolu (1); Wang, Yiping (1)
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Abstract: An integrated surface plasmon resonance (SPR) based on an Au-film-coated, side-opened suspended core fiber is proposed and simulated to develop a highly sensitive, real-time refractive index sensor. The inner surface of the side-opened hole is supposed to be uniformly deposited with a thin Au film for realizing the SPR operation. Such a sensor not only ensures a fast response time, but also brings up a designing flexibility for SPR biosensing applications. Two potential sensing mechanisms, i.e., monitoring the transmission loss spectrum peak shift and measuring the transmission power change at a fixed wavelength are utilized and analyzed to achieve a better sensitivity. Moreover,

our calculation results show that this novel sensor could cover a wide index detection range with an optimized resolution of up to 2.3e-5 refractive index unit. © 2001-2012 IEEE.

Number of references: 24
Main heading: Surface plasmon resonance
Controlled terms: Gold - Gold deposits - Plasmons - Refractive index - Refractometers - Resonance
Uncontrolled terms: Biosensing applications - Calculation results - Fast response time - Refractive index sensor - Refractive index units - Side-opened - Surface plasmon resonance sensor - Transmission power
Classification code: 547.1 Precious Metals - 701 Electricity and Magnetism - 712.1 Semiconducting Materials - 741.1 Light/Optics - 941.3 Optical Instruments
DOI: 10.1109/JSEN.2014.2382612
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334. New Measurement of Antineutrino Oscillation with the Full Detector Configuration at Daya Bay

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Authors: An, F.P. (1); Balantekin, A.B. (2); Band, H.R. (3); Bishai, M. (4); Blyth, S. (5, 6); Butorov, I. (7); Cao, G.F. (8); Cao, J. (8); Cen, W.R. (8); Chan, Y.L. (9); Chang, J.F. (8); Chang, L.C. (10); Chang, Y. (6); Chen, H.S. (8); Chen, Q.Y. (11); Chen, S.M. (12); Chen, Y.X. (13); Chen, Y. (14); Cheng, J.H. (10); Cheng, J. (11); Cheng, Y.P. (8); Cherwinka, J.J. (2); Chu, M.C. (9); Cummings, J.P. (15); De Arcos, J. (16); Deng, Z.Y. (8); Ding, X.F. (8); Ding, Y.Y. (8); Diwan, M.V. (4); Draeger, E. (16); Dwyer, D.A. (17); Edwards, W.R. (17, 27); Ely, S.R. (18); Gill, R. (4); Gonchar, M. (7); Gong, G.H. (12); Gong, H. (12); Grassi, M. (8); Gu, W.Q. (19); Guan, M.Y. (8); Guo, L. (12); Guo, X.H. (20); Hackenburg, R.W. (4); Han, R. (13); Hans, S. (4); He, M. (8); Heeger, K.M. (3); Heng, Y.K. (8); Higuera, A. (21); Hor, Y.K. (22); Hsiung, Y.B. (5); Hu, B.Z. (5); Hu, L.M. (4); Hu, L.J. (20); Hu, T. (8); Hu, W. (8); Huang, E.C. (18); Huang, H.X. (23); Huang, X.T. (11); Huber, P. (22); Hussain, G. (12); Jaffe, D.E. (4); Jaffke, P. (22); Jen, K.L. (10); Jetter, S. (8); Ji, X.P. (12, 24); Ji, X.L. (8); Jiao, J.B. (11); Johnson, R.A. (25); Kang, L. (26); Kettell, S.H. (4); Kramer, M. (17, 27); Kwan, K.K. (9); Kwok, M.W. (9); Kwok, T. (28); Langford, T.J. (3); Lau, K. (21); Lebanowski, L. (12); Lee, J. (17); Lei, R.T. (26); Leitner, R. (29); Leung, K.Y. (28); Leung, J.K.C. (28); Lewis, C.A. (2); Li, D.J. (30); Li, F. (8); Li, G.S. (19); Li, Q.J. (8); Li, S.C. (28); Li, W.D. (8); Li, X.N. (8); Li, X.Q. (24); Li, Y.F. (8); Li, Z.B. (31); Liang, H. (30); Lin, C.J. (17); Lin, G.L. (10); Lin, P.Y. (10); Lin, S.K. (21); Ling, J.J. (4, 18); Link, J.M. (22); Littenberg, L. (4); Littlejohn, B.R. (16, 25); Liu, D.W. (21); Liu, H. (21); Liu, J.L. (19); Liu, J.C. (8); Liu, S.S. (28); Lu, C. (32); Lu, H.Q. (8); Lu, J.S. (8); Luk, K.B. (17, 27); Ma, Q.M. (8); Ma, X.Y. (8); Ma, X.B. (13); Ma, Y.Q. (8); Martinez Caicedo, D.A. (16); McDonald, K.T. (32); McKeown, R.D. (33, 34); Meng, Y. (22); Mitchell, I. (21); Monari Kebwaro, J. (35); Nakajima, Y. (17); Napolitano, J. (36); Naumov, D. (7); Naumova, E. (7); Ngai, H.Y. (28); Ning, Z. (8); Ochoa-Ricoux, J.P. (37); Olshevski, A. (7); Park, J. (22); Patton, S. (17); Pec, V. (29); Peng, J.C. (18); Piilonen, L.E. (22); Pinsky, L. (21); Pun, C.S.J. (28); Qi, F.Z. (8); Qi, M. (38); Qian, X. (4); Raper, N. (39); Ren, B. (26); Ren, J. (23); Rosero, R. (4); Roskovec, B. (29); Ruan, X.C. (23); Shao, B.B. (12); Steiner, H. (17, 27); Sun, G.X. (8); Sun, J.L. (40); Tang, W. (4); Taychenachev, D. (7); Themann, H. (4); Tsang, K.V. (17); Tull, C.E. (17); Tung, Y.C. (5); Viaux, N. (37); Viren, B. (4); Vorobel, V. (29); Wang, C.H. (6); Wang, M. (11); Wang, N.Y. (20); Wang, R.G. (8); Wang, W. (31); Wang, W.W. (38); Wang, X. (41); Wang, Y.F. (8); Wang, Z. (12); Wang, Z. (8); Wang, Z.M. (8); Wei, H.Y. (12); Wen, L.J. (8); Whisnant, K. (42); White, C.G. (16); Whitehead, L. (21); Wise, T. (2); Wong, H.L.H. (17, 27); Wong, S.C.F. (9, 31); Worcester, E. (4); Wu, Q. (11); Xia, D.M. (8, 43); Xia, J.K. (8); Xia, X. (11)

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Abstract: We report a new measurement of electron antineutrino disappearance using the fully constructed Daya Bay Reactor Neutrino Experiment. The final two of eight antineutrino detectors were installed in the summer of 2012. Including the 404 days of data collected from October 2012 to November 2013 resulted in a total exposure of 6.9×10^5 GWthtondays, a 3.6 times increase over our previous results. Improvements in energy calibration limited variations between detectors to 0.2%. Removal of six Am241-C13 radioactive calibration sources reduced the background by a factor of 2 for the detectors in the experimental hall furthest from the reactors. Direct prediction of the antineutrino signal in the far detectors based on the measurements in the near detectors explicitly minimized the dependence of the measurement on models of reactor antineutrino emission. The uncertainties in our estimates of $\sin^2 2\theta_{13}$ and $|\Delta m_{ee}^2|$ were halved as a result of these improvements. An analysis of the relative antineutrino rates and energy spectra between detectors gave $\sin^2 2\theta_{13}=0.084\pm0.005$ and $|\Delta m_{ee}^2|=(2.42\pm0.11)\times10^{-3}eV^2$ in the three-neutrino framework. © 2015 American Physical Society.

Number of references: 31
Main heading: Particle detectors
Controlled terms: Calibration - Elementary particles - Radioactivity - Uncertainty analysis
Uncontrolled terms: Calibration source - Detector configuration - Direct prediction - Electron antineutrinos - Energy calibration - Energy spectra - Far detector - Neutrino experiments
Classification code: 622 Radioactive Materials - 922.1 Probability Theory - 931.3 Atomic and Molecular Physics - 941 Acoustical and Optical Measuring Instruments - 942 Electric and Electronic Measuring Instruments - 943 Mechanical and Miscellaneous Measuring Instruments - 944 Moisture, Pressure and Temperature, and Radiation Measuring Instruments - 944.7 Radiation Measuring Instruments
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335. The muon system of the Daya Bay Reactor antineutrino experiment

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Authors: An, F.P. (1, 2); Balantekin, A.B. (3); Band, H.R. (3, 4); Beriguete, W. (5); Bishai, M. (5); Blyth, S. (6, 7); Brown, R.E. (5); Butorov, I. (8); Cao, G.F. (2); Cao, J. (2); Carr, R. (9); Chan, Y.L. (10); Chang, J.F. (2); Chang, L. (11); Chang, Y. (7); Chasman, C. (5); Chen, H.S. (2); Chen, H.Y. (11); Chen, Q.Y. (29); Chen, S.J. (12); Chen, S.M. (13); Chen, X.C. (10); Chen, X.H. (2); Chen, Y. (14); Chen, Y.X. (15); Cheng, Y.P. (2); Cherwinka, J.J. (3); Chu, M.C. (10); Cummings, J.P. (16); Dale, E. (5); De Arcos, J. (17); Deng, Z.Y. (2); Ding, Y.Y. (2); Diwan, M.V. (5); Draeger, E. (17); Du, X.F. (2); Dwyer, D.A. (18); Edwards, W.R. (18); Ely, S.R. (19); Fu, J.Y. (2); Ge, L.Q. (20); Gill, R. (5); Goett, J. (21); Gonchar, M. (8); Gong, G.H. (13); Gong, H. (13); Gu, W.Q. (22); Guan, M.Y. (2); Guo, X.H. (23); Hackenburg, R.W. (5); Han, G.H. (24); Hans, S. (5); He, M. (2); He, Q. (25); Heeger, K.M. (3, 4); Heng, Y.K. (2); Hinrichs, P. (3); Hor, Y.K. (26); Hsiung, Y.B. (6); Hu, B.Z. (11); Hu, L.J. (23); Hu, L.M. (5); Hu, T. (2); Hu, W. (2); Huang, E.C. (19);

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Abstract: The Daya Bay experiment consists of functionally identical antineutrino detectors immersed in pools of ultrapure water in three well-separated underground experimental halls near two nuclear reactor complexes. These pools serve both as shields against natural, low-energy radiation, and as water Cherenkov detectors that efficiently detect cosmic muons using arrays of photomultiplier tubes. Each pool is covered by a plane of resistive plate chambers

as an additional means of detecting muons. Design, construction, operation, and performance of these muon detectors are described.
Number of references: 40
Main heading: Charged particles
Controlled terms: Cosmic rays - Experiments - Lakes - Nuclear reactors - Particle spectrometers - Photomultipliers
Uncontrolled terms: Low-energy radiation - Muons - Neutrinos - Photo multiplier tube - Resistive plate chambers - Ultra-pure water - Underground - Water Cherenkov detectors
Classification code: 407 Maritime and Port Structures; Rivers and Other Waterways - 621 Nuclear Reactors - 657 Space Physics - 714.1 Electron Tubes - 901.3 Engineering Research - 932 High Energy Physics; Nuclear Physics; Plasma Physics
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336. What makes the stego image undetectable?

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Authors: Wu, Songtao (1); Liu, Yan (1); Zhong, Shenghua (2); Liu, Yang (3)
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Abstract: Steganography is the art of hiding information in ways that prevents the detection of hidden messages. Image steganography, which hides messages into a cover image for secret transmission, attracts increasing attention in social media era. Currently, most works focus on designing message embedding algorithms to avoid the stego images being distinguished from normal ones via visual observation or statistical analysis. This paper aims to make the detection of the stego images more difficult by selecting the suitable cover images. We propose a new measure to evaluate the hiding ability of the cover image based on Fisher Information Matrix and Gaussian Mixture Model. Experiments on standard dataset validate that the cover image with good hiding ability can improve the performance of various steganography algorithms obviously. Moreover, the proposed measure provides a statistical explanation of the existing cover image selection techniques and shows better performance against steganalysis. © 2015 ACM.
Number of references: 39
Main heading: Fisher information matrix
Controlled terms: Gaussian distribution - Internet - Steganography
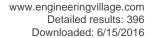**Uncontrolled terms:** Cover-image - Embedding algorithms - Fisher information - Gaussian Mixture Model - Hidden messages - Hiding informations - Image steganography - Visual observations
Classification code: 723 Computer Software, Data Handling and Applications - 723.2 Data Processing and Image Processing - 922 Statistical Methods
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Compendex references: YES
Database: Compendex
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337. Three-dimensional Gabor feature extraction for hyperspectral imagery classification using a memetic framework

Authors: Zhu, Zexuan (1); Jia, Sen (1); He, Shan (2); Sun, Yiwen (3); Ji, Zhen (1); Shen, Linlin (1)
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Abstract: Feature extraction based on three-dimensional (3D) wavelet transform is capable of improving the classification accuracy of hyperspectral imagery data by simultaneously capturing the geometrical and statistical spectral-spatial structure of the data. Nevertheless, the design of wavelets is always proceeded with empirical parameters, which tends to involve a large number of irrelevant and redundant spectral-spatial features and results in suboptimal configuration. This paper proposes a 3D Gabor wavelet feature extraction in a memetic framework, named M3DGFE, for hyperspectral imagery classification. Particularly, the parameter setting of 3D Gabor wavelet feature extraction is optimized using memetic algorithm so that discriminative and parsimonious feature set is acquired for accurate classification. M3DGFE is characterized by an efficient fitness evaluation function and a pruning local search. In the fitness evaluation function, a new concept of redundancy-free relevance based on conditional mutual information is proposed to measure the goodness of the extracted candidate features. The pruning local search is specially designed to eliminate both irrelevant and redundant features without sacrificing the discriminability of the obtained feature subset. M3DGFE is tested on both pixel-level and image-level classification using real-world hyperspectral remote sensing data and hyperspectral face data, respectively. The experimental results show that M3DGFE achieves promising classification accuracy with parsimonious feature subset. © 2014 Elsevier Inc.
Number of references: 54
Main heading: Classification (of information)
Controlled terms: Data mining - Extraction - Feature extraction - Function evaluation - Image classification - Mathematical transformations - Remote sensing - Spectroscopy - Wavelet transforms
Uncontrolled terms: Conditional mutual information - Gabor feature extraction - Gabor wavelet transforms - Hyper-spectral imageries - Hyperspectral imagery classifications - Hyperspectral remote sensing data - Memetic algorithms - Three dimensional (3-D) wavelet transforms
Classification code: 716 Telecommunication; Radar, Radio and Television - 716.1 Information Theory and Signal Processing - 723.3 Database Systems - 731.1 Control Systems - 801 Chemistry - 802.3 Chemical Operations - 921.3 Mathematical Transformations - 921.6 Numerical Methods
DOI: 10.1016/j.ins.2014.11.045
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338. Improving thermal and mechanical properties of epoxy composites by using functionalized graphene

Authors: Pan, Lulu (1); Ban, Jianfeng (3); Lu, Shaorong (1); Chen, Guoxin (2); Yang, Jin (1); Luo, Qiyun (1); Wu, Linyan (1); Yu, Jinhong (1, 2)
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Corresponding author: Lu, Shaorong

Abstract: Perylene tetracarboxylic anhydride (PTCDA) was reacted with 6-aminocaproic acid to form the corresponding perylene bisimide (PBI). PBI was used as the foundation for oligomerisation of glycidol in a ring-opening reaction of glycidol leading to a hyper branched, water-soluble glycidol derivative of perylene (PBI-HPG). PBI-HPG was bound to the reduced graphene oxide via $\pi-\pi$ stacking resulting in a compound termed PBI-HPG/RGO. The structure and morphology of PBI-HPG/RGO were investigated by infrared spectroscopy (FT-IR), wide angle X-ray diffractometry (WAXD), transmission electron microscopy (TEM), atomic force microscopy (AFM) and X-ray photoelectron spectroscopy (XPS). PBI-HPG/RGO was blended at different loadings in order to improve the thermal and mechanical properties of epoxy composites. The maximum Tg of the epoxy composites was about 20 °C and the decomposition temperature (Td) was 26 °C higher than that of neat epoxy. The incorporation of PBI-HPG/RGO yields a material with an impact strength of 39.6 kJ m-2 and a tensile strength at 0.7 wt%. It increased by 50.8% and 62.3%, respectively, compared to the neat epoxy. © The Royal Society of Chemistry 2015.
Number of references: 53
Main heading: X ray photoelectron spectroscopy
Controlled terms: Atomic force microscopy - Graphene - High resolution transmission electron microscopy - Impact strength - Infrared spectroscopy - Mechanical properties - Polycyclic aromatic hydrocarbons - Tensile strength - Transmission electron microscopy - X ray diffraction analysis
Uncontrolled terms: 6-aminocaproic acid - Decomposition temperature - Functionalized graphene - Perylene tetracarboxylic - Reduced graphene oxides - Structure and morphology - Thermal and mechanical properties - Wide angle x-ray diffractometry
Classification code: 421 Strength of Building Materials; Mechanical Properties - 741.1 Light/Optics - 741.3 Optical Devices and Systems - 761 Nanotechnology - 801 Chemistry - 804 Chemical Products Generally - 804.1 Organic Compounds - 951 Materials Science
DOI: 10.1039/c5ra09410k
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

339. Analysis of advanced payment strategy for the loss-averse retailer under uncertainties

Accession number: 20151600746642
Authors: Ma, Li-Jun (1); Ge, Yang-Liang (1); Xue, Wei-Li (2); Tian, Xin (3)
Author affiliation: (1) College of Management, Shenzhen University, Shenzhen, China; (2) School of Economics and Management, Southeast University, Nanjing, China; (3) Research Center on Fictitious Economy and Data Science, Chinese Academy of Sciences, Beijing, China
Corresponding author: Tian, Xin
Abstract: This paper studies a simple two-echelon supply chain with one supplier and one retailer. The supplier is risk neutral and the retailer is loss averse. Facing demand uncertainty and supply uncertainty, the retailer needs to make

the order decision before the selling period. On the other hand, the retailer can pay in advance to reduce supply risk. This paper shows that the lower the cost of capital, the higher the proportion of the advance payment. However, when the capital is higher than a critical value, the retailer no longer uses the advanced payment strategy. It also shows that the optimal order quantity is a decreasing function of loss-averse coefficient. Finally, the paper discusses how the stochastic demand and the emergency price affect the system performance. ©, 2015, Systems Engineering Society of China. All right reserved.

Number of references: 30
Main heading: Uncertainty analysis
Controlled terms: Sales - Stochastic systems - Supply chains
Uncontrolled terms: Advance payments - Advanced payment - Decreasing functions - Demand uncertainty - Optimal order quantity - Stochastic demand - Supply uncertainty - Two-echelon supply chain
Classification code: 911.4 Marketing - 912 Industrial Engineering and Management - 913 Production Planning and Control; Manufacturing - 922.1 Probability Theory - 961 Systems Science
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

340. Robust landmark-based image registration using l1and l2norm regularizations

Accession number: 20161502221841
Authors: Yang, Xuan (1); Wang, Bo (1); Li, Yan-Ran (1); He, Tiancheng (2)
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Corresponding author: Li, Yan-Ran(lyran@szu.edu.cn)
Source title: Proceedings - 2015 IEEE International Conference on Bioinformatics and Biomedicine, BIBM 2015
Abbreviated source title: Proc. - 2015 IEEE Int. Conf. Bioinform. Biomed., BIBM
Monograph title: Proceedings - 2015 IEEE International Conference on Bioinformatics and Biomedicine, BIBM 2015
Issue date: December 16, 2015
Publication year: 2015
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Article number: 7359720
Language: English
ISBN-13: 9781467367981
Document type: Conference article (CA)
Conference name: IEEE International Conference on Bioinformatics and Biomedicine, BIBM 2015
Conference date: November 9, 2015 - November 12, 2015
Conference location: Washington, DC, United states
Conference code: 118735
Sponsor: IEEE Computer Society; National Science Foundation (NSF)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: In landmark-based image registration, estimation of transformation based on radial basis functions (RBFs) expansions has been successfully utilized in many applications. A novel landmark-based image registration method regularized by l1and l2norm is proposed in this paper to estimate transformations based on corresponding landmarks. The compact supported radial basis functions (CSRBFs) are utilized in our method. To estimate the CSRBFs coefficients of transformations, we construct a linear model and respectively regularize the elastic and affine deformation coefficients by l1and l2norm. Experiments show that the transformations estimated by our method are robust to noised correspondences of landmarks, the bending energy of transformations is less and topology of the deformation field can be preserved better than existing other methods. © 2015 IEEE.
Number of references: 7
Main heading: Linear transformations
Controlled terms: Bending (deformation) - Bioinformatics - Deformation - Functions - Image registration - Mathematical transformations - Navigation - Radial basis function networks
Uncontrolled terms: Affine deformation - Bending energies - Deformation field - Radial basis functions - Registration methods - regularization - transformation - Transformation based
Classification code: 461.8.2 Bioinformatics - 723.2 Data Processing and Image Processing - 921 Mathematics - 921.3 Mathematical Transformations
DOI: 10.1109/BIBM.2015.7359720
Compendex references: YES
Database: Compendex
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341. Note: Resonance magnetoelectric interactions in laminate of FeCuNbSiB and multilayer piezoelectric stack for magnetic sensor

Accession number: 20154001325455
Authors: Li, Jianqiang (1); Lu, Caijiang (2); Xu, Changbao (2); Zhong, Ming (1)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (2) Guizhou Electric Power Research Institute, China Southern Power Grid, Guiyang, China
Corresponding author: Lu, Caijiang
Source title: Review of Scientific Instruments
Abbreviated source title: Rev. Sci. Instrum.
Volume: 86
Issue: 9
Issue date: September 1, 2015
Publication year: 2015
Article number: 096109
Language: English
ISSN: 00346748
E-ISSN: 10897623
CODEN: RSINAK
Document type: Journal article (JA)
Publisher: American Institute of Physics Inc.
Abstract: This paper develops a simple miniature magnetoelectric (ME) laminate FeCuNbSiB/PZT-stack made up of magnetostrictive $Fe_{73.5}Cu_1Nb_3Si_{13.5}B_9$ (FeCuNbSiB) foils and piezoelectric $Pb(Zr, Ti)O_3$ (PZT) multilayer stack vibrator. Resonant ME interactions of FeCuNbSiB/PZT-stack with different layers of FeCuNbSiB foil (L) are investigated in detail. The experimental results show that the ME voltage coefficient reaches maximum value of 141.5 (V/cm Oe) for FeCuNbSiB/PZT-stack with L = 6. The AC-magnetic sensitivities can reach 524.29 mV/Oe and 1.8 mV/Oe under resonance 91.6 kHz and off-resonance 1 kHz, respectively. The FeCuNbSiB/PZT-stack can distinguish small dc-magnetic field of ~9 nT. The results indicate that the proposed ME composites are very promising for the cheap room-temperature magnetic field sensing technology. © 2015 AIP Publishing LLC.
Number of references: 20
Main heading: Magnetism
Controlled terms: Lead - Magnetic fields - Multilayers - Piezoelectricity - Resonance
Uncontrolled terms: DC magnetic field - Different layers - Magnetic field sensing - Magnetic sensitivity - ME composites - ME voltage coefficients - Multilayer stacks - Piezoelectric stack
Classification code: 546.1 Lead and Alloys - 701.1 Electricity: Basic Concepts and Phenomena - 701.2 Magnetism: Basic Concepts and Phenomena - 931.1 Mechanics
DOI: 10.1063/1.4931679
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

342. From QoS to QoE: A tutorial on video quality assessment

Accession number: 20152200896105
Authors: Chen, Yanjiao (1); Wu, Kaishun (2, 3); Zhang, Qian (1)
Author affiliation: (1) Department of Computer Science and Engineering, Hong Kong University of Science and Technology, Kowloon, Hong Kong; (2) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (3) Research Institute, Hong Kong University of Science and Technology, Kowloon, Hong Kong
Source title: IEEE Communications Surveys and Tutorials
Abbreviated source title: IEEE Commun. Surv. Tutor.
Volume: 17
Issue: 2
Issue date: April 1, 2015
Publication year: 2015
Pages: 1126-1165
Article number: 6933929
Language: English
E-ISSN: 1553877X
Document type: Journal article (JA)

Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: Quality of experience (QoE) is the perceptual quality of service (QoS) from the users' perspective. For video service, the relationship between QoE and QoS (such as coding parameters and network statistics) is complicated because users' perceptual video quality is subjective and diversified in different environments. Traditionally, QoE is obtained from subjective test, where human viewers evaluate the quality of tested videos under a laboratory environment. To avoid high cost and offline nature of such tests, objective quality models are developed to predict QoE based on objective QoS parameters, but it is still an indirect way to estimate QoE. With the rising popularity of video streaming over the Internet, data-driven QoE analysis models have newly emerged due to availability of large-scale data. In this paper, we give a comprehensive survey of the evolution of video quality assessment methods, analyzing their characteristics, advantages, and drawbacks. We also introduce QoE-based video applications and, finally, identify the future research directions of QoE. © 1998-2012 IEEE.

Number of references: 205
Main heading: Quality of service
Controlled terms: Network coding - Quality control - Subjective testing - Video signal processing - Video streaming
Uncontrolled terms: Data-driven analysis - Future research directions - Laboratory environment - Objective qualities - Perceptual quality - Perceptual video quality - Quality of experience (QoE) - Video quality assessment
Classification code: 461.4 Ergonomics and Human Factors Engineering - 716 Telecommunication; Radar, Radio and Television - 717 Optical Communication - 718 Telephone Systems and Related Technologies; Line Communications - 723 Computer Software, Data Handling and Applications - 913.3 Quality Assurance and Control
DOI: 10.1109/COMST.2014.2363139
Database: Compendex

Data Provider: Engineering Village

343. Research of micro-prism distribution on the bottom surface of the small-size integrated light guide plate

Accession number: 20151000616105
Authors: Xu, Ping (1); Huang, Yanyan (1); Su, Zhijie (1); Zhang, Xulin (1); Luo, Tongzheng (1); Peng, Wenda (2)
Author affiliation: (1) College of Electronic Science and Technology, Institute of Micro-nano Photoelectronic Technology, Shenzhen University, Shenzhen, China; (2) College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Source title: Optics Express
Abbreviated source title: Opt. Express
Volume: 23
Issue: 4
Issue date: February 23, 2015
Publication year: 2015
Pages: 4887-4896
Language: English
E-ISSN: 10944087
Document type: Journal article (JA)
Publisher: Optical Society of American (OSA)

Abstract: The luminance uniformity of the backlight module (BLM) importantly depends on the microstructure distribution on the bottom surface of the light guide plate (LGP). Based on the small-size integrated LGP (ILGP) proposed, we put forward a distribution expression of microprisms on the bottom surface of the ILGP, and present the relational expressions between the coefficients of the analytical expression and the structural parameters of the ILGP, such as the light guide length L, width of the ILGP W, thickness of the ILGP H, and space between light emitting diodes (LEDs) d. Then, the research results above are applied to the design of the small-size ILGPs. Not only can the microstructure distributions on the bottom surface of the ILGPs be directly given, but also the simulation results show that the luminance uniformities of the integrated BLMs are higher than 85%. The research indicates that the expressions proposed in this paper are correct and effective, and have important guiding significances and referential value. ©2015 Optical Society of America.

Number of references: 12
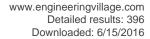**Main heading:** Light emitting diodes
Controlled terms: Light polarization - Liquid crystal displays - Luminance - Plates (structural components)
Uncontrolled terms: Analytical expressions - Backlight module - Bottom surfaces - Guiding significances - Light guide plate - Luminance uniformity - Research results - Structural parameter
Classification code: 408.2 Structural Members and Shapes - 741.1 Light/Optics - 741.3 Optical Devices and Systems
DOI: 10.1364/OE.23.004887

344. Phase-Change Memory Optimization for Green Cloud with Genetic Algorithm

Accession number: 20154701560972
Authors: Qiu, Meikang (1); Ming, Zhong (2); Li, Jiayin (3); Gai, Keke (1); Zong, Ziliang (4)
Author affiliation: (1) Department of Computer Science, Pace University, New York; NY, United States; (2) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (3) Department of Computer Science, Netronome Company, Pittsburgh; PA, United States; (4) Computer Science Department, Texas State University, San Macos; TX, United States
Corresponding author: Qiu, Meikang(qiumeikang@yahoo.com)
Source title: IEEE Transactions on Computers
Abbreviated source title: IEEE Trans Comput
Volume: 64
Issue: 12
Issue date: December 1, 2015
Publication year: 2015
Pages: 3528-3540
Article number: 7054465
Language: English
ISSN: 00189340
CODEN: ITCOB4
Document type: Journal article (JA)
Publisher: IEEE Computer Society
Abstract: Green cloud is an emerging new technology in the computing world in which memory is a critical component. Phase-change memory (PCM) is one of the most promising alternative techniques to the dynamic random access memory (DRAM) that faces the scalability wall. Recent research has been focusing on the multi-level cell (MLC) of PCM. By precisely arranging multiple levels of resistance inside a PCM cell, more than one bit of data can be stored in one single PCM cell. However, the MLC PCM suffers from the degradation of performance compared to the single-level cell (SLC) PCM, due to the longer memory access time. In this paper, we present a genetic-based optimization algorithm for chip multiprocessor (CMP) equipped with PCM memory in green clouds. The proposed genetic-based algorithm not only schedules and assigns tasks to cores in the CMP system, but also provides a PCM MLC configuration that balances the PCM memory performance as well as the efficiency. The experimental results show that our genetic-based algorithm can significantly reduce the maximum memory usage by 76.8 percent comparing with the uniform SLC configuration, and improve the efficiency of memory usage by 127 percent comparing with the uniform 4 bits/cell MLC configuration. Moreover, the performance of the system is also improved by 24.5 percent comparing with the uniform 4 bits/cell MLC configuration in terms of total execution time. © 1968-2012 IEEE.
Number of references: 48
Main heading: Dynamic random access storage
Controlled terms: Algorithms - Cloud computing - Efficiency - Genetic algorithms - Microprocessor chips - Optimization - Phase change materials - Phase change memory - Random access storage
Uncontrolled terms: Dynamic random access memory - Genetic-based algorithms - Green computing - Memory management - Multi level cell (MLC) - Optimization algorithms - Phase change memory (pcm) - Random access memory
Classification code: 722.1 Data Storage, Equipment and Techniques - 722.4 Digital Computers and Systems - 913.1 Production Engineering - 921.5 Optimization Techniques
DOI: 10.1109/TC.2015.2409857
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

345. Electroless plating alloy thin-film embedded resistor materials

Accession number: 20160701931573
Authors: Su, Xingsong (1, 2, 3); Lai, Lifei (1, 2); Li, Chang (1, 2, 3); Liu, Wenjun (3); Fu, Xian-Zhu (1, 2); Sun, Rong (1, 2); Wong, C.P. (4)
Author affiliation: (1) Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China; (2) Shenzhen High Density Electronic Packaging and Device Assembly Key Laboratory, Shenzhen, China; (3)

College of Materials Science and Engineering, Shenzhen University, Shenzhen, China; (4) College of Engineering, Chinese University of Hong Kong, Hong Kong, Hong Kong

Abstract: Ni-P alloy thin films are prepared by electroless plating as embedded thin-film resistor (ETFR) materials. The micro-structure, electrical, thermal, mechanical, and corrosion-resistant properties of Ni-P alloy thin films are investigated to optimize the electroless plating conditions. When the phosphorus content was greater than 9 %, Ni-P alloy thin films are amorphous. Ni-P alloy thin films' sheet resistance, corrosion resistance and hardness increase with the increase of P content. © 2015 IEEE.

346. Bound States of Vector Dissipative Solitons

Authors: Zhao, L.M. (1); Tang, D.Y. (1); Zhang, H. (2); Wu, X. (3)
Author affiliation: (1) Jiangsu Key Laboratory of Advanced Laser Materials and Devices, School of Physics and Electronic Engineering, Jiangsu Normal University, Xuzhou, China; (2) College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (3) School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore, Singapore
Corresponding author: Zhao, L.M.(lmzhao@ieee.org)

Abstract: We report on the first experimental observation of bound states of vector dissipative solitons (VDSs) in an erbium-doped fiber laser mode locked with a semiconductor saturable absorber mirror and operated in the normal dispersion regime. Bound states of either the coherently coupled VDSs or the incoherently coupled VDSs were obtained. No polarization evolution was observed for either of the bound VDSs. Both types of bound VDSs have a fixed soliton separation, which is invariant to the laser operation condition. Numerical simulations confirm the experimental observations. © 2009-2012 IEEE.

Number of references: 31
Main heading: Mode-locked fiber lasers
Controlled terms: Fiber lasers - Laser mirrors - Locks (fasteners) - Saturable absorbers - Semiconductor lasers - Semiconductor saturable absorber mirrors - Solitons
Uncontrolled terms: Dissipative solitons - Erbium doped fiber laser - Laser operations - Mode-locked laser - Normal dispersion - Polarization evolution - Pulse propagation - Soliton separation
Classification code: 744 Lasers
DOI: 10.1109/JPHOT.2015.2496349
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

347. Nonlinear modeling of electromagnetic forces for the planar switched reluctance motor

Accession number: 20154001322013
Authors: Cao, G. (1); Li, L. (1); Huang, S. (1, 2); Li, L. (1); Qian, Q. (2); Duan, J. (3)
Author affiliation: (1) Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China; (2) College of Electrical Engineering, Southwest Jiaotong University, Chengdu, China; (3) State Key Laboratory of High Performance Complex Manufactory, Central South University, Changsha, China
Source title: 2015 IEEE International Magnetics Conference, INTERMAG 2015
Abbreviated source title: IEEE Int. Magn. Conf., INTERMAG
Monograph title: 2015 IEEE International Magnetics Conference, INTERMAG 2015
Issue date: July 14, 2015
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Article number: 7157300
Language: English
ISBN-13: 9781479973224
Document type: Conference article (CA)
Conference name: 2015 IEEE International Magnetics Conference, INTERMAG 2015
Conference date: May 11, 2015 - May 15, 2015
Conference location: Beijing, China
Conference code: 113931
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Planar switched reluctance motors (PSRMs) have the merits of simple structure, low cost, low heat loss, high precision, ease of manufacture, and strong adaptability of harsh environment, which directly transform the mechanical energy to electromagnetic energy available to planar motions without mechanical transmissions. Therefore, PSRMs are an attractive candidate in high-precision two-dimensional positioning devices [1], [2]. For PSRMs, accurate modeling of electromagnetic forces is the theoretical foundation of the design and control. However, electromagnetic forces are highly nonlinear and hard to be accurately modeled due to the inherently complex magnetic characteristics of PSRMs. There are primarily three methods utilized to model electromagnetic forces of switched reluctance motors (SRMs) up to now, which are the equivalent magnetic circuit method, the Maxwell stress method, and the virtual work method [3]-[5]. Additionally, the neuron network is also employed to model electromagnetic forces for a SRM [6]. Nevertheless, the modeling of electromagnetic forces for SRMs cannot be directly applied to PSRMs owing to their unique structure of magnetic circuit. For linear switched reluctance motors (LSRMs) and PSRMs, electromagnetic forces including thrust force and normal force have been modeled under linear magnetic circuit [7], [8], but the modeling of electromagnetic forces has not been formulated so far with consideration of magnetic saturation. Furthermore, the finite-element method (FEM) is frequently used to establish electromagnetic force model for SRMs, LSRMs and PSRMs [9]-[11], whereas FEM takes a long calculating time. Based on aforementioned analysis, the nonlinear modeling of electromagnetic forces has not been built analytically for PSRMs. Hence, it is necessary to derive the nonlinear modeling of electromagnetic forces for deeper investigation of PSRMs. © 2015 IEEE.
Number of references: 12
DOI: 10.1109/INTMAG.2015.7157300
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

348. Phase congruency analysis of down-sampled and blurring images for foreground extraction

Accession number: 20160201799308
Authors: Gao, Wei (1, 2); Kwong, Sam (1, 2); Zhou, Yu (1, 2); Wang, Xu (2)
Author affiliation: (1) Department of Computer Science, City University of Hong Kong, Kowloon, Hong Kong; (2) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China
Source title: International Conference on Wavelet Analysis and Pattern Recognition
Abbreviated source title: Int. Conf. Wavelet Anal. Pattern Recogn.
Volume: 2015-October
Monograph title: Proceedings of 2015 International Conference on Wavelet Analysis and Pattern Recognition, ICWAPR 2015
Issue date: October 9, 2015
Publication year: 2015
Pages: 152-157
Article number: 7295942
Language: English
ISSN: 21585695
E-ISSN: 21585709
ISBN-13: 9781467372244
Document type: Conference article (CA)
Conference name: International Conference on Wavelet Analysis and Pattern Recognition, ICWAPR 2015
Conference date: July 12, 2015 - July 15, 2015
Conference location: Guangzhou, China
Conference code: 117300
Sponsor: Hebei University; Hebei University IEEE Systems, Man and Cybernetics Society; Hebei University SMC TC on Computational Intelligence; Hebei University SMC TC on Intelligent Internet Systems; Hebei University SMC TC on Machine Learning; Hebei University SMC TC on Pattern Recognition
Publisher: IEEE Computer Society
Abstract: In this paper, phase congruency (PC) features for different down-sampled and Gaussian blurred images are presented and analyzed. The detailed textures in the background can be suppressed in the PC maps for the down-sampled and blurring images. As the down-sampling ratio increases, the detailed edges and complex textures in the background can be effectively suppressed. For the blurring images, the PC metric shows a good robustness for the highly down-sampled images. Experimental results show that the proposed down-sampling method can effectively suppress the background textures than the traditional PC approach for edge detection for both the normal and blurring images, which can be very useful for the foreground extraction and background modeling problems. © 2015 IEEE.
Number of references: 26
Main heading: Image analysis
Controlled terms: Edge detection - Extraction - Image processing - Image texture - Pattern recognition - Signal sampling - Wavelet analysis
Uncontrolled terms: Background model - Burring images - Down sampling - Foreground extraction - Phase congruency
Classification code: 723.2 Data Processing and Image Processing - 802.3 Chemical Operations - 921 Mathematics
DOI: 10.1109/ICWAPR.2015.7295942
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

349. Arbitrary shape multilayer interconnects EMC modelling and optimization

Accession number: 20161502235942
Authors: Zhu, Boyuan (1); Lu, Junwei (1); Zhu, Mingcheng (2); Jiang, Mei (2)
Author affiliation: (1) Queensland Micro- and Nano-technology Centre, Griffith University, Brisbane, Australia; (2) College of Information Engineering, Shenzhen University, Shenzhen, China
Source title: EMC Compo 2015 - 2015 10th International Workshop on the Electromagnetic Compatibility of Integrated Circuits
Abbreviated source title: EMC Compo - Int. Workshop Electromagn. Compat. Integr. Circuits
Monograph title: EMC Compo 2015 - 2015 10th International Workshop on the Electromagnetic Compatibility of Integrated Circuits
Issue date: December 15, 2015
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Article number: 7358336

Language: English
ISBN-13: 9781467378963
Document type: Conference article (CA)
Conference name: 10th International Workshop on the Electromagnetic Compatibility of Integrated Circuits, EMC Compo 2015
Conference date: November 10, 2015 - November 13, 2015
Conference location: Edinburgh, United kingdom
Conference code: 118752
Sponsor: Cirrus Logic; CST; IEEE EMC Society; The Institution of Engineering and Technology (IET)
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: In very-large-scale-integration (VLSI), arbitrary structure of interconnections leads to unpredictable parasitic capacitance that generates EMC issues, i.e., parasitic noise, signal disorder, control failure, data asynchronous, etc. This paper investigates an EMC modelling and optimization method in calculating interconnect capacitance of VLSI interconnects based on the finite element method (FEM). Two- and three-dimensional interconnect models are simulated and the results of capacitance extraction are compared with experimental measurements, which proved the consistency and accuracy of FEM. Furthermore, optimizations of coupling capacitance are applied on multilayer interconnection structures by the non-dominated sorting genetic algorithm II (NSGA-II). © 2015 IEEE.

Number of references: 5
Main heading: Integrated circuit interconnects
Controlled terms: Capacitance - Electromagnetic compatibility - Finite element method - Genetic algorithms - Integrated circuits - Multilayers - Optical interconnects - Reconfigurable hardware - VLSI circuits
Uncontrolled terms: Arbitrary structures - Capacitance extraction - Coupling capacitance - Interconnect capacitance - Multilayer interconnections - Non dominated sorting genetic algorithm ii (NSGA II) - NSGA-II - Parasitic capacitance
Classification code: 701.1 Electricity: Basic Concepts and Phenomena - 711.1 Electromagnetic Waves in Different Media - 714.2 Semiconductor Devices and Integrated Circuits - 721.3 Computer Circuits - 921.6 Numerical Methods
DOI: 10.1109/EMCCompo.2015.7358336
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

350. Spatial distribution and partition of perfluoroalkyl acids (PFAAs) in rivers of the Pearl River Delta, southern China

Accession number: 20151600765567
Authors: Liu, Baolin (1, 2, 3); Zhang, Hong (1); Xie, Liuwei (1); Li, Juying (4); Wang, Xinxuan (3); Zhao, Liang (1); Wang, Yanping (3); Yang, Bo (4)
Author affiliation: (1) College of Physical Science and Technology, Shenzhen University, Shenzhen, China; (2) College of Chemistry, Changchun Normal University, Changchun, China; (3) College of Food Engineering and Biotechnology, Tianjin University of Science and Technology, Tianjin, China; (4) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Zhang, Hong
Source title: Science of the Total Environment
Abbreviated source title: Sci. Total Environ.
Volume: 524-525
Issue date: August 05, 2015
Publication year: 2015
Pages: 1-7
Language: English
ISSN: 00489697
E-ISSN: 18791026
CODEN: STEVA8
Document type: Journal article (JA)
Publisher: Elsevier

Abstract: This study investigated the occurrence of perfluoroalkyl acids (PFAAs) in surface water from 67 sampling sites along rivers of the Pearl River Delta in southern China. Sixteen PFAAs, including perfluoroalkyl carboxylic acids (PFCAs, C5-14, C16 and C18) and perfluoroalkyl sulfonic acids (PFSAs, C4, C6, C8 and C10) were determined by high performance liquid chromatography-negative electrospray ionization-tandem mass spectrometry (HPLC/ESI-MS/MS). Total PFAA concentrations ($\sum$ PFAAs) in the surface water ranged from 1.53 to 33.5ng·L-1 with an average of 7.58ng·L-1. Perfluorobutane sulfonic acid (PFBS), perfluorooctanoic acid (PFOA), and perfluorooctane sulfonic

acid (PFOS) were the three most abundant PFAAs and on average accounted for 28%, 16% and 10% of $\sum$ PFAAs, respectively. Higher concentrations of $\sum$ PFAAs were found in the samples collected from Jiangmen section of Xijiang River, Dongguan section of Dongjiang River and the Pearl River flowing the cities which had very well-developed manufacturing industries. PCA model was employed to quantitatively calculate the contributions of extracted sources. Factor 1 (72.48% of the total variance) had high loading for perfluorohexanoic acid (PFHxA), perfluoropentanoic acid (PFPeA), PFBS and PFOS. For factor 2 (10.93% of the total variance), perfluorononanoic acid (PFNA) and perfluoroundecanoic acid (PFUdA) got high loading. The sorption of PFCAs on suspended particulate matter (SPM) increased by approximately 0.1logunits for each additional CF2 moiety and that on sediment was approximately 0.8logunits lower than the SPM logKd values. In addition, the differences in the partition coefficients were influenced by the structure discrepancy of absorbents and influx of fresh river water. These data are essential for modeling the transport and environmental fate of PFAAs. © 2015 Elsevier B.V.

Number of references: 68
Main heading: Loading
Controlled terms: Electrospray ionization - Flowing wells - Gems - High performance liquid chromatography - Ionization of liquids - Liquid chromatography - Mass spectrometry - Rivers - Surface waters - Suspended sediments - Water resources
Uncontrolled terms: Negative electrospray ionizations - Pearl River delta - Perfluoroalkyl acids - Perfluoroalkyl carboxylic acids - Perfluoroalkyl sulfonic acids - Perfluorooctane sulfonic acids - Source appointment - Suspended particulate matters
Classification code: 444 Water Resources - 444.1 Surface Water - 482.2.1 Gems - 483 Soil Mechanics and Foundations - 512.2.2 Natural Gas Deposits: Development Operations - 672 Naval Vessels - 801 Chemistry - 802.2 Chemical Reactions
DOI: 10.1016/j.scitotenv.2015.04.004
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

351. Preparation of magnesium doped hydroxyapatite coating on carbon/carbon composites

Accession number: 20155001671217
Authors: Ni, Xinye (1, 2, 3); Li, Aijun (1); Bai, Ruicheng (1); Xiong, Xinbo (3); Zhou, Dong (2)
Author affiliation: (1) School of Materials Science and Engineering, Shanghai University, Shanghai, China; (2) Second People's Hospital of Changzhou, Nanjing Medical University, Changzhou, China; (3) College of Materials Science and Engineering, Shenzhen University, Shenzhen, China
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Source title: Cailiao Yanjiu Xuebao/Chinese Journal of Materials Research
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Volume: 29
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Issue date: November 25, 2015
Publication year: 2015
Pages: 853-858
Language: Chinese
ISSN: 10053093
CODEN: CYXUEV
Document type: Journal article (JA)
Publisher: Chinese Journal of Materials Research

Abstract: Mg doped hydroxyapatite coatings with 0, 0.28%, 0.32%, 0.49% Mg respectively, as artificial human bones were prepared on carbon/carbon composites by means of electromagnetic induction method. Then they were characterized by SEM, EDS, X-ray diffraction and Fourier transform-infrared spectroscopy etc. The results show that Mg ions entered the hydroxyapatite lattice and these coatings have only a little difference in constituents. Within the range Mg content of human bone, Mg ions can enhance the adhesion, multiplication, and differentiation of external osteoblasts. © All right reserved.

Number of references: 34
Main heading: Hydroxyapatite
Controlled terms: Bone - Carbon carbon composites - Coatings - Composite materials - Electromagnetic induction - Fourier transform infrared spectroscopy - Magnesium - X ray diffraction
Uncontrolled terms: Doped hydroxyapatites - Human bones - Mg content - Mg-doping

Classification code: 415.4 Structural Materials Other Than Metal, Plastics or Wood - 461.2 Biological Materials and Tissue Engineering - 542.2 Magnesium and Alloys - 701.1 Electricity: Basic Concepts and Phenomena - 801 Chemistry - 804.2 Inorganic Compounds - 813.2 Coating Materials - 951 Materials Science
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

352. Understanding viewer engagement of video service in Wi-Fi network

Accession number: 20153901307168
Authors: Chen, Yanjiao (1); Chen, Qihong (1); Zhang, Fan (1); Zhang, Qian (1); Wu, Kaishun (2); Huang, Ruochen (3); Zhou, Liang (3)
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Corresponding author: Chen, Yanjiao
Source title: Computer Networks
Abbreviated source title: Comput. Networks
Volume: 91
Issue date: November 14, 2015
Publication year: 2015
Pages: 101-116
Language: English
ISSN: 13891286
CODEN: CNETDP
Document type: Journal article (JA)
Publisher: Elsevier
Abstract: With the dramatic growth of online video services and video traffic, video service providers and network operators have keen interest in improving viewer engagement. Viewer engagement is mainly influenced by four aspects: service quality metrics (e.g.; rebuffer time), network quality metrics (e.g.; physical-layer data rate), video content (e.g.; video length) and viewer demography. Previous works only partially consider some of these factors due to limitation of the dataset. In this paper, we develop an experimental platform with more than 50 self-deployed routers in our university campus, collecting information regarding all four aspects of engagement-related factors. Correlation and information gain analysis show that different viewer groups and video content types have different engagement patterns. Furthermore, we analyze each factor's significance in determining viewer engagement. Finally, we propose to build personalized models to better predict viewer engagement, with bootstrapping customized models for new viewers. © 2015 Elsevier B.V.
Number of references: 23
Main heading: Wi-Fi
Controlled terms: Network layers - Population statistics - Routers - Video recording
Uncontrolled terms: Prediction model - Quality metrics - Video contents - Viewer demography - Viewer engagement
Classification code: 716 Telecommunication; Radar, Radio and Television - 716.4 Television Systems and Equipment - 717 Optical Communication - 718 Telephone Systems and Related Technologies; Line Communications - 723 Computer Software, Data Handling and Applications - 922.2 Mathematical Statistics
DOI: 10.1016/j.comnet.2015.08.006
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

353. Amorphous PtNiP particle networks of different particle sizes for the electro-oxidation of hydrazine

Accession number: 20153401196156
Authors: Ma, Yuanyuan (1); Wang, Hui (1); Lv, Weizhong (2); Ji, Shan (2); Pollet, Bruno G. (3); Li, Shunxi (1); Wang, Rongfang (1)
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Corresponding author: Ji, Shan
Source title: RSC Advances

Abbreviated source title: RSC Adv.
Volume: 5
Issue: 84
Issue date: August 7, 2015
Publication year: 2015
Pages: 68655-68661
Language: English
E-ISSN: 20462069
CODEN: RSCACL
Document type: Journal article (JA)
Publisher: Royal Society of Chemistry
Abstract: The design of alloy networks is an important fundamental and applied research challenge in the area of catalysis due to the high surface area, gas permeability and electrical conductivity of alloy network structures. Herein amorphous PtNiP particle networks were prepared via the NaBH4 co-reduction process. Moreover, the reaction temperature control from 0 °C to 80 °C was shown to be a powerful tool for the 'tuning' of particle sizes. Electron microscopy, X-ray diffraction and selected area electron diffraction were used to show the morphology, the amorphous behavior and the changes in particle size of the particle networks. The results of the electrochemical performance showed that the amorphous PtNiP particle networks had better catalytic activity towards hydrazine oxidation compared to the Pt and PtNi networks. The electrocatalytic activity reached a peak value, 0.62 mA at -0.63 V, at a PtNiP-50 electrode. The correlation between the particle size of the amorphous PtNiP particle networks and their electrocatalytic activity for the hydrazine oxidation reaction provided the opportunity to develop highly active electrocatalysts for hydrazine fuel cells. © The Royal Society of Chemistry 2015.
Number of references: 41
Main heading: Particle size
Controlled terms: Catalyst activity - Catalytic oxidation - Electrocatalysts - Electron diffraction - Electrooxidation - Fuel cells - Gas permeability - Hydrazine - Oxidation - X ray diffraction
Uncontrolled terms: Different particle sizes - Electrical conductivity - Electrocatalytic activity - Electrochemical performance - Hydrazine oxidation - Network structures - Reaction temperature - Selected area electron diffraction
Classification code: 421 Strength of Building Materials; Mechanical Properties - 454 Environmental Engineering - 702.2 Fuel Cells - 802.2 Chemical Reactions - 803 Chemical Agents and Basic Industrial Chemicals - 804.2 Inorganic Compounds - 931.3 Atomic and Molecular Physics - 932.2 Nuclear Physics - 943.2 Mechanical Variables Measurements
DOI: 10.1039/c5ra13774h
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

354. Analysis and modeling for the linear hybrid switched reluctance machine

Accession number: 20154001321684
Authors: Li, Q. (1); Cheng, E.K. (2)
Author affiliation: (1) Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China; (2) Electrical Engineering, Hong Kong Polytechnic University, Hong Kong, Hong Kong
Source title: 2015 IEEE International Magnetics Conference, INTERMAG 2015
Abbreviated source title: IEEE Int. Magn. Conf., INTERMAG
Monograph title: 2015 IEEE International Magnetics Conference, INTERMAG 2015
Issue date: July 14, 2015
Publication year: 2015
Article number: 7156552
Language: English
ISBN-13: 9781479973224
Document type: Conference article (CA)
Conference name: 2015 IEEE International Magnetics Conference, INTERMAG 2015
Conference date: May 11, 2015 - May 15, 2015
Conference location: Beijing, China
Conference code: 113931
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: To enhance the force-to-volume ratio and alleviate force ripples for the linear machines based on switched reluctance principle, a linear hybrid switched reluctance motor (LHSRM) which has doubly salient poles of the mover only embedded with a permanent magnet (PM) is proposed and the three modes of the force output of the proposed

machine is analyzed. The proposed LHSRM has the advantage of zero cogging force and the machine prototype is constructed. © 2015 IEEE.
Number of references: 8
DOI: 10.1109/INTMAG.2015.7156552
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

355. High-temperature passive direct methanol fuel cells operating with concentrated fuels

Accession number: 20144300114177
Authors: Zhao, Xuxin (1); Yuan, Wenxiang (1); Wu, Qixing (1); Sun, Hongyuan (1); Luo, Zhongkuan (1); Fu, Huide (1)
Author affiliation: (1) College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, Guangdong, China
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Source title: Journal of Power Sources
Abbreviated source title: J Power Sources
Volume: 273
Issue date: January 15, 2015
Publication year: 2015
Pages: 517-521
Language: English
ISSN: 03787753
CODEN: JPSODZ
Document type: Journal article (JA)
Publisher: Elsevier
Abstract: Conventionally, passive direct methanol fuel cells (DMFC) are fed with diluted methanol solutions and can hardly be operated at elevated temperatures (>120 °C) because the ionic conductivity of Nafion-type proton exchange membranes depends strongly on water content. Such a system design would limit its energy density and power density in mobile applications. In this communication, a passive vapor feed DMFC capable of operating with concentrated fuels at high temperatures is reported. The passive DMFC proposed in this work consists of a fuel reservoir, a perforated silicone sheet, a vapor chamber, two current collectors and a membrane electrode assembly (MEA) based on a phosphoric acid doped polybenzimidazole (PBI) membrane. The experimental results reveal that the methanol crossover through a PBI membrane is substantially low when compared with the Nafion membranes and the PBI-based passive DMFC can yield a peak power density of 37.2 mW cm-2 and 22.1 mW cm-2 at 180 °C when 16 M methanol solutions and neat methanol are used respectively. In addition, the 132 h discharge test indicates that the performance of this new DMFC is quite stable and no obvious performance degradation is observed after activation, showing its promising applications in portable power sources. © 2014 Elsevier B.V. All rights reserved.
Number of references: 47
Main heading: Direct methanol fuel cells (DMFC)
Controlled terms: Gas fuel purification - Ion exchange - Membranes - Methanol - Methanol fuels - Phosphoric acid - Phosphoric acid fuel cells (PAFC) - Proton exchange membrane fuel cells (PEMFC) - Reservoirs (water) - Silicones
Uncontrolled terms: High temperature - Membrane electrode assemblies - Passive direct methanol fuel cells - Performance degradation - Phosphoric acid doped polybenzimidazole - Polybenzimidazole - Portable power sources - Proton exchange membranes
Classification code: 441.2 Reservoirs - 522 Gas Fuels - 702.2 Fuel Cells - 802.2 Chemical Reactions - 804.1 Organic Compounds - 804.2 Inorganic Compounds - 816 Plastics and Other Polymers: Processing and Machinery - 817 Plastics and Other Polymers: Products and Applications - 951 Materials Science
DOI: 10.1016/j.jpowsour.2014.09.128
Database: Compendex
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Data Provider: Engineering Village

356. Soliton self-frequency shift and its application to multiphoton microscopy

Accession number: 20161202125536
Authors: Qiu, Ping (1); Wang, Ke (2)
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Source title: 2015 Opto-Electronics and Communications Conference, OECC 2015
Abbreviated source title: Opto-Electron. Commun. Conf., OECC
Monograph title: 2015 Opto-Electronics and Communications Conference, OECC 2015
Issue date: November 30, 2015
Publication year: 2015
Article number: 7340279
Language: English
ISBN-13: 9781467379441
Document type: Conference article (CA)
Conference name: Opto-Electronics and Communications Conference, OECC 2015
Conference date: June 28, 2015 - July 2, 2015
Conference location: Shanghai, China
Conference code: 118434
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: Soliton self-frequency shift (SSFS) is a highly versatile technology for generating femotosecond pulses with broadband wavelength tunability. Here we review our recent progress in utilizing SSFS for various modalities of multiphoton microscopy, including both fluorescence microscopy and harmonic generation microscopy. © 2015 IEEE.

Number of references: 21
Main heading: Nonlinear optics
Controlled terms: Fluorescence microscopy - Frequency shift keying - Harmonic generation - Solitons
Uncontrolled terms: Femtosecond pulse - Harmonic generation microscopy - ITS applications - Multi-photon microscopy - Recent progress - Soliton self-frequency shift - Wavelength tunability
Classification code: 741.1.1 Nonlinear Optics - 931.4 Quantum Theory; Quantum Mechanics
DOI: 10.1109/OECC.2015.7340279
Compendex references: YES
Database: Compendex

Data Provider: Engineering Village

357. A big data approach for logistics trajectory discovery from RFID-enabled production data

Accession number: 20151000596637
Authors: Zhong, Ray Y. (1, 2); Huang, George Q. (1); Lan, Shulin (1); Dai, Q.Y. (3); Chen, Xu (4); Zhang, T. (5)
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Corresponding author: Zhong, Ray Y.
Source title: International Journal of Production Economics
Abbreviated source title: Int J Prod Econ
Volume: 165
Issue date: July 1, 2015
Publication year: 2015
Pages: 260-272
Article number: 6006
Language: English
ISSN: 09255273
CODEN: IJPCEY
Document type: Journal article (JA)
Publisher: Elsevier

Abstract: Abstract Radio frequency identification (RFID) has been widely used in supporting the logistics management on manufacturing shopfloors where production resources attached with RFID facilities are converted into smart manufacturing objects (SMOs) which are able to sense, interact, and reason to create a ubiquitous environment. Within such environment, enormous data could be collected and used for supporting further decision-makings such as logistics planning and scheduling. This paper proposes a holistic Big Data approach to excavate frequent trajectory from massive RFID-enabled shopfloor logistics data with several innovations highlighted. Firstly, RFID-Cuboids are creatively introduced to establish a data warehouse so that the RFID-enabled logistics data could be highly integrated in terms of tuples, logic, and operations. Secondly, a Map Table is used for linking various cuboids so that information

granularity could be enhanced and dataset volume could be reduced. Thirdly, spatio-temporal sequential logistics trajectory is defined and excavated so that the logistics operators and machines could be evaluated quantitatively. Finally, key findings from the experimental results and insights from the observations are summarized as managerial implications, which are able to guide end-users to carry out associated decisions. © 2015 Elsevier B.V.
Number of references: 49
Main heading: Big data
Controlled terms: Data warehouses - Decision making - Manufacture - Radio frequency identification (RFID) - Scheduling - Trajectories
Uncontrolled terms: Information granularity - Logistics control - Logistics management - Managerial implications - Production resources - Shop floor - Trajectory pattern - Ubiquitous environments
DOI: 10.1016/j.ijpe.2015.02.014
Compendex references: YES
Database: Compendex
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358. Audio recapture detection using deep learning

Accession number: 20160701912113
Authors: Luo, Da (1, 2); Wu, Haojun (3); Huang, Jiwu (1, 2)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, China; (2) Shenzhen Key Laboratory of Media Security, Shenzhen, China; (3) School of Information Science and Technology, Sun Yat-Sen University, Guangzhou, China
Source title: 2015 IEEE China Summit and International Conference on Signal and Information Processing, ChinaSIP 2015 - Proceedings
Abbreviated source title: IEEE China Summit Int. Conf. Signal Inf. Process., ChinaSIP - Proc.
Monograph title: 2015 IEEE China Summit and International Conference on Signal and Information Processing, ChinaSIP 2015 - Proceedings
Issue date: August 31, 2015
Publication year: 2015
Pages: 478-482
Article number: 7230448
Language: English
ISBN-13: 9781479919482
Document type: Conference article (CA)
Conference name: IEEE China Summit and International Conference on Signal and Information Processing, ChinaSIP 2015
Conference date: July 12, 2015 - July 15, 2015
Conference location: Chengdu, China
Conference code: 117267
Sponsor: Institute of Electrical and Electronics Engineers Signal Processing Society (SPS)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Since the audio recapture can be used to assist audio splicing, it is important to identify whether a suspected audio recording is recaptured or not. However, few works on such detection have been reported. In this paper, we propose an method to detect the recaptured audio based on deep learning and we investigate two deep learning techniques, i.e., neural network with dropout method and stack auto-encoders (SAE). The waveform samples of audio frame is directly used as the input for the deep neural network. The experimental results show that error rate around 7.5% can be achieved, which indicates that our proposed method can successfully discriminate recaptured audio and original audio. © 2015 IEEE.
Number of references: 23
Main heading: Signal detection
Controlled terms: Information science - Learning systems
Uncontrolled terms: Audio frames - Audio splicing - Audio-based - Auto encoders - Deep learning - Deep neural networks - Dropout - Error rate
Classification code: 716.1 Information Theory and Signal Processing
DOI: 10.1109/ChinaSIP.2015.7230448
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

359. The effects of amplitude modulation cues on musical instrument recognition

Accession number: 20151600746087

Authors: Meng, Qinglin (1, 2); Yuan, Meng (1); Xia, Yang (1); Feng, Haihong (1)
Author affiliation: (1) Shanghai Acoustics Laboratory, Chinese Academy of Sciences, Shanghai, China; (2) College of Information Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Yuan, Meng

Source title: Shengxue Xuebao/Acta Acustica
Abbreviated source title: Shengxue Xuebao
Volume: 40
Issue: 2
Issue date: March 1, 2015
Publication year: 2015
Pages: 300-306
Language: Chinese
ISSN: 03710025
CODEN: SHGHAS
Document type: Journal article (JA)
Publisher: Science Press

Abstract: The effects of amplitude modulation (AM) cues on human musical instrument recognition were investigated. An automatic musical instrument recognition experiment was carried out. The following stages were manipulated: calculation of the statistical features from AM of the musical signals extracted based on the auditory model; a support vector machine with pairwise classification strategy was used as the classifier. Totally five band conditions (2, 4, 8, 16 and 32) and four AM extraction methods were evaluated. Results showed that recognition performance improved with the increasing of the band number, and 16 bands were sufficient for reaching asymptotic performance. The AM extraction methods also had significant effects on the performance. The analytic signal based method showed better performance than the rectification-low-pass-filter methods. The automatic recognition system showed better performance than human subjects using similar AM information. The automatic recognition system provided a computational model for predicting the performance of musical instrument recognition with cochlear implants and vocoder simulations and can be used as a reference in relevant experiments and training about musical instrument recognition with cochlear implants. ©, 2015, Science Press. All right reserved.

Number of references: 19
Main heading: Amplitude modulation
Controlled terms: Cochlear implants - Extraction - Low pass filters - Modulation - Musical instruments
Uncontrolled terms: Asymptotic performance - Auditory modeling - Automatic recognition system - Better performance - Computational model - Musical instrument recognition - Pairwise classification - Statistical features
Classification code: 462.4 Prosthetics - 703.2 Electric Filters - 716 Telecommunication; Radar, Radio and Television - 717 Optical Communication - 718 Telephone Systems and Related Technologies; Line Communications - 752.4 Acoustic Generators - 802.3 Chemical Operations
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

360. Oscillations in modulus in solutions of graphene oxide and reduced graphene oxide with grafted poly-N-isopropylamide

Accession number: 20150700528217

Authors: Hashmi, Saud (1, 4, 5); GhavamiNejad, Amin (4, 6); Stadler, Florian J. (1, 2, 3, 4, 7); Wu, Dongmei (8)
Author affiliation: (1) College of Materials Science and Engineering, Shenzhen University, Shenzhen, China; (2) Nanshan District Key Lab. for Biopolymers and Safety Evaluation, Shenzhen, China; (3) Shenzhen Engineering Laboratory for Advanced Technology of Ceramics, Shenzhen, China; (4) Chonbuk National University, School of Semiconductor and Chemical Engineering, Baekjero 567, Deokjin-gu, Jeonju, Jeonbuk, Korea, Republic of; (5) Department of Chemical Engineering, NED University of Engineering and Technology, University Road, Karachi, Pakistan; (6) Department of Bionanosystem Engineering, Graduate School, Chonbuk National University, Jeonju, Korea, Republic of; (7) Shenzhen Key Laboratory of Special Functional Materials, Shenzhen, China; (8) BIN-fusion Department, Chonbuk National University, Baekjero 567, Deokjin-gu, Jeonju, Jeonbuk, Korea, Republic of
Corresponding author: Stadler, Florian J.

Source title: Soft Matter
Abbreviated source title: Soft Matter
Volume: 11

Abstract: In a material consisting of graphene oxide or reduced graphene oxide and poly-N-isopropylamide (PNIPAM) in an aqueous solution, a new type of rheological behaviour is found. When subjecting the material to a short and relatively small deformation pulse, the modulus, which is observed by small deformations in the linear-viscoelastic or very slightly nonlinear range, oscillates with periodicities between 100 and several 1000 seconds; however, in many cases, it also increases systematically. The periodicity depends on the filler content and the sample preparation method (in situ polymerisation vs. blending). When subjecting the material to high nonlinear deformations (γ_0 = 100-300%), the resulting linear viscoelastic behaviour changes from a periodic oscillation to a quick recovery of the original data, followed by a decrease and a subsequent increase beyond the value of the modulus of the material prior to the deformation pulse. © The Royal Society of Chemistry 2015.

Number of references: 61
Main heading: Graphene
Controlled terms: Blending - Deformation - Viscoelasticity
Uncontrolled terms: Linear viscoelastic - Nonlinear ranges - Periodic oscillation - Reduced graphene oxides - Rheological behaviour - Sample preparation methods - Situ polymerisation - Small deformations
Classification code: 421 Strength of Building Materials; Mechanical Properties - 422 Strength of Building Materials; Test Equipment and Methods - 761 Nanotechnology - 802.3 Chemical Operations - 804 Chemical Products Generally
DOI: 10.1039/c4sm02544j
Database: Compendex
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Data Provider: Engineering Village

361. Multi-pedestrian tracking based on feature learning method with lateral inhibition

Accession number: 20161102092944
Authors: Li, Baopu (1, 2, 3, 4); Yang, Can (2, 3, 4); Xu, Guoqing (2, 3, 4)
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Corresponding author: Xu, Guoqing(gqxu@siat.ac.cn)
Source title: 2015 IEEE International Conference on Information and Automation, ICIA 2015 - In conjunction with 2015 IEEE International Conference on Automation and Logistics
Abbreviated source title: IEEE Int. Conf. Inf. Autom., ICIA - conjunction IEEE Int. Conf. Autom. Logist.
Monograph title: 2015 IEEE International Conference on Information and Automation, ICIA 2015 - In conjunction with 2015 IEEE International Conference on Automation and Logistics
Issue date: September 28, 2015
Publication year: 2015
Pages: 524-529
Article number: 7279343
Language: English
ISBN-13: 9781467391047
Document type: Conference article (CA)
Conference name: 2015 IEEE International Conference on Information and Automation, ICIA 2015 - In conjunction with 2015 IEEE International Conference on Automation and Logistics
Conference date: August 8, 2015 - August 10, 2015
Conference location: Yunnan, China
Conference code: 116345
Sponsor: CAS Shenzhen Institute of Advanced Technology; Harbin Institute of Technology Shenzhen Graduate School; HIT State Key Laboratory of Robotics and Systems; IEEE Robotics and Automation Society; Shanghai Gaitech Scientific Instruments Co., Ltd.; The Chinese University of Hong Kong
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: As one of the hot issues in computer vision, multi-pedestrian tracking has received more and more attention recently. In this paper, under the tracking-by-detection framework, we propose a new feature learning method with lateral inhibition, combining with the traditional detection method, which is demonstrated to be effective. The tracking part utilizes a framework built upon particle filter, and the computation of the particle weight coordinately considers detector confidence, particle velocity and other factors. In addition, we carry out a procedure of particle variation before particle resampling to reduce the loss of particle diversity. As a bridge between the detector's output and the tracker's output, data association divides the original assignment into several independent branches for computation efficiency. Our algorithm has been shown to be feasible and effective after extensive experiments on some standard data sets. © 2015 IEEE.
Number of references: 28
Main heading: Automation
Controlled terms: Computer vision - Learning systems - Monte Carlo methods - Surface discharges - Tracking (position) - Velocity control
Uncontrolled terms: Computation efficiency - Detection methods - Lateral inhibition - Particle filter - Particle variations - Particle velocities - Pedestrian tracking - Tracking by detections
Classification code: 701.1 Electricity: Basic Concepts and Phenomena - 723.5 Computer Applications - 731 Automatic Control Principles and Applications - 731.3 Specific Variables Control - 922.2 Mathematical Statistics
DOI: 10.1109/ICInfA.2015.7279343
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

362. Pulse width reduction due to RF filtering in synchronized time-lens source

Accession number: 20160501881600
Authors: Wang, Ke (1); Wang, Yuxin (1); Wang, Jiaqi (1); Qiu, Ping (2)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; (2) College of Physics Science and Technology, Shenzhen University, Shenzhen, China
Source title: Optics Express
Abbreviated source title: Opt. Express
Volume: 23
Issue: 23
Issue date: November 16, 2015
Publication year: 2015
Pages: 29608-29614
Language: English
E-ISSN: 10944087
Document type: Journal article (JA)
Publisher: OSA - The Optical Society
Abstract: Synchronized time-lens source has emerged as a promising solution for two-color synchronized ultrashort laser source. Various experiments have demonstrated that the synchronized time-lens source is especially suitable for applications in coherent Raman scattering (CRS) imaging and spectroscopy. In a synchronized time-lens source, phase modulators are typically driven by a filtered high-order harmonic (sine wave) of the fundamental repetition rate of the mode-locked laser. The bandwidth of the narrowband RF filter for this high-order harmonic is thus a programmable parameter for optimizing the performance of the time-lens source. In this paper, through both analytical and numerical investigations we demonstrate that, manipulating the bandwidth of RF filtering can reduce the pulse with of the synchronized time-lens source. This is potentially helpful for reducing the overall system complexity or extending the synchronized time-lens source to the femtosecond level. ©2015 Optical Society of America.
Number of references: 18
Main heading: Synchronization
Controlled terms: Bandwidth - Coherent scattering - Phase modulation
Uncontrolled terms: Coherent Raman scattering - High order harmonics - Mode-locked laser - Numerical investigations - Pulse width reduction - Repetition rate - System complexity - Ultrashort Laser
Classification code: 711 Electromagnetic Waves - 716.1 Information Theory and Signal Processing - 961 Systems Science
DOI: 10.1364/OE.23.029608
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.

363. Composition and distribution of the fluoride compounds in topsoil samples of Shenzhen

Accession number: 20151600746620
Authors: Liu, Xiao-Wan (1); Zhao, Liang (1); Zhang, Hong (2); Chai, Zhi-Fang (3); Shen, Jin-Can (4); Yang, Bo (5); Liu, Guo-Qing (2)
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Corresponding author: Zhang, Hong
Source title: Zhongguo Huanjing Kexue/China Environmental Science
Abbreviated source title: Zhongguo Huanjing Kexue
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Issue: 2
Issue date: February 1, 2015
Publication year: 2015
Pages: 499-505
Language: Chinese
ISSN: 10006923
CODEN: ZHKEEI
Document type: Journal article (JA)
Publisher: Chinese Society for Environmental Sciences
Abstract: In order to explore the composition of fluoride compounds and their relationship with soil parameters, 23topsoil samples were collected from Shenzhen. The total contant of fluorine (TF) and extractable organic fluorine (EOF) were measured using fluoride ion selective electrode, and the residue level of 13perfluorinated compounds (PFCs) were analyzed using high performance liquid chromatography-tandem mass spectrometry combined with solid phase extraction enrichment. The results indicated that the fluoride mainly existed in the form of inorganic fluoride, and its distribution followed the order of TFEOF IF (Identified Fluorine) in topsoil samples. EOF only accounted for 0.04% of TF, and IF accounted for 0.32% of EOF, indicating that nearly 99.7% of the EOF was unknown. Perfluorooctanoic acid and perfluorooctane sulfonate were the major PFCs residue species, accounting for 43%(18%~100%) and 20% (n.d.~44%) of #PFCs, which were higher in the west than in the east of Shenzhen. Soil parameters could affect the levels of EOF and #PFCs, which negatively correlated with pH, and positively correlated with topsoil organic carbon. ©, 2015, Chinese Society for Environmental Sciences. All right reserved.
Number of references: 18
Main heading: Extraction
Controlled terms: Electrodes - Fluorine - Fluorine compounds - High performance liquid chromatography - Ion selective electrodes - Liquid chromatography - Mass spectrometry - Organic carbon - Phase separation - Soils
Uncontrolled terms: Organic fluorine - Perfluorinated compound (PFCs) - Perfluorooctane sulfonates - Perfluorooctanoic acid - Shenzhen city - Soil parameters - Topsoil - Total fluorine
Classification code: 483.1 Soils and Soil Mechanics - 704.1 Electric Components - 801 Chemistry - 801.4.1 Electrochemistry - 802.1 Chemical Plants and Equipment - 802.3 Chemical Operations - 804 Chemical Products Generally - 804.1 Organic Compounds
Compendex references: YES
Database: Compendex

364. Thunder crystal: A novel crowdsourcing-based content distribution platform

Accession number: 20153201155599
Authors: Chen, Liang (1); Zhou, Yipeng (2); Jing, Mi (3); Ma, Richard T.B. (4)
Author affiliation: (1) College of Information Engineering, Shenzhen University, China; (2) College of Computer Science and Software Engineering, Shenzhen University, China; (3) Xunlei Network Technology Company, China; (4) School of Computing, National University of Singapore, Singapore
Corresponding author: Zhou, Yipeng
Source title: Proceedings of the 25th ACM Workshop on Network and Operating Systems Support for Digital Audio and Video, NOSSDAV 2015

Abbreviated source title: Proc. ACM Workshop Netw. Oper. Syst. Support Digit. Audio Video, NOSSDAV
Part number: 1 of 1
Monograph title: Proceedings of the 25th ACM Workshop on Network and Operating Systems Support for Digital Audio and Video, NOSSDAV 2015
Issue date: March 18, 2015
Publication year: 2015
Pages: 43-48
Language: English
ISBN-13: 9781450333528
Document type: Conference article (CA)
Conference name: 25th ACM Workshop on Network and Operating Systems Support for Digital Audio and Video, NOSSDAV 2015
Conference date: March 20, 2015
Conference location: Portland, OR, United states
Conference code: 112957
Sponsor: ACM SIGMM; Adobe; CISCO; FXPAL; Google; InterDigital Labs
Publisher: Association for Computing Machinery, Inc
Abstract: Content distribution, especially the distribution of video content, unavoidably consumes bandwidth resource heavily. Internet content providers (ICP) spend lots of money to buy content distribution network (CDN) service. By deploying thousands of edge servers close to end users, CDN companies are able to distribute content efficiently. In lieu of traditional CDN systems, we implement a crowdsourcing-based content distribution system, Thunder Crystal, which utilizes agents' upload bandwidth to amplify the content distribution capacity. Agents are well motivated to contribute storage and upload bandwidth to the system by rebated cash. As far as we know, this is a novel system that has not been studied before. In this work, we will present its design principles first. Then, we study agent behavior and methods to evaluate system efficiency and user efficiency. We evaluate the system by simulations, and observe that agents are well motivated to keep online most of the time and amplify the content distribution capacity by $10\sim20$ times. Copyright 2015 ACM.
Number of references: 16
Main heading: Audio systems
Controlled terms: Bandwidth - Computer graphics
Uncontrolled terms: Bandwidth resource - Content distribution - Content distribution networks - Content distribution systems - Crowdsourcing - Design Principles - Internet content providers - Upload bandwidths
Classification code: 716.1 Information Theory and Signal Processing - 723.5 Computer Applications - 751 Acoustics, Noise. Sound
DOI: 10.1145/2736084.2736085
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

365. Turbocharged video distribution via P2P

Accession number: 20151000604021
Authors: Yang, Chunfeng (1, 2); Zhou, Yipeng (1); Chen, Liang (1); Fu, Tom Z. J. (3); Chiu, Dah Ming (2)
Author affiliation: (1) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (2) Department of Information Engineering, Chinese University of Hong Kong, Hong Kong, Hong Kong; (3) Advanced Digital Sciences Center, Singapore, Singapore
Corresponding author: Zhou, Yipeng
Source title: IEEE Transactions on Circuits and Systems for Video Technology
Abbreviated source title: IEEE Trans Circuits Syst Video Technol
Volume: 25
Issue: 2
Issue date: February 1, 2015
Publication year: 2015
Pages: 287-299
Article number: 6882177
Language: English
ISSN: 10518215
CODEN: ITCTEM
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: There are two types of P2P systems satisfying two different user demands: 1) file downloading and 2) video-on-demand (VoD) streaming. An example of file downloading is the original BitTorrent, and examples for VoD streaming include various commercial P2P-based VoD streaming systems such as that offered by PPLive. We have a hypothesis-by combining a type: 1) system and 2) system as a single P2P system, both the file downloading users and the streaming users of the same video will benefit in performance. The reasoning is that at any moment, only a subset of the file downloading peers can provide good service to VoD streaming peers and the VoD streaming peers are only good at providing service to a different subset of the file downloading peers. The former subset is the set of peers close to completing the downloading of the video file; whereas the latter subset is the set of peers starting to download a video. In this paper, we propose a novel design for a mesh-based video distribution system without depending on video replication on streaming peers. We produce simple back-of-the-envelop analysis to show its effectiveness. Then, we further validate our design and compare it with other designs through simulation and experiments in practical networking environment by implementing a prototype. © 1991-2012 IEEE.

Number of references: 31
Main heading: Peer to peer networks
Controlled terms: Design - Distributed computer systems - Set theory - Video on demand
Uncontrolled terms: Downloading - File downloading - Networking environment - Peer selection - Peer to peer - Streaming systems - Video distribution - Video on demands (VoD)
Classification code: 408 Structural Design - 716.4 Television Systems and Equipment - 722 Computer Systems and Equipment - 722.4 Digital Computers and Systems - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory
DOI: 10.1109/TCSVT.2014.2351093
Database: Compendex

Data Provider: Engineering Village

366. A novel branch-leaf growth algorithm for numerical optimization

Accession number: 20154301446906

Authors: He, Xiaoxian (1, 2); Wang, Jie (1); Bi, Ying (3)
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Corresponding author: He, Xiaoxian

Source title: Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)
Abbreviated source title: Lect. Notes Comput. Sci.
Volume: 9226
Monograph title: Intelligent Computing Theories and Methodologies - 11th International Conference, ICIC 2015, Proceedings
Issue date: 2015
Publication year: 2015
Pages: 742-750
Language: English
ISSN: 03029743
E-ISSN: 16113349
ISBN-13: 9783319221854
Document type: Conference article (CA)
Conference name: 11th International Conference on Intelligent Computing, ICIC 2015
Conference date: August 20, 2015 - August 23, 2015
Conference location: Fuzhou, China
Conference code: 139689
Sponsor: International Neural Network Society; National Science Foundation of China
Publisher: Springer Verlag

Abstract: Inspired by branch and leaf growth behaviors of plants, a novel algorithm, named branch-leaf growth algorithm (BLGA), is presented for numerical optimization. In this algorithm, though branch and leaf implement different growth strategies, they cooperate closely to search the space for living resources. More specifically, branches grow into a stable self-similar architecture to support remote exploration, while leaves exploit local areas for better chances in each generation. An inhibition mechanism of plant hormones is applied to branches in case of overgrowth. In order to validate its efficiency, eight classic benchmark functions are adopted for test, and the results are compared with PSO, BFO and BCFO. The comparing results show that BLGA outperforms other evolutionary algorithms on most of benchmark functions. © Springer International Publishing Switzerland 2015.

Number of references: 16
Main heading: Algorithms
Controlled terms: Computation theory - Evolutionary algorithms - Hormones - Intelligent computing - Optimization - Particle swarm optimization (PSO) - Plants (botany)
Uncontrolled terms: Benchmark functions - Growth strategy - Inhibition mechanisms - Its efficiencies - Leaf growth - Numerical optimizations - Remote explorations - Self-similar propagation
Classification code: 461.2 Biological Materials and Tissue Engineering - 721.1 Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory - 723.4 Artificial Intelligence - 921.5 Optimization Techniques
DOI: 10.1007/978-3-319-22186-1_74
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

367. Band engineering via biaxial strain for enhanced thermoelectric performance in stannite-type Cu2ZnSnSe4

Accession number: 20151200655333
Authors: Zou, Daifeng (1, 2); Nie, Guozheng (1); Li, Yu (3); Xu, Ying (1); Lin, Jianguo (4); Zheng, Hairong (2); Li, Jiangyu (5)
Author affiliation: (1) School of Physics and Electronic Science, Hunan University of Science and Technology, Xiangtan, China; (2) Shenzhen Key Laboratory of Nanobiomechanics, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China; (3) College of Materials Science and Engineering, Shenzhen University, Shenzhen, China; (4) School of Materials Science and Engineering, Xiangtan University, Xiangtan 411105, China; (5) Department of Mechanical Engineering, University of Washington, Seattle; WA, United States
Corresponding author: Zheng, Hairong
Source title: RSC Advances
Abbreviated source title: RSC Adv.
Volume: 5
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Issue date: 2015
Publication year: 2015
Pages: 24908-24914
Language: English
E-ISSN: 20462069
CODEN: RSCACL
Document type: Journal article (JA)
Publisher: Royal Society of Chemistry
Abstract: The electronic structures of a typical quaternary compound of stannite-type Cu2ZnSnSe4under biaxial strain were investigated by using first-principles calculations, and its p-type thermoelectric properties were calculated on the basis of the semi-classical Boltzmann transport theory. It was found that biaxial strain can be a powerful tool to fine-tune the band structure and thermoelectric properties of stannite-type Cu2ZnSnSe4, and the enhancement of thermoelectric properties can be explained from the convergence of the valence bands near the Fermi level. The study offers valuable insight into band engineering via biaxial strain for improving thermoelectric performance of quaternary chalcogenides and similar materials. This journal is © The Royal Society of Chemistry 2015.
Number of references: 46
Main heading: Thermoelectricity
Controlled terms: Calculations - Electronic structure - Inorganic compounds - Statistical mechanics - Thermoelectric equipment
Uncontrolled terms: Band engineering - Boltzmann transport theory - First-principles calculation - Quaternary chalcogenides - Quaternary compound - Similar material - Thermoelectric performance - Thermoelectric properties
Classification code: 615.4 Thermoelectric Energy - 721 Computer Circuits and Logic Elements - 723 Computer Software, Data Handling and Applications - 804.2 Inorganic Compounds - 921 Mathematics - 931.1 Mechanics
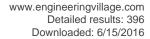**DOI:** 10.1039/c5ra00477b
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

368. A Framework of Joint Graph Embedding and Sparse Regression for Dimensionality Reduction

Accession number: 20151100636366
Authors: Shi, Xiaoshuang (1); Guo, Zhenhua (1, 2); Lai, Zhihui (3); Yang, Yujiu (1); Bao, Zhifeng (4); Zhang, David (5)
Author affiliation: (1) Shenzhen Key Laboratory of Broadband Network and Multimedia, Graduate School at Shenzhen, Tsinghua University, Shenzhen, China; (2) Key Laboratory of Measurement and Control of Complex System of Engineering, Ministry of Education, Southeast University, Nanjing, China; (3) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China; (4) School of Computer Science and Information Technology, RMIT University, Melbourne; VIC, Australia; (5) Biometrics Research Centre, Department of Computing, Hong Kong Polytechnic University, Hong Kong, Hong Kong
Source title: IEEE Transactions on Image Processing
Abbreviated source title: IEEE Trans Image Process
Volume: 24
Issue: 4
Issue date: April 1, 2015
Publication year: 2015
Pages: 1341-1355
Article number: 7045492
Language: English
ISSN: 10577149
CODEN: IIPRE4
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Over the past few decades, a large number of algorithms have been developed for dimensionality reduction. Despite the different motivations of these algorithms, they can be interpreted by a common framework known as graph embedding. In order to explore the significant features of data, some sparse regression algorithms have been proposed based on graph embedding. However, the problem is that these algorithms include two separate steps: 1) embedding learning and 2) sparse regression. Thus their performance is largely determined by the effectiveness of the constructed graph. In this paper, we present a framework by combining the objective functions of graph embedding and sparse regression so that embedding learning and sparse regression can be jointly implemented and optimized, instead of simply using the graph spectral for sparse regression. By the proposed framework, supervised, semisupervised, and unsupervised learning algorithms could be unified. Furthermore, we analyze two situations of the optimization problem for the proposed framework. By adopting an L2,1-norm regularization for the proposed framework, it can perform feature selection and subspace learning simultaneously. Experiments on seven standard databases demonstrate that joint graph embedding and sparse regression method can significantly improve the recognition performance and consistently outperform the sparse regression method. © 1992-2012 IEEE.
Number of references: 51
Main heading: Graph theory
Controlled terms: Algorithms - Feature extraction - Learning algorithms - Optimization - Regression analysis
Uncontrolled terms: Dimensionality reduction - Graph embeddings - L2,1-norm - Objective functions - Optimization problems - Semi-supervised - Sparse regression - Subspace learning
Classification code: 716 Telecommunication; Radar, Radio and Television - 723 Computer Software, Data Handling and Applications - 921.4 Combinatorial Mathematics, Includes Graph Theory, Set Theory - 921.5 Optimization Techniques - 922.2 Mathematical Statistics
DOI: 10.1109/TIP.2015.2405474
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

369. Energy Harvesting Noncoherent Cooperative Communications

Accession number: 20161302171719
Authors: Liu, Peng (1, 2); Gazor, Saeed (3); Kim, Il-Min (4); Kim, Dong In (1)
Author affiliation: (1) College of Information Engineering, Shenzhen University, Shenzhen, China; (2) Department of Electrical Engineering, Stanford University, Stanford; CA, United States; (3) Department of Electrical and Computer Engineering, Queen's University, Kingston; ON, Canada; (4) School of Information and Communication Engineering, Sungkyunkwan University (SKKU), Suwon, Korea, Republic of
Source title: IEEE Transactions on Wireless Communications
Abbreviated source title: IEEE Trans. Wireless Commun.
Volume: 14

Abstract: This paper investigates simultaneous wireless information and power transfer (SWIPT) in energy harvesting (EH) relay systems. Unlike the existing SWIPT schemes requiring the instantaneous channel state information (CSI) for coherent information delivery, we propose a noncoherent SWIPT framework for decode-and-forward (DF) relay systems bypassing the need for the instantaneous CSI and consequently saving energy in the network. The proposed SWIPT framework embraces both the power-splitting noncoherent DF (PS-NcDF) and time-switching noncoherent DF (TS-NcDF) in a unified form, and supports arbitrary M-ary noncoherent frequency-shift keying (FSK) and differential phase-shift keying (DPSK). The exact (noncoherent) maximum-likelihood detectors (MLDs) for PS-NcDF and TS-NcDF are derived in a unified form, which involves integral evaluations yet serves as the optimum performance benchmark for noncoherent SWIPT. To reduce the computational cost of the exact MLDs, we also propose closed-form approximate MLDs achieving near-optimum performance, thus serving as a practical solution for noncoherent SWIPT. Numerical results demonstrate a performance tradeoff between the first and second hops through the adjustment of time switching or power splitting parameters, whose optimal values minimizing the symbol-error rate (SER) are strictly between 0 and 1. We demonstrate that M-FSK results in a significant energy saving over M-DPSK for $M \ge 8$; thus M-FSK may be more suitable for EH relay systems. © 2015 IEEE.

Number of references: 38
Main heading: Energy harvesting
Controlled terms: Benchmarking - Broadband networks - Channel state information - Communication channels (information theory) - Cooperative communication - Energy conservation - Frequency shift keying - Maximum likelihood - Optical communication - Phase shift - Phase shift keying - Phase shifters
Uncontrolled terms: Differential phase-shift keying - Information and power transfers - Information transfers - Instantaneous channel state informations - Maximum likelihood detectors - Noncoherent frequency shift keying - noncoherent SWIPT - Wireless power transfer (WPT)
Classification code: 525.2 Energy Conservation - 525.5 Energy Conversion Issues - 713.5 Electronic Circuits Other Than Amplifiers, Oscillators, Modulators, Limiters, Discriminators or Mixers - 716.1 Information Theory and Signal Processing - 717.1 Optical Communication Systems - 722.3 Data Communication, Equipment and Techniques - 922.1 Probability Theory
DOI: 10.1109/TWC.2015.2458969
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

370. Formation and energy exchange of vector dark solitons in fiber lasers

Accession number: 20150900571936
Authors: Guo, Jun (1); Xiang, Yuanjiang (2); Dai, Xiaoyu (2); Zhang, Han (1, 2); Wen, Shuangchun (1)
Author affiliation: (1) Laboratory for Micro-/Nano-Optoelectronic Devices of Ministry of Education, School of Physics and Electronics, Hunan University, Changsha, China; (2) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Zhang, Han

Abstract: The mutual energy-exchange interactions in two orthogonally polarized components of vector dark soliton, which is automatically formed in a normal-dispersion fiber laser cavity in the presence of reverse saturable absorption, and dissipative cavity effects, had been theoretically and numerically investigated. Under specific cavity parameters, a vector dark soliton with periodic coherent energy exchange could be formed and well described by a semianalytic method. The multiple vector dark solitons with energy exchange were also demonstrated by combining gain bandwidth and a reverse saturable absorption effect. © 2009-2012 IEEE.
Number of references: 34
Main heading: Solitons
Controlled terms: Fiber lasers - Fibers - Nonlinear optics - Optical fiber communication - Vectors
Uncontrolled terms: Cavity parameters - Dissipative cavities - Fiber nonlinear optics - Normal dispersion - Optical soliton - Polarized components - Reverse saturable absorption - Vector dark solitons
Classification code: 717.1 Optical Communication Systems - 741.1.1 Nonlinear Optics - 741.1.2 Fiber Optics - 812 Ceramics, Refractories and Glass - 817 Plastics and Other Polymers: Products and Applications - 921.1 Algebra
DOI: 10.1109/JPHOT.2015.2394298
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

371. Secure sharing and searching for real-time video data in mobile cloud

Accession number: 20151500742688
Authors: Liu, Joseph K. (1, 2); Au, Man Ho (3); Susilo, Willy (4); Liang, Kaitai (5); Lu, Rongxing (6); Srinivasan, Bala (1)
Author affiliation: (1) Monash University, Australia; (2) Shenzhen University, China; (3) Hong Kong Polytechnic University, Hong Kong; (4) University of Wollongong, Australia; (5) Aalto University, Finland; (6) Nanyang Technological University, Singapore
Source title: IEEE Network
Abbreviated source title: IEEE Network
Volume: 29
Issue: 2
Issue date: March 1, 2015
Publication year: 2015
Pages: 46-50
Article number: 7064902
Language: English
ISSN: 08908044
CODEN: IENEET
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: In this article we propose an infrastructure that allows mobile users to securely share and search for their real-time video data. Specifically, the proposed infrastructure takes the advantages of the cloud platform and 5G technology to achieve its goals, where mobile users (connected with some external video taking device) can share their real-time video with their friends or families through the cloud while any other user with no permission cannot get any information about the video. More importantly, the infrastructure security is guaranteed even if the cloud server is hacked. In addition, our infrastructure also allows secure searching within the user's own video data. We believe our solution is practical to be deployed in the existing telecommunication platforms. © 1986-2012 IEEE.
Number of references: 15
Main heading: Mobile security
Controlled terms: Video recording
Uncontrolled terms: Cloud platforms - Cloud servers - Infrastructure security - Mobile clouds - Mobile users - Real time videos - Video data
Classification code: 716.4 Television Systems and Equipment
DOI: 10.1109/MNET.2015.7064902
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

372. Thermally responsive behaviour of the electrical resistance of electrospun P(NIPAm-co-NMA)/Ag composite nanofibers

Accession number: 20150300427688
Authors: Li, Hui (1, 2); Zhang, Guoping (1); Deng, Libo (1); Sun, Rong (1); Xing, Ou-Yang (2)
Author affiliation: (1) Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China; (2) College of Materials Science and Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Deng, Libo
Abstract: Thermally responsive copolymer P(NIPAm-co-NMA) was prepared via a radical copolymerization and spun into nanofibers using electrospinning. After thermal crosslinking, the electrospun fibers were modified using KH590 and silver nanoparticles were introduced onto the fiber surface using a chemical plating method. The electrical resistance of the composite fibers containing 65.5% of silver at different temperatures was investigated and it was found that the resistance dropped by $\sim 60\%$ as the temperature increased from 42°C to 46°C, which is consistent with the solubility transition of PNIPAm with the change of temperature as revealed by differential scanning calorimetry (DSC) measurement. © The Royal Society of Chemistry 2015.
Number of references: 28
Main heading: Nanofibers
Controlled terms: Copolymers - Crosslinking - Differential scanning calorimetry - Electric resistance - Electrospinning - Silver - Spinning (fibers)
Uncontrolled terms: Change of temperatures - Composite nanofibers - Electrical resistances - Radical copolymerization - Silver nanoparticles - Thermal crosslinking - Thermally responsive - Thermally responsive copolymer
Classification code: 423 Non Mechanical Properties and Tests of Building Materials - 547.1 Precious Metals - 761 Nanotechnology - 801 Chemistry - 802.2 Chemical Reactions - 815.1 Polymeric Materials - 819.3 Fiber Chemistry and Processing - 933 Solid State Physics
DOI: 10.1039/c4ra12662a
Database: Compendex
Data Provider: Engineering Village

373. A feature point matching based on spatial order constraints bilateral-neighbor vote

Accession number: 20153401193295
Authors: Meng, Fanyang (1); Li, Xia (2); Pei, Jihong (1)
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Corresponding author: Pei, Jihong

Abstract: Feature point matching is a fundamental and challenging problem in many computer vision applications. In this paper, a robust feature point matching algorithm named spatial order constraints bilateral-neighbor vote (SOCBV) is proposed to remove outliers for a set of matches (including outliers) between two images. A directed ${k}$ nearest neighbor (knn) graph of match sets is generated, and the problem of feature point matching is formulated as a binary discrimination problem. In the discrimination process, the class labeled matrix is built via the spatial order constraints defined on the edges that connect a point to its knn. Then, the posterior inlier class probability of each match is estimated with the knn density estimation and spatial order constraints. The vote of each match is determined by averaging all posterior class probabilities that originate from its associative inliers set and is used for removing outliers. The algorithm iteratively removes outliers from the directed graph and recomputes the votes until the stopping condition is satisfied. Compared with other popular algorithms, such as RANSAC, RSOC, GTM, SOC and WGTM, experiments under various testing data sets demonstrate strong robustness for the proposed algorithm. © 1992-2012 IEEE.

Number of references: 25
Main heading: Image matching
Controlled terms: Algorithms - Computer vision - Directed graphs - Iterative methods - Nearest neighbor search - Statistics
Uncontrolled terms: Bilateral-neighbour Vote - Binary discrimination - Class probabilities - Computer vision applications - Feature point matching - Nearest-neighbour - Posterior class probabilities - Spatial ordering constraints
Classification code: 723 Computer Software, Data Handling and Applications - 723.5 Computer Applications - 741 Light, Optics and Optical Devices - 741.2 Vision - 921 Mathematics - 922.2 Mathematical Statistics
DOI: 10.1109/TIP.2015.2456633
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

374. Recommending High Utility Queries via Query-Reformulation Graph

Accession number: 20152500955683
Authors: Wang, Jianguo (1, 2); Huang, Joshua Zhexue (1, 3); Wu, Dingming (3)
Author affiliation: (1) Shenzhen Key Laboratory of High Performance Data Mining, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China; (2) Shenzhen College of Advanced Technology, University of Chinese Academy of Sciences, Shenzhen, China; (3) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Wu, Dingming

Abstract: Query recommendation is an essential part of modern search engine which aims at helping users find useful information. Existing query recommendation methods all focus on recommending similar queries to the users. However, the main problem of these similarity-based approaches is that even some very similar queries may return few or even no useful search results, while other less similar queries may return more useful search results, especially when the initial query does not reflect user's search intent correctly. Therefore, we propose recommending high utility queries, that is, useful queries with more relevant documents, rather than similar ones. In this paper, we first construct a query-reformulation graph that consists of query nodes, satisfactory document nodes, and interruption node. Then, we apply an absorbing random walk on the query-reformulation graph and model the document utility with the transition probability from initial query to the satisfactory document. At last, we propagate the document utilities back to queries and rank candidate queries with their utilities for recommendation. Extensive experiments were conducted on real query logs, and the experimental results have shown that our method significantly outperformed the state-of-the-art methods in recommending high utility queries. © 2015 JianGuo Wang et al.

Number of references: 32
Main heading: Information retrieval
Controlled terms: Online searching - Query processing - Search engines

Uncontrolled terms: Candidate query - Document utility - Query recommendations - Query reformulation - Relevant documents - Search intents - State-of-the-art methods - Transition probabilities
Classification code: 723 Computer Software, Data Handling and Applications
DOI: 10.1155/2015/956468
Database: Compendex
Data Provider: Engineering Village

375. Joint quantization and diffusion for compressed sensing measurements of natural images

Accession number: 20154501524535
Authors: Zhang, Leo Yu (1); Wong, Kwok-Wo (1); Zhang, Yushu (2); Lin, Qiuzhen (3)
Author affiliation: (1) Department of Electronic Engineering, City University of Hong Kong, Hong Kong; (2) School of Electronics and Information Engineering, Southwest University, Chongqing, China; (3) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China
Source title: Proceedings - IEEE International Symposium on Circuits and Systems
Abbreviated source title: Proc IEEE Int Symp Circuits Syst
Volume: 2015-July
Monograph title: 2015 IEEE International Symposium on Circuits and Systems, ISCAS 2015
Issue date: July 27, 2015
Publication year: 2015
Pages: 2744-2747
Article number: 7169254
Language: English
ISSN: 02714310
CODEN: PICSDI
ISBN-13: 9781479983919
Document type: Conference article (CA)
Conference name: IEEE International Symposium on Circuits and Systems, ISCAS 2015
Conference date: May 24, 2015 - May 27, 2015
Conference location: Lisbon, Portugal
Conference code: 115760
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: Recent research advances have revealed the computational secrecy of the compressed sensing (CS) paradigm. Perfect secrecy can also be achieved by normalizing the CS measurement vector. However, these findings are established on real-valued measurements while digital devices can only store the samples at a finite precision. Based on the distribution of measurements of natural images sensed by structurally random ensemble, a joint quantization and diffusion approach for the real-valued measurements is suggested. In this way, a nonlinear cryptographic diffusion is intrinsically imposed on the CS quantization process and the overall security level is thus enhanced. It is shown that the proposed scheme is able to resist known-plaintext attack while the original CS scheme without quantization cannot. © 2015 IEEE.
Number of references: 17
Main heading: Compressed sensing
Controlled terms: Cryptography - Diffusion - Digital devices - Signal reconstruction
Uncontrolled terms: Compressive sensing - Finite precision - Image encryptions - Known-plaintext attacks - Measurements of - quantization - Random matrices - Recent researches
Classification code: 716.1 Information Theory and Signal Processing
DOI: 10.1109/ISCAS.2015.7169254
Compendex references: YES
Database: Compendex
Data Provider: Engineering Village

376. Design of multivariable PID controllers using real-coded population-based extremal optimization

Accession number: 20145100349147
Authors: Zeng, Guo-Qiang (1); Chen, Jie (1); Chen, Min-Rong (2); Dai, Yu-Xing (1); Li, Li-Min (1); Lu, Kang-Di (1); Zheng, Chong-Wei (1)

Author affiliation: (1) Department of Electrical and Electronic Engineering, Wenzhou University, Wenzhou, China; (2) Shenzhen University, College of Information Engineering, Shenzhen, China
Corresponding author: Dai, Yu-Xing

Abstract: The issue of designing and tuning an effective and efficient multivariable PID controller for a multivariable control system to obtain high-quality performance is of great theoretical importance and practical significance. As a novel evolutionary algorithm inspired from statistical physics and co-evolution, extremal optimization (EO) has successfully applied to a variety of optimization problems while the applications of EO into the design of multivariable PID and PI controllers are relatively rare. This paper presents a novel real-coded population-based EO (RPEO) method for the design of multivariable PID and PI controllers. The basic idea behind RPEO is based on population-based iterated optimization process consisting of the following key operations including generation of a real-coded random initial population by encoding the parameters of a multivariable PID or PI controller into a set of real values, evaluation of the individual fitness by using a novel and reasonable control performance index, generation of new population based on multi-non-uniform mutation and updating the population by accepting the new population unconditionally. From the perspectives of simplicity and accuracy, the proposed RPEO algorithm is demonstrated to outperform other reported popular evolutionary algorithms, such as real-coded genetic algorithm (RGA) with multi-crossover or simulated binary crossover, differential evolution (DE), modified particle swarm optimization (MPSO), probability based discrete binary PSO (PBPSO), and covariance matrix adaptation evolution strategy (CMAES) by the experimental results on the benchmark multivariable binary distillation column plant.

Number of references: 41
Main heading: Controllers
Controlled terms: Covariance matrix - Design - Distillation - Distillation columns - Electric control equipment - Evolutionary algorithms - Genetic algorithms - Multivariable control systems - Particle swarm optimization (PSO) - Proportional control systems - Quality control - Three term control systems
Uncontrolled terms: Binary distillation columns - Control performance indices - Covariance matrix adaptation evolution strategies - Extremal optimization - Modified particle swarm optimizations (MPSO) - Multivariable PID controller - Non-uniform mutation - Real-coded genetic algorithm
Classification code: 408 Structural Design - 723 Computer Software, Data Handling and Applications - 731.1 Control Systems - 732.1 Control Equipment - 802.3 Chemical Operations - 913.3 Quality Assurance and Control - 921 Mathematics - 922 Statistical Methods
DOI: 10.1016/j.neucom.2014.10.060
Database: Compendex

Data Provider: Engineering Village

377. Scheduling of multi-die operations with multiple maintenance tasks

Authors: Chan, Felix T.S. (1); Wong, C.S. (1); Niu, B. (2)
Author affiliation: (1) Department of Industrial and Systems Engineering, Hong Kong Polytechnic University, Hung Hum, Hong Kong; (2) College of Management, Shenzhen University, China

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Conference name: 5th International Conference on Industrial Engineering and Operations Management, IEOM 2015
Conference date: March 3, 2015 - March 5, 2015
Conference location: Dubai, United arab emirates
Conference code: 112072
Sponsor: ASQ; BOEING; Emirates; et al.; IEEE; Lawrence Technological University
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: Production-Maintenance Scheduling (PMS) is to allocate resources over time to perform production and maintenance activities, aimed to improve productivity and reliability of production systems. This study extended the PMS model proposed in Wong et al. [1-3] and developed a novel methodology to schedule multi-die operations and the related maintenance tasks for the dies. In this paper, a new scheduling problem considered multi-die operations and die maintenance was identified and modeled. A Joint Scheduling (JS) methodology was developed and implemented in a genetic algorithm approach to deal with the new problem. Numerical examples showed that the proposed JS methodology could obtain shorter makespan comparing with the traditional Maximum Age (MA) methodology. © 2015 IEEE.

Number of references: 12
Main heading: Scheduling
Controlled terms: Dies - Genetic algorithms - Maintenance - Productivity - Scheduling algorithms
Uncontrolled terms: Genetic algorithm approach - Joint scheduling - Maintenance activity - Maintenance scheduling - Maintenance tasks - Novel methodology - Production system - Scheduling problem
Classification code: 603.2 Machine Tool Accessories - 723 Computer Software, Data Handling and Applications - 912.2 Management - 913.1 Production Engineering - 913.5 Maintenance - 921 Mathematics
DOI: 10.1109/IEOM.2015.7093708
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

378. Unified non-volatile memory and NAND flash memory architecture in smartphones

Accession number: 20151500728144
Authors: Chen, Renhai (1); Wang, Yi (2); Hu, Jingtong (3); Liu, Duo (4); Shao, Zili (1); Guan, Yong (5)
Author affiliation: (1) Embedded Systems and CPS Laboratory, Department of Computing, Hong Kong Polytechnic University, China; (2) College of Computer Science and Software Engineering, Shenzhen University, China; (3) School of Electrical and Computer Engineering, Oklahoma State University, United States; (4) College of Computer Science, Chongqing University, China; (5) College of Computer and Information Management, Capital Normal University, China
Corresponding author: Shao, Zili
Source title: 20th Asia and South Pacific Design Automation Conference, ASP-DAC 2015
Abbreviated source title: Asia South Pac. Des. Autom. Conf., ASP-DAC
Part number: 1 of 1
Issue date: March 11, 2015
Publication year: 2015
Pages: 340-345
Article number: 7059028
Language: English
ISBN-13: 9781479977925
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Conference name: 2015 20th Asia and South Pacific Design Automation Conference, ASP-DAC 2015
Conference date: January 19, 2015 - January 22, 2015
Conference location: Chiba, Japan
Conference code: 111574
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: I/O is becoming one of major performance bottlenecks in NAND-flash-based smartphones. Novel NVMs (nonvolatile memories), such as PCM (Phase Change Memory) and STT-RAM (Spin-Transfer Torque Random Access Memory), can provide fast read/write operations. In this paper, we propose an unified NVM/flash architecture to improve the I/O performance. A transparent scheme, vFlash (Virtualized Flash), is also proposed to manage the unified architecture. Within vFlash, inter-app technique is proposed to optimize the application performance by exploiting the historic locality of applications. Since vFlash is on the bottom of the I/O stack, the application features will be lost. Therefore, we also propose a cross-layer technique to transfer the application information from the application layer to the vFlash layer. The proposed scheme is evaluated based on a real Android platform, and the experimental results

show that the read and write performance for the proposed scheme is 2.45 times and 3.37 times better than that of the stock Android 4.2 system, respectively. © 2015 IEEE.

379. Hybrid learning particle swarm optimizer with genetic disturbance

Authors: Liu, Yanmin (1, 2); Niu, Ben (3, 4); Luo, Yuanfeng (1)
Author affiliation: (1) School of Mathematics and Computer Science, Zunyi Normal College, Zunyi, China; (2) School of Economics and Management, Tongji University, Shanghai, China; (3) College of Management, Shenzhen University, Shenzhen, China; (4) Hefei Institute of Intelligent Machines, Chinese Academy of Sciences, Hefei, China
Corresponding author: Liu, Yanmin

Abstract: Particle swarm optimizer (PSO) is a population-based stochastic optimization technique which has already been successfully applied to the engineering and other scientific fields. This paper presents a modification of PSO (hybrid learning PSO with genetic disturbance, HLPSO-GD for short) intended to combat the problem of premature convergence observed in many PSO variants. In HLPSO-GD, the swarm uses a hybrid learning strategy whereby all other particles' previous best information is adopted to update a particle's position. Additionally, to better make use of the excellent particle's information, the global external archive is introduced to store the best performing particle in the whole swarm. Furthermore, the genetic disturbance (simulated binary crossover and polynomial mutation) is used to cross the corresponding particle in the external archive, and generate new individuals which will improve the swarm ability to escape from the local optima. Experiments were conducted on a set of traditional multimodal test functions and CEC 2013 benchmark functions. The results demonstrate the good performance of HLPSO-GD in solving multimodal problems when compared with the other PSO variants.

380. Development of a 4-DOF SCARA robot with 3R1P for pick-and-place tasks

Authors: Li, Wen-Bo (1); Cao, Guang-Zhong (1); Guo, Xiao-Qin (1); Huang, Su-Dan (1, 2)
Author affiliation: (1) Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China; (2) College of Electrical Engineering, Southwest Jiaotong University, Chengdu, China
Source title: 2015 6th International Conference on Power Electronics Systems and Applications: Electric Transportation - Automotive, Vessel and Aircraft, PESA 2015
Abbreviated source title: Int. Conf. Power Electron. Syst. Appl., PESA
Monograph title: 2015 6th International Conference on Power Electronics Systems and Applications: Electric Transportation - Automotive, Vessel and Aircraft, PESA 2015
Issue date: February 3, 2016
Publication year: 2015
Article number: 7398909
Language: English
ISBN-13: 9781509000623
Document type: Conference article (CA)
Conference name: 6th International Conference on Power Electronics Systems and Applications, PESA 2015
Conference date: December 15, 2015 - December 17, 2015
Conference location: Hong Kong, Hong kong
Conference code: 119372
Publisher: Institute of Electrical and Electronics Engineers Inc.
Abstract: The planar robot is very suitable for moving workpieces which are in high demand in industrial automation. This paper develops a 4 degree of freedom (4-DOF) selective compliance assembly robot arm (SCARA) robot with three rotary joints and one prismatic joint (3R1P) to realize pick-and-place tasks of the circular and rectangular workpieces. The structure of the robot is firstly presented. The kinematic model is then built, and the kinematic analysis is performed based on MATLAB. The trajectory planning is further implemented. A control interface is also designed via Visual C++ to control the robot for achieving pick-and-place tasks. The validity of the developed robot is finally verified through experimental results. © 2015 IEEE.
Number of references: 10
Main heading: Robots
Controlled terms: Degrees of freedom (mechanics) - Kinematics - Models - Power electronics - Robotic arms - Visual servoing
Uncontrolled terms: Control interfaces - Degree of freedom - Industrial automation - Kinematic Analysis - OpenCV - SCARA - Selective compliance assembly robot arm robots - Trajectory Planning
Classification code: 731.5 Robotics - 931.1 Mechanics
DOI: 10.1109/PESA.2015.7398909
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

381. Anti-forensics of double JPEG compression with the same quantization matrix

Accession number: 20143600052160
Authors: Li, Haodong (1); Luo, Weiqi (2); Huang, Jiwu (3)
Author affiliation: (1) School of Information Science and Technology, Sun Yat-sen University, Guangzhou, China; (2) School of Software, Sun Yat-sen University, Guangzhou, China; (3) College of Information Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Luo, Weiqi
Source title: Multimedia Tools and Applications
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Volume: 74
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Issue date: March 25, 2014
Publication year: 2015
Pages: 6729-6744
Language: English
ISSN: 13807501
E-ISSN: 15737721
CODEN: MTAPFB
Document type: Journal article (JA)
Publisher: Kluwer Academic Publishers

Abstract: Double JPEG compression detection plays an important role in digital image forensics. Recently, Huang et al. (IEEE Trans Inf Forensics Security 5(4):848–856, 2010) first pointed out that the number of different discrete cosine transform (DCT) coefficients would monotonically decrease when repeatedly compressing a JPEG image with the same quantization matrix, and a strategy based on random permutation was developed to expose such an operation successfully. In this paper, we propose an anti-forensic method to fool this method. The proposed method tries to slightly modify the DCT coefficients for confusing the traces introduced by double JPEG compression with the same quantization matrix. By investigating the relationship between the DCT coefficients of the first compression and those of the second one, we determine the quantity of modification by constructing a linear model. Furthermore, in order to improve the security of anti-forensics, the locations of modification are adaptively selected according to the complexity of the image texture. The extensive experiments evaluated on 10,000 natural images have shown that the proposed method can effectively confuse the detector proposed in Huang et al. (IEEE Trans Inf Forensics Security 5(4):848–856, 2010), while keeping higher visual quality and leaving fewer other detectable statistical artifacts. © 2014, Springer Science+Business Media New York.

Number of references: 24
Main heading: Image texture
Controlled terms: Discrete cosine transforms - Image coding - Image compression - Matrix algebra
Uncontrolled terms: Anti-Forensics - Digital forensic - Digital image forensics - Discrete cosine transform coefficients - Double JPEG compressions - Quantization matrix - Random permutations - Statistical artifacts
Classification code: 723.2 Data Processing and Image Processing - 921.1 Algebra - 921.3 Mathematical Transformations
DOI: 10.1007/s11042-014-1927-0
Compendex references: YES
Database: Compendex
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Data Provider: Engineering Village

382. Ultra-sensitive temperature sensor based on liquid crystal infiltrated photonic crystal fibers

Accession number: 20153301175896
Authors: Sun, Bing (1); Huang, Yijian (1); Wang, Chao (1); He, Jun (1); Liao, Changrui (1); Yin, Guolu (1); Zhou, Jiangtao (1); Liu, Shen (1); Zhao, Jing (1); Wang, Yiping (1)
Author affiliation: (1) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Source title: Proceedings of SPIE - The International Society for Optical Engineering
Abbreviated source title: Proc SPIE Int Soc Opt Eng
Volume: 9655
Part number: 1 of 1
Monograph title: Fifth Asia-Pacific Optical Sensors Conference, APOS 2015
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Publication year: 2015
Article number: 96551W
Language: English
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CODEN: PSISDG
ISBN-13: 9781628418651
Document type: Conference article (CA)
Conference name: 5th Asia-Pacific Optical Sensors Conference, APOS 2015
Conference date: May 20, 2015 - May 22, 2015
Conference location: Jeju, Korea, Republic of
Conference code: 113227
Sponsor: et al.; FIBERPRO, Inc.; JT, Inc.; NineOne Co., Ltd.; SeongKyeong Photonics; Taihan Fiberoptics Co., Ltd.
Publisher: SPIE
Abstract: We investigated experimentally liquid crystal (LC) filled photonic crystal fiber's temperature responses at different temperature ranging from 30 to 80°C. Experimental evidences presented that the LC's clearing point temperature was 58°C, which is consistent with the theoretical given value. The bandgap transmission was found to have opposite temperature responses lower and higher than the LC's clearing point temperature owing to its phase transition property. A high bandgap tuning sensitivity of 105 nm/°C was achieved around LC's clearing point temperature. © 2015 Copyright SPIE.

Data Provider: Engineering Village

383. Electrical properties of biodegradable poly(#-caprolactone): Lithium thiocyanate complexed polymer electrolyte films

Authors: Ravi, M. (1); Song, Shenhua (1); Gu, Kunming (2); Tang, Jiaoning (2); Zhang, Zhongyi (3)
Author affiliation: (1) Shenzhen Key Laboratory of Advanced Materials, Department of Materials Science and Engineering, Shenzhen Graduate School, Shenzhen, China; (2) College of Materials Science and Engineering, Shenzhen University, Shenzhen, China; (3) Advanced Polymer and Composites (APC) Research Group, School of Engineering, University of Portsmouth, Portsmouth, Hampshire, United Kingdom
Corresponding author: Song, Shenhua
Abstract: Lithium ion conducting polymer electrolyte films based on biodegradable poly(#-caprolactone) (PCL) complexed with lithium thiocyanate (LiSCN) salt were prepared by solution cast technique. Thermal and electrical properties of the polymer electrolyte films were studied using differential scanning calorimetry (DSC) and ac impedance spectroscopy. In order to investigate the ion conduction mechanism and relaxation behavior of complex polymer electrolyte films, the conductivity, dielectric constant, loss tangent and electric modulus were analyzed as a function of frequency and temperature. The variation of conductivity with frequency obeyed the Johnscher's power law. The dielectric constant exhibited a higher value at a lower frequency and increased with rising temperature due to the polar nature of host polymer. The activation energies for both dc conductivity and relaxation had the same value $(\sim 0.87$ eV), implying that the charge carriers responsible for both conduction and relaxation were the same. © 2015 Elsevier B.V. All rights reserved.
Data Provider: Engineering Village

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ISBN-13: 9781467391047
Document type: Conference article (CA)
Conference name: 2015 IEEE International Conference on Information and Automation, ICIA 2015 - In conjunction with 2015 IEEE International Conference on Automation and Logistics
Conference date: August 8, 2015 - August 10, 2015
Conference location: Yunnan, China
Conference code: 116345
Sponsor: CAS Shenzhen Institute of Advanced Technology; Harbin Institute of Technology Shenzhen Graduate School; HIT State Key Laboratory of Robotics and Systems; IEEE Robotics and Automation Society; Shanghai Gaitech Scientific Instruments Co., Ltd.; The Chinese University of Hong Kong
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: Capsule endoscopy (CE) has found its wide application in examination of the small intestine due to its advantage of reviewing this part that is unreachable for traditional endoscopy. However, a computer aided detection system is in needed since it costs an experienced physician much time to go through all the video data. As an attempt to overcome this shortcoming, CE video summary seems to be a feasible solution for this challenging problem. In this paper, we study the application of a novel textural feature aiming for CE video summary. To overcome the possible illumination and camera motion in the imaging process, spatial pyramid based color histogram is first proposed to describe the color content in a CE frame. Then, Gaussian based local binary pattern is further utilized to describe the textural features in a CE frame. Affinity propagation method is further utilized to recognize the representative frame in a video segment. Preliminary experiments demonstrate an encouraging video abstract performance in terms of fidelity and recall. © 2015 IEEE.

Number of references: 19
Main heading: Endoscopy
Controlled terms: Abstracting - Automation - Color - Graphic methods - Video recording
Uncontrolled terms: Affinity propagation - Capsule endoscopy - Computer aided detection systems - Feasible solution - Local binary patterns - Spatial pyramids - Textural feature - Video summaries
Classification code: 461.6 Medicine and Pharmacology - 716.4 Television Systems and Equipment - 731 Automatic Control Principles and Applications - 741.1 Light/Optics - 903.1 Information Sources and Analysis
DOI: 10.1109/ICInfA.2015.7279387
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

386. Low-toxic gelcasting of giant dielectric-constant CaCu3Ti4O12 ceramics from the molten salt powder

Accession number: 20152400933887

Authors: Wan, Wei (1, 2); Liu, Changkun (1); Sun, Hongyuan (1); Luo, Zhongkuan (1); Yuan, Wen-Xiang (1); Wu, Huisi (3); Qiu, Tai (2)
Author affiliation: (1) Shenzhen Key Laboratory of New Lithium-ion Battery and Mesoporous Materials, College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, China; (2) College of Materials Science and Engineering, Nanjing Tech University, Nanjing, China; (3) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Yuan, Wen-Xiang

Source title: Journal of the European Ceramic Society
Abbreviated source title: J. Eur. Ceram. Soc.
Volume: 35
Issue: 13
Issue date: November 1, 2015
Publication year: 2015
Pages: 3529-3534
Language: English
ISSN: 09552219
E-ISSN: 1873619X
Document type: Journal article (JA)
Publisher: Elsevier Ltd

Abstract: CaCu3Ti4O12 (CCTO) nano powder was synthesized using a molten salt synthesis method in NaCl flux. Synthesis temperature and holding time were investigated. The suitable synthesis condition is 800°C for 2h. Aqueous

CCTO slurry with high solid loading and low viscosity was prepared by using acrylic acid-2-acrylamido-2-methypropane sulfonic acid copolymer (AA/AMPS) as the dispersant. AA/AMPS dosage and pH condition have been optimized as AA/AMPS dosage of 3wt% and pH about 9.08. A low-toxicity and water-soluble monomer, N,N-dimethylacrylamide (DMAA) was used as the gelling agent. CCTO green body fabricated by the gelcasting method has the homogeneous microstructure and relatively high mechanical strength of 9.27MPa. CCTO ceramics obtained by the gelcasting method have higher dielectric constant than those prepared by the cold isostatic pressing method and show relatively low dielectric loss of below 0.2 in the wide frequency range of 102-105Hz. © 2015 Elsevier Ltd.
Number of references: 39
Main heading: Ascorbic acid
Controlled terms: Ceramic materials - Dielectric losses - Dielectric properties - Fused salts - Pressing (forming) - Sintering
Uncontrolled terms: Gel-casting - Giant dielectric constants - High mechanical strength - Homogeneous microstructure - Molten salt method - Molten salt synthesis method - N ,n-dimethylacrylamide - NaCl
DOI: 10.1016/j.jeurceramsoc.2015.05.034
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

387. Bacterial-inspired algorithms for solving constrained optimization problems

Accession number: 20143600056543
Authors: Niu, Ben (1, 2, 3); Wang, Jingwen (1); Wang, Hong (1)
Author affiliation: (1) College of Management, Shenzhen University, Shenzhen, China; (2) Hefei Institute of Intelligent Machines, Chinese Academy of Sciences, Hefei, China; (3) Department of Industrial and System Engineering, The Hong Kong Polytechnic University, Hong Kong
Corresponding author: Niu, Ben

Abstract: Bio-inspired optimization techniques using analogy of swarming principles and social behavior in nature have been adopted to solve a variety of problems. In this paper Bacterial Foraging Optimization (BFO) is employed to achieve high-quality solutions to the constrained optimization problems. However, the chemotaxis step was set as only a constant in the original BFO, where no mechanism could keep the balance between global search and local search. To further improve the performance of the original BFO, we also come up with two modified BFOs, i.e. BFO with linear decreasing chemotaxis step (BFO-LDC) and BFO with non-linear decreasing chemotaxis step (BFO-NDC). In order to illustrate the efficiency of the proposed method (BFO-LDC and BFO-NDC), six well-known constrained benchmark problems from the optimization literature were selected as testing functions. The experimental results demonstrated that the modified BFOs are of greater efficiency in the speed of convergence as well as fine tune the search in the multidimensional space, and they can be used as a general approach for most nonlinear optimization problems with inequity constrains. © 2014 Elsevier B.V.

Number of references: 16
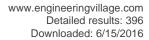**Main heading:** Constrained optimization
Controlled terms: Algorithms - Biochemistry - Nonlinear programming - Optimization - Problem solving
Uncontrolled terms: Bacterial foraging - Bacterial foraging optimizations (BFO) - Bio-inspired optimizations - Constrained handling - Constrained optimi-zation problems - Linear decreasing chemotaxis - Non-linear decreasing chemotaxis - Non-linear optimization problems
Classification code: 723 Computer Software, Data Handling and Applications - 801.2 Biochemistry - 921 Mathematics - 921.5 Optimization Techniques - 961 Systems Science
DOI: 10.1016/j.neucom.2012.07.064
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.

Data Provider: Engineering Village

388. Dynamically tunable plasmon induced transparency in a graphene-based nanoribbon waveguide coupled with graphene rectangular resonators structure on sapphire substrate

Authors: Han, Xu (1); Wang, Tao (1); Li, Xiaoming (2); Xiao, Shuyuan (1); Zhu, Youjiang (1)
Author affiliation: (1) Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, China; (2) Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China
Abstract: In this paper, we propose dynamically tunable plasmon induced transparency (PIT) in a graphene-based nanoribbon waveguide coupled with graphene rectangular resonators structure on sapphire substrate by shifting the Fermi energy level of the graphene. Two different methods are employed to obtain the PIT effect: one is based on the direct destructive interference between a radiative state and a dark state, the other is based on the indirect coupling through a graphene nanoribbon waveguide. Our numerical results reveal that high tunability in the PIT transparency window can be obtained by altering the Fermi energy levels of the graphene rectangular resonators. Moreover, double PITs are also numerically predicted in this ultracompact structure, comprising series of graphene rectangular resonators. Compared with previously proposed graphene-based PIT effects, our proposed scheme is much easier to design and fabricate. This work not only paves a new way towards the realization of graphene-based integrated nanophotonic devices, but also has important applications in multi-channel-selective filters, sensors, and slow light. © 2015 Optical Society of America.
Number of references: 42
Main heading: Graphene
Controlled terms: Fermi level - Nanoribbons - Plasmons - Resonators - Sapphire - Slow light - Transparency - Waveguides
Uncontrolled terms: Destructive interference - Graphene nano-ribbon - Indirect couplings - Induced transparency - Integrated nanophotonic devices - Numerical results - Rectangular resonator - Sapphire substrates
Classification code: 482.2.1 Gems - 714.3 Waveguides - 741.1 Light/Optics - 761 Nanotechnology - 931.3 Atomic and Molecular Physics
DOI: 10.1364/OE.23.031945
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

389. Distributed denial of service attacks in software-defined networking with cloud computing

Authors: Yan, Qiao (1); Yu, F. Richard (2)
Author affiliation: (1) Shenzhen University, China; (2) Carleton University, Canada

Language: English
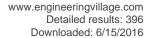**ISSN:** 01636804
CODEN: ICOMD9
Document type: Journal article (JA)
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: Although software-defined networking (SDN) brings numerous benefits by decoupling the control plane from the data plane, there is a contradictory relationship between SDN and distributed denial-of-service (DDoS) attacks. On one hand, the capabilities of SDN make it easy to detect and to react to DDoS attacks. On the other hand, the separation of the control plane from the data plane of SDN introduces new attacks. Consequently, SDN itself may be a target of DDoS attacks. In this paper, we first discuss the new trends and characteristics of DDoS attacks in cloud computing environments. We show that SDN brings us a new chance to defeat DDoS attacks in cloud computing environments, and we summarize good features of SDN in defeating DDoS attacks. Then we review the studies about launching DDoS attacks on SDN and the methods against DDoS attacks in SDN. In addition, we discuss a number of challenges that need to be addressed to mitigate DDoS attached in SDN with cloud computing. This work can help understand how to make full use of SDN's advantages to defeat DDoS attacks in cloud computing environments and how to prevent SDN itself from becoming a victim of DDoS attacks. © 1979-2012 IEEE.

Number of references: 15
Main heading: Denial-of-service attack
Controlled terms: Cloud computing - Computer crime - Distributed computer systems - Network security - Transmission control protocol
Uncontrolled terms: Cloud computing environments - Control planes - Data planes - DDoS Attack - Distributed denial of service attack - Software defined networking (SDN) - Software-defined networkings
Classification code: 722.4 Digital Computers and Systems - 723 Computer Software, Data Handling and Applications
DOI: 10.1109/MCOM.2015.7081075
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
Data Provider: Engineering Village

390. Spatially distributed sequential array stimulation of tibial anterior muscle for foot drop correction

Accession number: 20160201779950
Authors: Zhou, Hui (1); Wang, Yingying (1); Chen, Wanzhen (1, 2); Zhang, Nanxin (1); Krundel, Ludovic (1, 3); Li, Guanglin (1)
Author affiliation: (1) Key Laboratory of Human-Machine Intelligence-Synergy Systems, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Guangdong, China; (2) Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, Guangdong, China; (3) School of Electronic, Electrical and Systems Engineering, Loughborough University, United Kingdom
Source title: Proceedings of the Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBS
Abbreviated source title: Proc. Annu. Int. Conf. IEEE Eng. Med. Biol. Soc. EMBS
Volume: 2015-November
Monograph title: 2015 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBC 2015
Issue date: November 4, 2015
Publication year: 2015
Pages: 3407-3410
Article number: 7319124
Language: English
ISSN: 1557170X
ISBN-13: 9781424492718
Document type: Conference article (CA)
Conference name: 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBC 2015
Conference date: August 25, 2015 - August 29, 2015
Conference location: Milan, Italy
Conference code: 116805
Publisher: Institute of Electrical and Electronics Engineers Inc.

Abstract: Electrode arrays for the ease of electrode placement in the correction of foot drop with surface electrical stimulation have been developed in recent years. However, the configuration and identification of optimal stimulation sites with regard to time efficiency, stimulation comfort, and fatigue resistance is yet to be solved. In this study, the candidate stimulation sites were ranked and selected according to the motor thresholds induced by 1 Hz stimulation trains. Then based on the selected sites, a new stimulation configuration method termed spatially distributed sequential stimulation was tested and compared with traditional single electrode stimulation for foot drop correction in two normal subjects. The preliminary results demonstrated that the motor threshold of spatially distributed sequential stimulation was equal or less than motor thresholds of each stimulus sites. Besides, with the same stimulation parameters, the spatially distributed sequential stimulation induced larger dorsiflexion motion compared with traditional single electrode stimulation. These findings suggest that spatially distributed sequential stimulation on the selected sites might be an effective electrode array configuration method for correcting foot drop with electrical stimulation. © 2015 IEEE.
Number of references: 12
DOI: 10.1109/EMBC.2015.7319124
Compendex references: YES
Database: Compendex
Compilation and indexing terms, Copyright 2016 Elsevier Inc.
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391. Joint Tensor Feature Analysis for Visual Object Recognition

Accession number: 20161102108871
Authors: Wong, Wai Keung (1, 2); Lai, Zhihui (1, 3, 4); Xu, Yong (3); Wen, Jiajun (3); Ho, Chu Po (1)
Author affiliation: (1) Institute of Textiles and Clothing, Hong Kong Polytechnic University, Hong Kong; (2) Hong Kong Polytechnic University, Shenzhen Research Institute, Shenzhen, China; (3) Bio-Computing Research Center, Shenzhen Graduate School, Harbin Institute of Technology, Shenzhen, China; (4) College of Computer Science and Software Engineering, Shenzhen University, Shenzhen, China
Corresponding author: Lai, Zhihui(lai_zhi_hui@163.com)
Abstract: Tensor-based object recognition has been widely studied in the past several years. This paper focuses on the issue of joint feature selection from the tensor data and proposes a novel method called joint tensor feature analysis (JTFA) for tensor feature extraction and recognition. In order to obtain a set of jointly sparse projections for tensor feature extraction, we define the modified within-class tensor scatter value and the modified between-class tensor scatter value for regression. The k-mode optimization technique and the L2,1-norm jointly sparse regression are combined together to compute the optimal solutions. The convergent analysis, computational complexity analysis and the essence of the proposed method/model are also presented. It is interesting to show that the proposed method is very similar to singular value decomposition on the scatter matrix but with sparsity constraint on the right singular value matrix or eigen-decomposition on the scatter matrix with sparse manner. Experimental results on some tensor datasets indicate that JTFA outperforms some well-known tensor feature extraction and selection algorithms. © 2015 IEEE.
Number of references: 47
Main heading: Object recognition
Controlled terms: Discriminant analysis - Extraction - Feature extraction - Singular value decomposition - Tensors
Uncontrolled terms: Computational complexity analysis - Eigen decomposition - Feature extraction and recognition - Feature extraction and selection - Optimal solutions - sparse learning - Sparsity constraints - Visual object recognition
Classification code: 802.3 Chemical Operations - 921 Mathematics - 921.1 Algebra - 922 Statistical Methods
DOI: 10.1109/TCYB.2014.2374452
Compendex references: YES
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392. Spectral-spatial hyperspectral image classification using 1/2 regularized low-rank representation and sparse representation-based graph cuts

Authors: Jia, Sen (1, 2); Zhang, Xiujun (3); Li, Qingquan (2)
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Abstract: Hundreds of narrow contiguous spectral bands collected by a hyperspectral sensor have provided the opportunity to identify the various materials present on the surface. Moreover, spatial information, enforcing the assumption that the adjacent pixels belong to the same class with a high probability, is a valuable complement to the spectral information. In this paper, two predominant approaches have been developed to exploit the spatial information. First, by decomposing each pixel and the spatial neighborhood into a low-rank form, the spatial information can be efficiently integrated into the spectral signatures. Meanwhile, in order to describe the low-rank structure of the decomposed data more precisely, an $\ell_{1/2}$ norm regularization is introduced and a discrete algorithm is proposed to solve the combined optimization problem by the augmented Lagrange multiplier (ALM) and a half-threshold operator. Second, a graph cuts segmentation algorithm has been applied on the sparse-representation-based probability estimates of the hyperspectral data to further improve the spatial homogeneity of the material distribution. Experimental results on four real hyperspectral data with different spectral and spatial resolutions have demonstrated the effectiveness and versatility of the proposed spatial information-fused approaches for hyperspectral image classification. © 2008-2012 IEEE.

Number of references: 57
Main heading: Image classification
Controlled terms: Classification (of information) - Graph theory - Graphic methods - Image segmentation - Lagrange multipliers - Optimization - Pixels - Probability distributions - Spectroscopy
Uncontrolled terms: Augmented lagrange multipliers - Combined optimization problem - Graph cuts segmentations - Hyperspectral image classification - Low-rank representations - nuclear norm - Sparse representation - Spatial neighborhoods
Classification code: 716 Telecommunication; Radar, Radio and Television - 716.1 Information Theory and Signal Processing - 723.5 Computer Applications - 741.1 Light/Optics - 801 Chemistry - 902.1 Engineering Graphics - 921 Mathematics - 922.1 Probability Theory
DOI: 10.1109/JSTARS.2015.2423278
Database: Compendex

Data Provider: Engineering Village

393. Analyzing streaming performance in crowdsourcing-based video service systems

Authors: Zhou, Yipeng (1); Chen, Liang (2); Jing, Mi (3); Ming, Zhong (1); Chiu, Dah Ming (4)
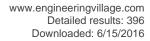**Author affiliation:** (1) College of Computer Science and Software Engineering, Shenzhen University, China; (2) College of Information Engineering, Shenzhen University, China; (3) Xunlei Network Technology Company, China; (4) Department of Information Engineering, Chinese University of Hong Kong, Hong Kong, Hong Kong

Abstract: Crowdsourcing-based video service systems, e.g., Thunder Crystal, are novel content distribution platforms composed by a large number of agent devices, acting like miniservers. Most agents are normal Internet users who would like to earn rewarded cash by uploading content through their devices. Compared with CDN, the bandwidth cost is much cheaper; while compared with Peer-To-Peer(P2P), the bandwidth supply is more stable. In this work, we create a stochastic model to analyze the live and VoD streaming performance in such crowdsourcingbased video service systems. Simulation is conducted to validate the accuracy of our analytical results. © 2015 IEEE.

394. Forecasting Time Series Water Levels on Mekong River Using Machine Learning Models

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Abstract: Forecasting water levels on Mekong river is an important problem needed to be studied for flood warning. In this paper, we investigate the application to forecasting of daily water levels at Thakhek station on Mekong river using machine learning models such as LASSO, Random Forests and Support Vector Regression (SVR). Experimental results showed that SVR was able to achieve feasible results, the mean absolute error of SVR is 0.486(m) while the

acceptable error of a flood forecast model required by the Mekong River Commission is between 0.5(m) and 0.75(m). © 2015 IEEE.
Number of references: 15
Main heading: Forecasting
Controlled terms: Artificial intelligence - Data mining - Decision trees - Flood control - Floods - Learning systems - Rivers - Systems engineering - Time series - Water levels - Water resources
Uncontrolled terms: Forecasting time series - LASSO - Machine learning models - Mean absolute error - Mekong river commissions - Random forests - Support vector regression (SVR) - Time series forecasting
Classification code: 442.1 Flood Control - 444 Water Resources - 723.2 Data Processing and Image Processing - 723.4 Artificial Intelligence - 922.2 Mathematical Statistics - 961 Systems Science
DOI: 10.1109/KSE.2015.53
Compendex references: YES
Database: Compendex
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395. Non-gain microchannel plate picosecond framing technology

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Language: Chinese
ISSN: 10072276
Document type: Journal article (JA)
Publisher: Chinese Society of Astronautics
Abstract: A non-gain microchannel plate (MCP) gated X-ray framing camera was reported. It is made up of four basic components, the non-gain MCP imager, the pinhole array, the picosecond gating pulse generator, and the CCD camera system. The temporal resolution was measured by using a fiber bunch. While the gating pulse with width of 145 ps and amplitude of-1.5 kV plus-300 V bias were applied on the non-gain MCP, the measured temporal resolution of this camera was about 59 ps. Furthermore, the relationship between the temporal resolution and the MCP bias voltage was obtained. The variation of the temporal resolution with the intensity of the output signal was also provided. The experimental results show that the temporal resolution is improved while the MCP bias voltage is decreased. However, the intensity of the output signal is reduced while the MCP bias voltage is decreased. © 2015, Editorial Board of Journal of Infrared and Laser Engineering. All right reserved.
Number of references: 11
Main heading: Image storage tubes
Controlled terms: Bias voltage - CCD cameras - Inertial confinement fusion - Microchannels - Pinhole cameras - Pulse generators - X ray optics
Uncontrolled terms: Camera systems - Framing Camera - Gating pulse - Micro channel plate - Output signal - Pinhole arrays - Temporal resolution - X-ray framing camera
Classification code: 713 Electronic Circuits - 713.4 Pulse Circuits - 714.1 Electron Tubes - 742.2 Photographic Equipment - 932.2.1 Fission and Fusion Reactions
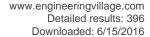**Compendex references:** YES
Database: Compendex
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396. A novel platform for detection of protooncogene based on Au nanocluster enhanced fluorescence

Accession number: 20145100339988

Authors: Mao, Kang (1); Liu, Yizhen (1, 2); Xiao, Huaming (1); Chen, Yinran (1); Wu, Zitong (1); Zhou, Xiaodong (1); Shen, Aiguo (1); Hu, Jiming (1)
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Abstract: For the first time, gold nanoclusters were found to exhibit high fluorescence enhancement ability based on the metal-enhanced fluorescence (MEF) effect, which can effectively enhance the fluorescence of fluorescein isothiocyanate (FITC). By means of this phenomenon, Au nanoclusters have been successfully used in the construction of a fluorescence-enhanced sensing platform for the detection of protooncogene. © 2014 The Royal Society of Chemistry.

Number of references: 52
Main heading: Nanoclusters
Controlled terms: Fluorescence
Uncontrolled terms: Au nanoclusters - Enhanced fluorescence - Fluorescein isothiocyanate - Fluorescence enhancement - Gold nanocluster - Metal-enhanced fluorescence - Sensing platforms
Classification code: 741.1 Light/Optics - 761 Nanotechnology - 933 Solid State Physics
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