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日期: 文摘/索引 1606 年-至今; 全文 1743 年-至今

学科: 综合类

一、数据库简介

到 2025 年 10 月, 该库收录了 630 多万条博硕论文记录, 400 多万篇博硕论文全文。论文来自

全球 4100 多所高校, 参考泰晤士高等教育世界大学前 200, PQDT 收录了其中 75 所高校论文,

例如:



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透过博硕论文，可以了解学术传承与发展，例如：

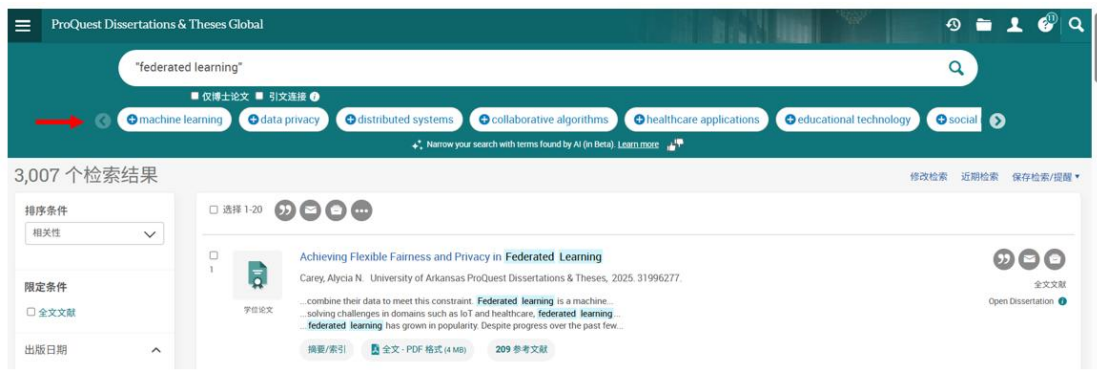


二、数据库利用

1. PQDT Global-PQRA 研究助手 (AIGC 功能)

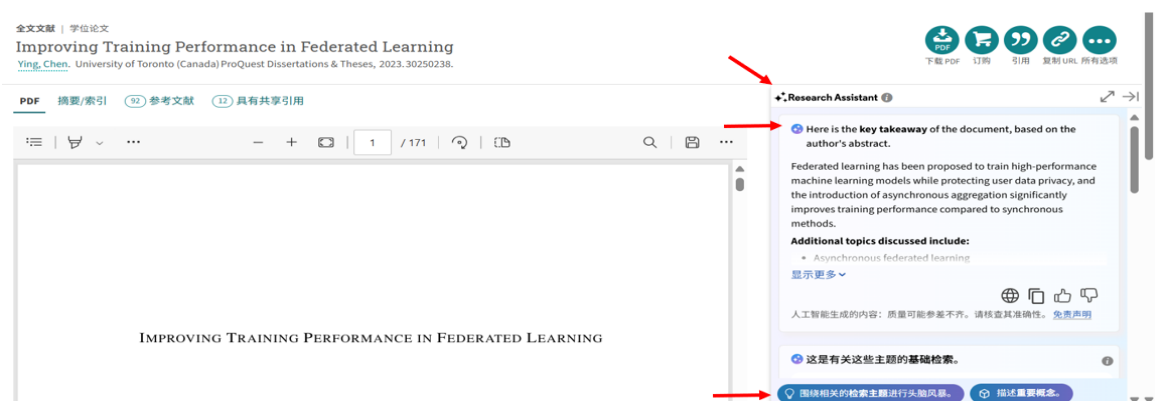
检索结果页：提供人工智能主题词，便于快速完成精准的论文检索

下图中的红色箭头指示部分，点击推荐主题词，即可将其添加到检索框中，该主题词与原检索词间采用添加布尔逻辑与（AND），从而生成更精准的检索式



论文详情页：右侧提供了 **Research Assistant**，可以切换生成该论文的关键要点、研究主题、文中概念。例如：论文 Improving Training Performance in Federated Learning

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解读关键点：包括了文章的主要研究课题、其他课题、该文章与检索的关系

Here is the **key takeaway** of the document, based on the author's abstract.

This thesis explores the trade-off between privacy, communication, and accuracy in federated learning, demonstrating how these objectives can be aligned under various privacy frameworks.

Additional topics discussed include:

- Trade-off between privacy and communication
- Distributed mean estimation schemes
- Multi-party computation in federated learning

Relationship to your search terms:

The document is related to 'Federated Learning' and Privacy-Communication-Accuracy as it discusses these concepts throughout the text.

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分析研究主题：每组主题由一个主要主题 + 更明确的子主题，主题基于文档生成，激发选题灵感

以下是相关的检索主题。

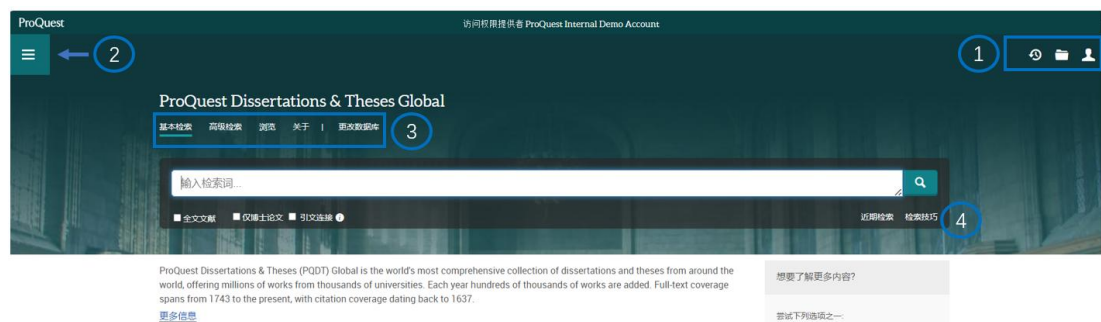
- Trade-off between accuracy, privacy, and communication in federated learning: Understanding the trade-off is crucial for developing effective federated learning systems that balance user privacy with model performance.
- Central differential privacy in federated learning: Exploring central differential privacy helps in establishing trust in federated learning systems where the server is assumed to be reliable.
- Local differential privacy models in federated learning: Investigating local differential privacy models is important for scenarios where the server cannot be trusted, enhancing user data protection.
- Distributed mean estimation in federated learning: Developing optimal schemes for distributed mean estimation is essential for improving the efficiency and accuracy of federated analytics.
- Multi-party computation in federated learning: Incorporating multi-party computation enhances privacy and security in federated learning, especially in untrusted environments.

解释文中概念：重要概念及其解释基于文档语境中提取出来。术语定义+与文档相关性的解释

以下是重要概念。

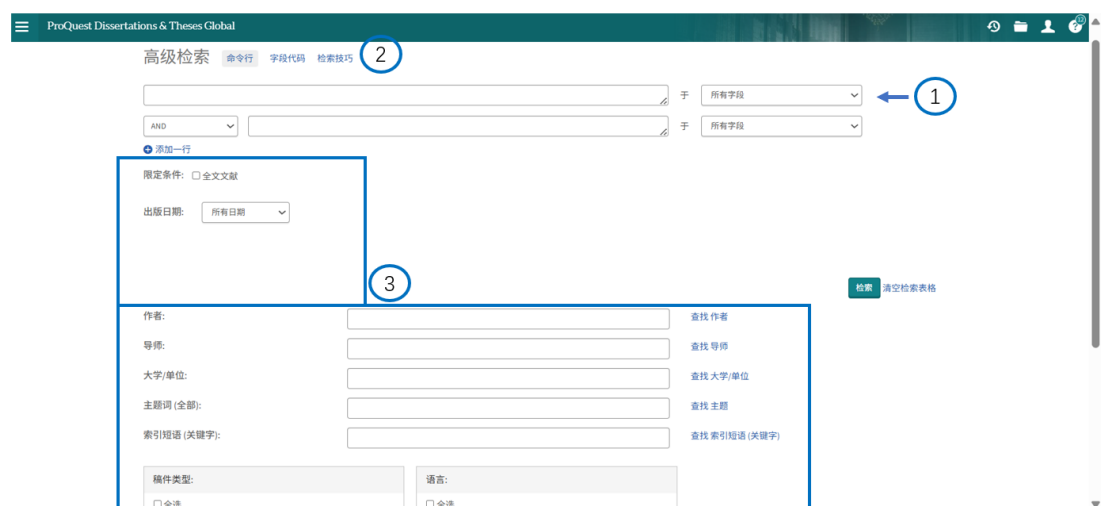
- Federated Learning:** Federated learning is a decentralized approach to machine learning that allows models to be trained on data stored locally on users' devices, ensuring that sensitive information remains private. Its significance in the document lies in its ability to balance privacy, communication efficiency, and accuracy in data analysis without centralizing sensitive data.
- Privacy:** Privacy refers to the protection of personal and sensitive information from unauthorized access and disclosure. In the context of the document, it is a critical objective that federated learning methods must achieve to ensure user data remains confidential while still allowing for effective data analysis.
- Communication Efficiency:** Communication efficiency pertains to the effectiveness of data transmission in terms of speed and resource usage, particularly in bandwidth-limited environments. The document emphasizes its importance in federated learning, where succinct communication can enhance both privacy and accuracy.
- Accuracy:** Accuracy in this context refers to the precision of models

2. 基本检索



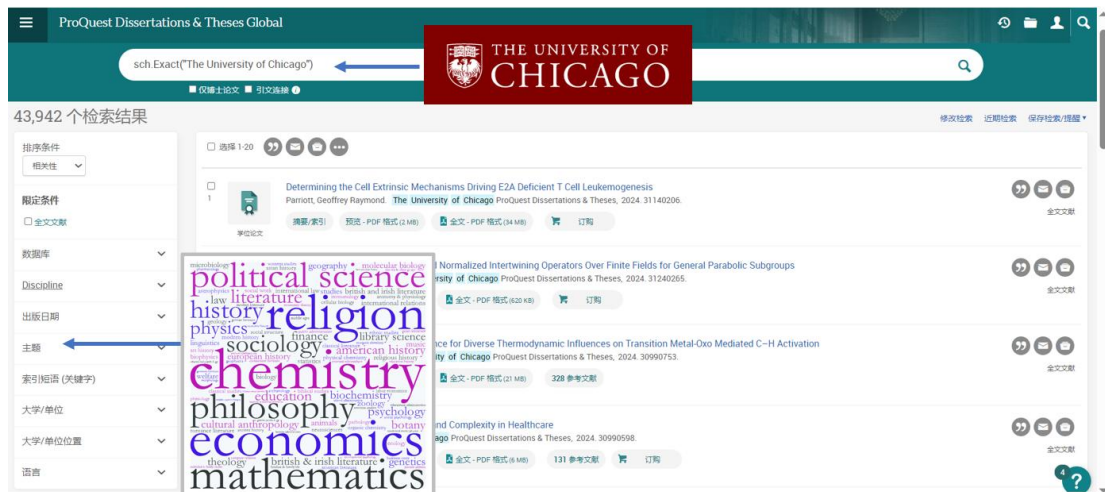
说明： 1. 近期检索策略、所选文献记录、个人账户“我的检索”和界面语种等 2.通过左上汉堡按钮实现功能切换 3.切换不同的功能页面，包括高级检索（含命令行检索），浏览（按照主题或地点）等 4.检索技巧在线说明资料

3. 高级检索



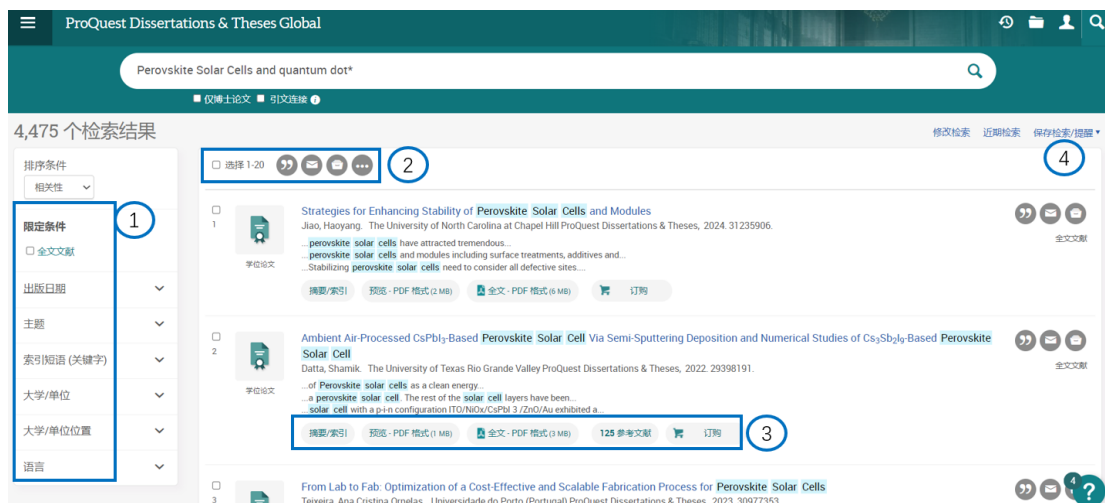
说明： 1.通过下拉菜单选择常用检索字段，例如标题、摘要、作者、主题、关键词、全文、大学、导师等。2.提供在线帮助，包括字段代码、检索技巧等。 3.可按照作者、导师、大学/单位、主题、关键词查找与限制。4.可限定论文类型（博士、硕士）、语言、出版日期、是否有全文等。

例：检索具体高校博硕论文 - 芝加哥大学



说明：可以在高级检索查找具体高校，在检索结果页，点击主题，可查看芝加哥大学各学科论文。

4. 检索结果页



说明：1.检索结果可以按照出版日期、主题、关键词、大学、语言等进行限定 2.可选多篇文献实现批处理，包括生成引文、电邮、保存到“我的检索”，其中...按钮提供了导出和保存的更多选项 3.论文摘要/索引、全文、参考文献。4.保存检索与检索定题

5. 论文详情页

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全文文献 | 学位论文
Improving Training Performance in Federated Learning
 Ying Chen, University of Toronto (Canada) ProQuest Dissertations & Theses, 2023. 30250238.

PDF 摘要/索引 参考文献 具有共享引用

摘要
 翻译

To utilize enormous data generated on numerous edge devices such as mobile phones to train a high-performance machine learning model while protecting users' data privacy, federated learning has been proposed and has become one of the most essential paradigms in distributed machine learning. Under the coordination of a central server, users collaboratively train a shared global model without sharing their data. They conduct local training with their data and only send their model updates to the central server for aggregating an improved global model.

To improve training performance in federated learning, a myriad of new mechanisms have been proposed. However, our extensive evaluation indicated that most state-of-the-art mechanisms failed to perform as well as they claimed. We thus explored potential directions that can consistently decrease the elapsed training time for the global model to converge to a target accuracy, and found that changing the conventional synchronous aggregation paradigm, where the server does not conduct aggregation until it receives updates from all the selected users, to the asynchronous one, where the server aggregates without waiting for slow users, significantly improved the training performance.

However, asynchronous federated learning has not been as widely studied as synchronous federated learning, and its existing mechanisms have not reached the best possible performance. We thus propose Blade, a new staleness-aware framework that seeks to improve the performance of asynchronous federated learning by designing new mechanisms in all important design aspects of the training process. In an extensive array of performance evaluations, Blade consistently showed its substantial performance superiority over its state-of-the-art competitors.

Under some scenarios of federated learning, users are institutions such as hospitals and banks, which implicitly require centrally storing data of their clients to conduct local training. To protect clients' data privacy, these scenarios motivated us to study three-layer federated learning, where institutions serve as edge servers on the middle layer, between the central server and clients. With empirical and theoretical studies, we observe that pruning and quantization could largely reduce communication overhead with a negligible reduction, sometimes even a slight increase, in training performance. Also, the number of clients' local training epochs affects the training performance. We thus propose two new mechanisms, FedSaw which prunes and quantizes updates, and Tempo which adaptively tunes the number of each client's local training epochs, to improve training performance in three-layer federated learning.

Research Assistant

Here is the **key takeaway** of the document, based on the author's abstract. Federated learning has been proposed to train high-performance machine learning models while protecting user data privacy, and the introduction of asynchronous aggregation significantly improves training performance compared to synchronous methods.

Additional topics discussed include:

- Asynchronous federated learning

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这是有关这些主题的基础检索。

Node Selection Toward Faster Convergence for Federated Learning on Non-IID Data
 H. Wu
 IEEE Trans. Netw. Sci. Eng. Vol. 9, No. 5, (2022): 3099-3111.

1 引证次数

SAFA: A Semi-Asynchronous Protocol for Fast Federated Learning with Low Overhead

继续相关检索主题进行头脑风暴。 请反馈意见。

说明： 1.摘要/索引、全文、部分文献提供了参考文献、共享参考文献等 2.研究助手部分，部分论文包括相关的基础研究文献、依据共享参考文献关系推荐类似学位论文 3.单篇文献处理，包括生成引文、电邮、保存到“我的检索”，其中...按钮提供了导出和保存的更多选项 4.针对大部分 Html 格式文摘提供了翻译。

6. 其他

中文公开课

<https://proquest.libguides.com/webinar/中文>



数据库在线指南

<https://proquest.libguides.com/>



全球公开课

<https://clarivate.com/research-solutions-live-training/> (英语等语种)



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