

科技论文写作用文献检索

联邦学习中的通信优化

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总览

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1 介绍

2 文献搜索

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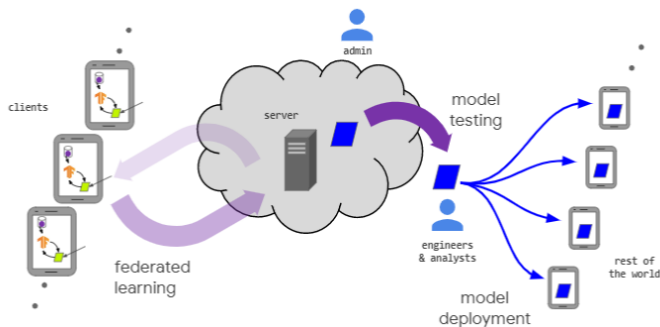
4 未来方向

联邦学习的定义

- 联邦学习的数学模型被 McMahan et al. 定义为

$$\min_w F(w), \text{ where } F(w) := \sum_{k=1}^m p_k F_k(w)$$

- 通俗来说，就是多个客户端通过中心服务器的协调合作解决一个机器学习问题



联邦学习的特点

- 客户端数据保存在本地，不会上传给服务器
- 数据不满足 IID(独立同分布) 假设
- 客户端的处理能力，带宽是有限的，且不一定可靠

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4 未来方向

寻找综述论文

federated learning review



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Federated learning: Challenges, methods, and future directions

[PDF] arxiv.org

[T Li](#), [AK Sahu](#), [A Talwalkar](#), [V Smith](#) - arXiv preprint arXiv:1908.07873, 2019 - arxiv.org

... decentralized training has been demonstrated to be faster than centralized training when operating on networks with low bandwidth or high latency; we defer readers to [47, 67] for a more comprehensive review. Similarly, in federated learning, decentralized algorithms can in ...

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Mitigating sybils in federated learning poisoning

[PDF] arxiv.org

[C Fung](#), [CJM Yoon](#), [I Beschastnikh](#) - arXiv preprint arXiv:1808.04866, 2018 - arxiv.org

Page 1. Mitigating Sybils in Federated Learning Poisoning ... Existing approaches, such as federated learning, collect the outputs computed by a group of devices at a central aggregator and run iterative algorithms to train a globally shared model ...

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Federated machine learning: Concept and applications

[PDF] acm.org

[Q Yang](#), [Y Liu](#), [T Chen](#), [Y Tong](#) - ACM Transactions on Intelligent ..., 2019 - dl.acm.org

... This requires security models and analysis to provide meaningful privacy guarantees. In this section, we briefly review and compare different privacy techniques for federated learning. We also identify approaches and potential challenges for preventing indirect leakage ...

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Federated learning in mobile edge networks: A comprehensive survey

[PDF] arxiv.org

[WYB Lim](#), [NC Luong](#), [DT Hoang](#), [Y Jiao](#) ... - ... Surveys & Tutorials, 2020 - ieeeexplore.ieee.org

... Recently, in light of increasingly stringent data privacy legislations and growing privacy concerns, the concept of Federated Learning (FL) has been introduced ... Then, we highlight the aforementioned challenges of FL implementation and review existing solutions ...

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Federated learning in mobile edge networks: A comprehensive survey

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WYB Lim, NC Luong, DT Hoang, Y Jiao... - ... Surveys & Tutorials, 2020 - [ieeexplore.ieee.org](#)

In recent years, mobile devices are equipped with increasingly advanced sensing and computing capabilities. Coupled with advancements in Deep Learning (DL), this opens up countless possibilities for meaningful applications, eg, for medical purposes and in vehicular ...

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Federated machine learning: Concept and applications

[PDF] acm.org

Q Yang, Y Liu, T Chen, Y Tong - ACM Transactions on Intelligent ..., 2019 - [dl.acm.org](#)

... We survey existing works on federated learning, and propose definitions, categorizations, and applications for a comprehensive secure federated-learning framework. We discuss how the federated-learning framework can be applied to various businesses successfully ...

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Federated learning: Challenges, methods, and future directions

[PDF] arxiv.org

L Li, AK Sahu, A Talwalkar, V Smith - arXiv preprint arXiv:1908.07873, 2019 - [arxiv.org](#)

... In Section 3, we outline several promising directions of future research. 2 Survey of Related and Current Work The challenges in federated learning at first glance resemble classical problems in areas such as privacy, large-scale machine learning, and distributed optimization ...

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Threats to federated learning: A survey

[PDF] arxiv.org

L Lyu, H Yu, Q Yang - arXiv preprint arXiv:2003.02133, 2020 - [arxiv.org](#)

With the emergence of data silos and popular privacy awareness, the traditional centralized approach of training artificial intelligence (AI) models is facing strong challenges. Federated learning (FL) has recently emerged as a promising solution under this new reality. Existing ...

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了解定义及相关问题

细化领域

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3 文献分类

4 未来方向

确定分类标准

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结论

Thank You!