Zhilin Wang (he/him/his)

Address: 625 W Michigan St, Indianapolis, IN, USA **Homepage**: https://github.com/wzljerry **Email:** wang6327@purdue.edu

Objective: Positions on optimization and security studies of distributed systems, especially distributed machine learning systems.

Education

Jan 2021 – Dec 2024 (expected)
Purdue University, IN, USA — Ph.D. in Computer Science
Advisor: Prof. Qin Hu
Research Areas: Federated Learning, Security & Privacy, Blockchain, Distributed Optimization

Sep. 2016 - Jun 2020
Nanchang University, Jiangxi, China — B.S. in Management
Research Areas: Game Theory, Decision Theory, Optimization Theory

Selected Publications

1. **IEEE TPDS '23**. *Wang Z*, et al. Incentive Mechanism Design for Joint Resource Allocation in Blockchain-based FL [J].
2. **IEEE MASS '22.** *Wang Z* , Qin Hu, et al. Blockchain-based Edge Resource Sharing for Metaverse [C].
3. **IEEE WCNC '22.** *Wang Z* , et al. Defense Strategies Toward Model Poisoning Attacks in Federated Learning: A Survey [C].
4. **IEEE IoTJ '22.** Peng C, Hu Q, *Wang Z*, et al. Online-Learning-Based Fast-Convergent and Energy-Efficient Device Selection in Federated Edge Learning [J].
5. **Elsevier HCC '22.** *Wang Z* , Hu Q, Wang Y, et al. Transaction pricing mechanism design and assessment for blockchain [J].
6. **IEEE IoTJ '21.** Hu Q, *Wang Z*, et al. Blockchain and Federated Edge Learning for Privacy-Preserving Mobile Crowdsensing [J].
7. **IEEE ICBC '20.** Hu Q, *Wang Z* , et al. A correlated equilibrium based transaction pricing mechanism in blockchain [C].
8. **arXiv.** *Wang Z*, Hu Q, blockchain-based Federated Learning: A Comprehensive Survey.
9. **arXiv.** *Wang Z*, Hu Q, Xiong Z, Resource Optimization for Blockchain-based Federated Learning in Mobile Edge.
10. **arXiv.** *Wang Z*, et al. Straggler Mitigation and Latency Optimization in Blockchain-based Hierarchical Federated Learning.
11. **arXiv.** Li S, Hu Q, *Wang Z*. PoFEL: Energy-efficient Consensus for Blockchain-based Hierarchical Federated Learning.

Open-sourced Projects on GitHub

1. **HFL:** hierarchical federated learning framework based on TensorFlow.
Link: https://github.com/wzljerry/Hierarchical-Federated-Learning
2. **RL-based Knapsack Problem Solver:** blockchain-based Edge Resource Sharing for Metaverse. It provides a learning-based solution of multiple knapsacks problem, which can get the approximate optimal solutions in polynomial time.
Link: https://github.com/wzljerry/Blockchain-based-Edge-Resource-Sharing-for-Metaverse
3. **Blockchain-based FL:** a user-friendely and robust blockchain-based federated learning framework in MEC.
Link: https://github.com/wzljerry/FBFL-A-Flexible-Blockchain-based-Federated-Learning-Framework-in-Mobile-Edge-Computing
4. **Correlated Equbirum Optimizer:** correlated Equbirum for Blockchain Transaction. An Approximationmethod is provided.
Link: https://github.com/wzljerry/Correlated-Equilibrium-for-Blockchain-Transaction

Invited Talks

10/2022: IEEE MASS 2022, Denver, CO, USA.

04/2022: IEEE WCNC 2022, Austin, TX, USA.

Professional Services

Reviewer: IEEE TPDS, IEEE IoTJ, IEEE Access, JNCA, IEEE ICC, etc.

Student Tutor: Undergraduate Capstone Project, Undergraduate Summer Research Project (NSF)

TPC member: IEEE ICC 2022 Workshop

Membership: IEEE Graduate Studenet Member, CERIAS Student

Skills

Mathematics: Linear Algebra, Calculus, Probability Theory, Statistics, Convex Optimization, Game Theory, Complex Analysis.

Programming: Python, Java, C/C++, R, Matlab, Cuda

Machine Learning: TensorFlow, PyTorch