**Zhilin Wang (he/him/his)**

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

**Education**

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| **Jan 2021 – Dec 2024 (expected)**  Purdue University, IN, USA  Advisor: Prof. Qin Hu  Research Areas: Federated Learning, Security & Privacy, Blockchain, Distributed Optimization  **Sep. 2016 - Jun 2020**  Nanchang University, Jiangxi, China  Research Areas: Game Theory, Decision Theory, Optimization Theory  **Selected Publications** | Ph.D. in Computer Science  B.S. in Management |
| 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