Jiaqi Shao

LLM Agents | MAS | Federated Learning | Distributed Edge AI

GitHub LinkedIn Email Google Scholar

Education

Hong Kong University of Science and Technology

Doctor of Philosophy (PhD) in Electronic and Computer Engineering **2023 Fall – Present**

- Supervisor: Prof. Wei Zhang (HKUST) (Mentor: Prof. Bing Luo (DKU))

The Chinese University of Hong Kong, Shenzhen

Bachelor of Engineering in Electrical and Computer Engineer **2019 – 2023**

- Stream: Computer Engineering

Publications

1. **Shao, J.**, Lin, Y., Lohani, M. P., Miao, Y., and Luo, B., "Do LLM Agents Know How to Ground, Recover, and Assess? A Benchmark for Epistemic Competence in Information-Seeking Agents", *arXiv e-prints*, arXiv:2509.22391, 2025.
2. **Shao, J.**, Lin, T., Luo, B., "Beyond Right to be Forgotten: Managing Heterogeneity Side Effects Through Strategic Incentives", *ACM MobiHoc*, 2025.
3. Fan, T., ..., **Shao, J.**, et al., "Ten challenging problems in federated foundation models", *IEEE Transactions on Knowledge and Data Engineering*, 2025.
4. Lu, S., **Shao, J.***, Luo, B., and Lin, T., "Morphagent: Empowering agents through self-evolving profiles and decentralized collaboration", *ICML-MAS*, 2025. (*Co-first authors.)
5. **Shao, J.**, Yuan, T., Lin, T., and Luo, B., "Cognitive Insights and Stable Coalition Matching for Fostering Multi-Agent Cooperation," *arXiv preprint arXiv:2405.18044*, 2024.
6. **Shao, J.**, Lin, T., and Luo, B., "Federated Unlearning: a Perspective of Stability and Fairness", *arXiv preprint arXiv:2402.01276*, 2024.
7. He, S., Tang, B., Zhang, B., **Shao, J.**, Ouyang, X., Nugraha, DN., Luo, B., "FedKit: Enabling Cross-Platform Federated Learning for Android and iOS", *IEEE INFOCOM 2024-IEEE Conference on Computer Communications Workshops*, 2024.
8. Geng, J., Tang, B., Zhang, B., **Shao, J.**, Luo, B., "FedCampus: A Real-world Privacy-preserving Mobile Application for Smart Campus via Federated Learning & Analytics", *Proceedings of the Twenty-Fifth International Symposium on Theory*, 2024.

Projects

MASArena: Benchmarking Framework for Multi-Agent Systems

- Led the design and implementation of the overall architecture for an open-source, modular benchmarking framework for single- and multi-agent systems.
- Collaborated with Westlake University LINs-Lab to develop plug-and-play modules, built-in benchmarks, visual debugging, and easy agent/tool/dataset integration.
- Designed framework to support academic experiment reproduction, agent comparison, and toolchain evaluation.
- Open-source and actively maintained. Available at: https://github.com/LINs-lab/MASArena

FedKit: Enabling Cross-Platform Federated Learning for Android and iOS

- Developed FEDKIT, which pipelines Cross-Platform FL for Android and iOS development by enabling model conversion, hardware-accelerated training, and cross-platform model aggregation.
- Implemented workflow supporting flexible federated learning operations (FLOps) in production, facilitating continuous model delivery and training.
- Collaborated with Prof. Luo, DKU undergraduate students Sichang He (lead), Beilong Tang, and Boyan Zhang, as well as collaborators Xiaomin Ouyang (UCLA) and Daniel Nata (Flower).
- Work accepted at IEEE INFOCOM 2024 Demo.

FedCampus: Privacy-preserving Mobile Application for Smart Campus

- Designed and implemented a real-world mobile application leveraging federated learning and differential privacy for smart campus services.
- Deployed 100 customized smart watches for participants at DKU and developed FedCampus APP for Android and iOS.
- Integrated privacy-preserving analytics to enable data-driven campus improvements without compromising individual user data.
- Video demonstration available online showcasing the application's capabilities.

Edge-based Cross-device Federated Learning Prototypes

- Developed prototypes supporting Mobile and IoT devices operating at WiFi and USRP-based 4G/5G wireless networks.
- Collaborated with Prof. Luo and students from CUHKSZ to implement cross-device federated learning solutions.
- Focused on edge computing and distributed machine learning in heterogeneous network environments.

Teaching

Teaching Assistant

- ELEC3120: Computer Communication Networks (HKUST, Spring 2024)
- ELEC3300: Introduction to Embedded Systems (HKUST, Fall 2024)
- Vector Space Methods with Applications | ECE 586K (DKU, Spring 2025)

Patents

- B. Luo, **J. Shao**, Method and Apparatus for Online Parameter Selection in Minimizing the Total Cost of Federated Learning, CN202310485067.8, Apr. 2023, filed
- B. Luo, **J. Shao**, Method and Apparatus for Online Client Sampling in Minimizing the Training time of Federated Learning, CN 202310484383.3, Apr. 2023, filed
- B. Luo, **J. Shao**, J. Huang, Method and Apparatus for Frequent Items Mining Using Federated Analytics, CN202310365167.7, Mar. 2023, filed
- B. Luo, **J. Shao**, J. Huang, Method and Apparatus for Frequent Data Mining Based on Hierarchical Federated Analytics, CN202310330791.3, Mar. 2023, filed