Dr. Wei Guo

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Academic Positions

Hong Kong University of Science and Technology	Sept. 2023 - Present
Postdoctoral Fellow. Hosts: Prof. Khaled B. Letaief and Prof. Jun Zhang	Hong Kong SAR, China

Education

The Chinese University of Hong Kong, Shenzhen (CUHK-Shenzhen)	Jul. 2023
Ph.D., Computer and Information Engineering. Advisor: Prof. Chuan Huang	Shenzhen, China
University of Electronic Science and Technology of China (UESTC)	Jun. 2017
B.Eng., Electrical Engineering	Chengdu, China

Academic Visits

Purple Mountain Laboratories

Sept. 2021 - Nov.2021 Visiting student for National Key Research and Development Program of China Nanjing, China The Future Network of Intelligence Institute (FNii), CUHK-Shenzhen Jun. 2019 - Dec. 2019 Visiting student. Advisors: Prof. Chuan Huang and Prof. Shuguang Cui Shenzhen, China Shenzhen Reserach Institute of Big Data (SRIBD) Feb. 2017 - Jun. 2017 Visiting student. Advisor: Prof. Shuguang Cui Shenzhen, China

Current Research Interests

Wireless Communications, Generative AI, Integrated Communications and AI

Publications

Journals: (⋈ denotes corresponding author)

- "Joint Beamforming and Antenna Position Optimization for Fluid Antenna Assisted MU-MIMO Networks," in IEEE J. Sel. Areas Commun. (JSAC), early access, doi: 10.1109/JSAC.2025.3615569, 2025.
- "WirelessLLM: Empowering Large Language Models Towards Wireless Intelligence," in J. Commun. Inf. Netw. (JCIN), vol. 9, pp. 99-112, Jun. 2024.
- Wei Guo, Chuan Huang[™], Xiaoqi Qin, Lian Yang, and Wei Zhang, "Dynamic Clustering and Power Control for Two-Tier Wireless Federated Learning," in IEEE Trans. Wireless Commun. (TWC), vol. 23, no. 2, pp. 1356-1371, Feb. 2024.
- Wei Guo, Ran Li, Chuan Huang[™], Xiaoqi Qin, Kaiming Shen, and Wei Zhang, "Joint Device Selection and Power Control for Wireless Federated Learning," in IEEE J. Sel. Areas Commun. (JSAC), vol. 40, no. 8, pp. 2395-2410, Aug. 2022.

• Wei Guo, Han Zhang[™], and Chuan Huang, "Energy Efficiency of Two-Way Communications under Various Duplex Modes," in *IEEE Internet Things J.* (IoT-J), vol. 8, no. 3, pp. 1921-1933, Feb. 2021.

Conference Proceedings:

- Wei Guo, Meng He, Chuan Huang, Hengtao He, Shenghui Song, Jun Zhang, and Khaled B. Letaief, "Model-Driven Deep Learning for Distributed Dectection with Binary Quantization," in *Proc. IEEE Mediterranean Conf. Commun. Netw. (MeditCom)*, Jul. 2024.
- Wei Guo, Ran Li, Chuan Huang, Xiaoqi Qin, Kaiming Shen, and Wei Zhang, "Optimized Device Selection and Power Control for Wireless Federated Learning," in *Proc. IEEE Glob. Commun. Conf. (Globecom)*, Dec. 2022.
- Wei Guo, Chuan Huang, Xiaoqi Qin, Lian Yang, and Wei Zhang, "Dynamic Clustering and Power Control for Two-Tier Over-the-Air Federated Learning," in *Proc. IEEE/CIC Int. Conf. Commun. China (ICCC)*, Aug. 2022.
- Wei Guo and Chuan Huang, "Energy Efficiency of Full-Duplex Two-Way Channels," in *Proc. Glob. Conf. Signal Inf. Process. (GlobalSIP)*, Nov. 2019.

Patents:

• CN patent: "一种面向无线联邦学习的用户协同传输方法", 黄川, 崔曙光, 郭玮. 专利申请号: 202211032064.0, 2022.

Preprints:

- Yancheng Wang, Chuan Huang, Songyang Zhang, Guanying Chen, Wei Guo, Shenglun Lan, Lexi Xu, Xinzhou Cheng, Xiongyan Tang, and Shuguang Cui, "Point Cloud Environment-Based Channel Knowledge Map Construction," (arXiv: 2510.08140), 2025.
 Note: Submitted to an IEEE Magazine for possible publication.
- Yancheng Wang, Wei Guo, Chuan Huang, Guanying Chen, Ye Zhang, and Shuguang Cui, "Point Cloud Environment-Based Channel Knowledge Map Construction," (arXiv: 2506.21112), 2025. Note: Submitted to an IEEE Journal for possible publication.
- Erqiang Tang, Wei Guo, Hengtao He, Shenghui Song, Jun Zhang, and Khaled B. Letaief, "Accurate and Fast Channel Estimation for Fluid Antenna Systems with Diffusion Models," (arXiv: 2505.04930), 2025. Note: Accepted by IEEE Globeocom 2025.
- Tianyi Liao, Wei Guo, Hengtao He, Shenghui Song, Jun Zhang, and Khaled B. Letaief, "Fluid Antenna-Assisted MU-MIMO Systems with Decentralized Baseband Processing," (arXiv: 2505.04936), 2025. Note: Accepted by IEEE Globecom 2025.
- Jingwen Tong, Wei Guo, Jiawei Shao, Qiong Wu, Zijian Li, Zehong Lin, and Jun Zhang, "WirelessAgent: Large Language Model Agents for Intelligent Wireless Networks," (arXiv: 2409.07964), 2024. Note: Submitted to China Commuications for possible publications.

Teachings

Teaching assistant at CUHK-Shenzhen:

EIE4006 Performances Evaluation of Communication Networks CIE6126 Performances Analysis of Computer and Communication Networks EIE3001 Signals and Systems Sum' 2020-21 Sum' 2020-21 Spr' 2021

Awards

Exemplary Reviewer of IEEE Wireless Communications Letters Outstanding Bachelor's Degree Thesis in UESTC $\begin{array}{c} 2020 \\ 2017 \end{array}$

Academic Services

Conference Reviewers:

- IEEE Global Communications Conference (Globecom): 2019-2025
- IEEE/CIC International Conference on Communications in China (ICCC): 2019-2025
- IEEE Wireless Communications and Networking Conference (WCNC), 2024.
- IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2024.

Journal Reviewers:

- IEEE Transactions on Wireless Communications
- IEEE Transactions on Communications
- IEEE Journal on Selected Areas in Information Theory
- IEEE Wireless Communications Letters
- IEEE Systems Journal
- IEEE Transactions on Machine Learning in Communications and Networking
- IEEE Internet of Things Magazine
- China Communications
- Journal of Communications and Information Networks
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Presentations

2024 IEEE MeditCom, Marid, Spain, Oral presentation

2022 IEEE Globecom, Rio de Janeiro, Brazil, virtual presentation

2022 IEEE/CIC ICCC, Foshan, China, Oral presentation

2019 IEEE GlobalSIP, Ottawa, Canada, Oral presentation