

Zeyu Hao, MEng

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Education

2022 – 2025

- 📘 **M. Eng., University of Science and Technology of China (USTC)** in Information and Communication Engineering.

Thesis title: *Energy-Efficient Transmission Systems and Methods for Integrated Sensing, Communications, and Powering*.

GPA: 3.23/4.3, Ranking: Top 25%.

One journal paper accepted by IEEE Transactions on Communications (TCOM). Accessible in ArXiv: <https://arxiv.org/abs/2403.16353>

2018 – 2022

- 📘 **B. Eng., University of Science and Technology of China (USTC)** in Electronic and Information Engineering.

Thesis title: *Hybrid Beamforming for Secrecy Integrated Sensing and Communication*.

GPA: 3.46/4.3, Weighted Average: 84.83/100, Arithmetic Average: 85.28/100, Ranking: 47/131.

Research Publications

Journal Articles

1

Z. Hao, Y. Fang, X. Yu, J. Xu, L. Qiu, L. Xu, and S. Cui, "Energy-efficient hybrid beamforming with dynamic on-off control for integrated sensing, communications, and powering," *arXiv e-prints, accepted by TCOM*, arXiv:2403.16353, Mar. 2024. DOI: 10.48550/arXiv.2403.16353.

2

Z. Hao, Z. Ren, J. Xu, and L. Qiu, "Energy-efficient transmit beamforming and transmitter on-off control for cell-free integrated sensing, communications, and powering," *to be submitted*, 2024.

Patents

1

Z. Hao, Y. Fang, L. Qiu, J. Xu, and S. Cui, "A base station system and the power consumption optimization method, device, and equipment used for the base station system," CN202410044939.1, Jan. 10, 2024.

Project Experience

- 📘 Energy-efficient resource allocation based on practical constraints Huawei
- 📘 Theory and method of ultra low energy consumption mobile communication for the "carbon peaking and carbon neutrality" strategy China National Key R&D Program Key Special Projects

Skills

Languages

📘 Strong reading, writing and speaking competencies for English (TOEFL 95/120 in total, with Reading 29/30 and Writing 25/30), Mandarin Chinese.

Coding

📘 Matlab, Python, C++, L^AT_EX.

Web Dev

📘 HTML.

Misc.

📘 Academic research, teaching, training, consultation, L^AT_EX typesetting and publishing.

Academic Activities

Review

- WS29 IEEE ICC 2024 10th Workshop on Integrated Sensing and Communications for 6G
- Integrating Sensing and Comm for Ubiq 2024 Q1, IEEE Internet of Things Magazine
- 2023 International Conference on Wireless Communications and Signal Processing (WCSP)

Visit

- 2022 ■ The Chinese University of Hong Kong, Shenzhen (CUHK-Shenzhen), China

Cooperation

- Since 2022 ■ The Chinese University of Hong Kong, Shenzhen (CUHK-Shenzhen), China

Miscellaneous Experience

Awards and Achievements

- 2023 ■ Graduate Academic Scholarship - First Prize (Master's), USTC.
2022 ■ Graduate Academic Scholarship - First Prize (Master's), USTC.

Research Topics During Master's Program

Wireless Communications, Physical Layer

- Energy-efficient transmission systems and methods
- Multi-functional systems towards 6G: Integrated Sensing and Communications (ISAC), Wireless Information and Power Transfer (WIPT), Integrated sensing, communications, and powering (ISCAP)
- Hybrid beamforming and MIMO technology
- C-RAN, Coordinated multi-point (CoMP) transmission, cell-free MIMO, and cooperative beamforming
- Energy-efficient designs with dynamic hardware on-off control
- Probably more ...

Optimization theory and methods

- Convex and non-convex optimization
- Convex relaxation methods
- Low-complexity optimization methods
- Probably more ...

6G Native AI

- AI for 6G: deep learning based and data-driven solutions to arising challenges, especially in physical layer wireless communications
- Probably more ...

References

Prof. Jie Xu xujie@cuhk.edu.cn

Associate Professor (Tenured) with the School of Science and Engineering, The Chinese University of Hong Kong, Shenzhen (CUHK-Shenzhen), China

Jie Xu's IEEE Author Homepage: <https://ieeexplore.ieee.org/author/37070344700>

Prof. Ling Qiu lqiu@ustc.edu.cn

Professor with the Department of Electronic and Engineering and Information Science, University of Science and Technology of China (USTC)

Ling Qiu's IEEE Author Homepage: <https://ieeexplore.ieee.org/author/37279946000>

Prof. Xianghao Yu alex.yu@cityu.edu.hk

Assistant Professor with the Department of Electrical Engineering, City University of Hong Kong (CityU), Hong Kong

Xianghao Yu's IEEE Author Homepage: <https://ieeexplore.ieee.org/author/37085608777>

Prof. Shuguang Cui shuguangcui@cuhk.edu.cn

IEEE Fellow, X.Q. Deng Presidential Chair Professor, the Executive Dean for the School of Science and Engineering at CUHK, Shenzhen, the Executive Vice Director at Shenzhen Research Institute of Big Data, and the Director for Future Network of Intelligence Institute (FNii), The Chinese University of Hong Kong, Shenzhen (CUHK-Shenzhen), China

Shuguang Cui's IEEE Author Homepage: <https://ieeexplore.ieee.org/author/37267838900>