

Zeyu Hao, M. Eng.



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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 published in IEEE Transactions on Communications (TCOM), and is currently in early access at <https://ieeexplore.ieee.org/document/10681491>
- 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,” *IEEE Trans. Commun.*, pp. 1–1, Sep. 2024.  DOI: 10.1109/TCOMM.2024.3462681.
- 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 105/120 in total, with Reading 30/30 and Writing 27/30), Mandarin Chinese.
- Coding  Matlab, Python, C++, \LaTeX .
- Web Dev  HTML.
- Misc.  Academic research, teaching, training, consultation, \LaTeX 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

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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

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

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