Yushen Wang

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Educational Background

University of Electronic Science and Technology of China *Sept. 2022 - Jun. 2026 (expected)*
B.Eng in Communication Engineering

- Rank – **2/168 (top 1.19%)**   GPA – **3.92/4**
- Major courses: Probability and Statistics (99), Stochastic Signal Analysis (96), Signals and Systems (95), Artificial Intelligence (95), Calculus I (94), Linear Algebra (90)
- English: CET-4: **602**   CET-6: **602**

Honors and Awards

2024 **National Scholarship (Top 1.5%)** for Undergraduates   2023-2024
2023 Luzhou Laojiao Corporate Scholarship (Top 2%) for Undergraduates   2022-2023
2022&2023 UESTC Outstanding Student Scholarship   2022-2023, 2023-2024

Research Experiences

Multi-spectral and Panchromatic Image fusion Fusion and Image Denoising *Sept. 2023 - Dec. 2023*

- Studied the satellite multi-spectral and panchromatic image fusion algorithm based on the PanNet CNN, which mainly utilizes a four-layer residual network to learn high-frequency details of the images. This method integrates low-spatial-resolution multi-spectral images with panchromatic images to produce high-spatial-resolution outputs.
- Reproduced deep learning network frameworks similar to PanNet, such as DiCNN and FusionNet.
- Designed a deep CNN based on ResBlock network, achieving image denoising functionalities such as rain streak removal.

Partitioning-Based XL-MIMO Assisted Near-Field User Localization *Mar. 2024 - Jun. 2024*

- Learned a partitioning-based XL-MIMO assisted near-field user localization algorithm, which significantly reduces computational complexity to linear one and improves positioning accuracy over conventional benchmark algorithms.
- Learned a Bayesian inference framework for maximum a posteriori (MAP) estimation of user localization in cases lacking closed-form solutions, which incorporates algorithms including message passing, variational Bayesian line spectral estimation (VALSE), Gauss-Newton interpolation, and block coordinate descent (BCD).

Movable Antenna-Empowered Near-Field Sensing *Sept. 2024 - Present*

- Almost independently conducted comprehensive research including literature review, model establishment, theoretical derivation, optimization simulation, and paper writing for the ICC conference paper.
- Discovered and rigorously proved that movable antenna technology can significantly enhance near-field sensing capability. The core innovation lies in optimizing movable antenna positions to minimize the Cramér-Rao Bound for target estimation, thereby achieving superior localization accuracy. Derived closed-form solutions for optimal array geometry in both angle and distance estimation scenarios, and developed a low-complexity discrete sampling-based algorithm to obtain a near-optimal solution for joint estimation. Simulation results demonstrate that the proposed configurations reduce the CRB by over 50% compared to conventional uniform linear arrays (ULA) in all three considered cases.
- Published a **first-authored** paper which is accepted by 2025 ICC Workshop with **3** citations:
  [C1] Y. Wang, W. Mei, X. Wei, B. Ning, and Z. Chen, "Antenna Position Optimization for Movable Antenna-Empowered Near-Field Sensing," accepted by ICC Workshop, 2025, arXiv:2502.03169. [PDF]
- Currently preparing a comprehensive manuscript for the journal submission.

Competitions

2024 Mathematical Contest in Modeling (MCM) *Honorable Winner*
2024 National English Competition for College Students (NECCS) *National Third Prize*

Services

- **Academic**: **Peer Reviewer**, 2025 IEEE ICC Workshop, Montreal, Canada.
- **Social**: class academic officer; college peer counselor; core organizer of Green Volunteers Association