Bowei Zhang

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EDUCATION

Michigan State University, College of Engineering East Lansing, Michigan
Master of Science, Computer Science, 3.94/4.00 August 2023 - May 2025

University of Science and Technology Beijing, School of Computer and Communication Engineering Beijing, China
Bachelor of Engineering, Communication Engineering, 3.9/4.0, rank 2/149 August 2019 - June 2023
Second Prize, National Mathematics Competition for College students (Dec. 2020), Champion Scholarship (0.7%)

WORK EXPERIENCE

Michigan State University East Lansing, MI
Teaching Assistant (CSE 422: Computer Network) August 2024 – Present
Research Assistant (https://inss.egr.msu.edu/ aj_mmwave.html) August 2023 - August 2024

- Developed GNU Radio OOT blocks **(C++)** for OFDM communication, designed an innovative MMSE filter **(C++)** for digital beamforming and implemented Bayesian Optimization **(Python)** for analog beamforming
- Improved throughput by 238% compared to conventional MMSE (C-MMSE) DBF, achieved 37.1% throughput in presence of jamming, and reduced overhead to 0.6% compared to exhaustive search methods
- Paper Under Review: Achieving Anti-Jamming 5G mmWave Communications: Design and Experiments

Ruijie Network Co., LTD Fuzhou, China
Communication Algorithm Researcher (Internship) June 2022 - August 2022

- Directed a comprehensive literature review and in-depth investigation of 5G distributed Massive MIMO algorithms and associated **hardware imperfections**, culminating in a detailed investigation report
- Hold weekly project meetings, fostering team collaboration, and compiled and presented progress reports
- Executed targeted simulations **(MATLAB)** to evaluate and benchmark performance of various algorithms

PROJECTS

Study on the Research and Practice of 5G Network Transmission Technology based on MEC
University of Chinese Academy of Sciences June 2021- June 2022

- Compared the advantages and disadvantages of four-tier agents and seven-agents based on Nginx research
- Based on c, developed a congestion control algorithm module that sets the connection at both ends according to the connection status at both ends and build a network in the laboratory for relevant verification
- Enhanced throughput by up to 100% in LOS environment (272 Mbps – 549 Mbps) and by up to 50% in NLOS environment (100 Mbps – 157 Mbps)

Study on the Unconstrained Non-contact Heart Rate Detection based on Video Signal
College of Automation, University of Science and Technology Beijing June 2020 - May 2021

- Built the whole hardware platform, segmented the face through the built u-net, analyzed the image in three channels, reduced the dimension of the image using the PCA principle and draw the heart rate graph line
- Implement the design into Raspberry Pi using MATLAB, achieving a heart rate detection accuracy of 0.5
- deviation, comparable to standard pulse blood saturation meters

SKILLS

- Coding: C/C++, Python, Java, HTML/CSS/JavaScript, MATLAB
- Tools: MySQL, MongoDB, NodeJS, Git, Multisim, GNU Radio, Nginx, Spring Boot, XML
- Hardware: STM32 MCU, Raspberry Pi Development, USRP