Fangyu Lin

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About Me

I've received my bachelor's degree (2020.9-2024.6) from Zhejiang University, majoring in Information Engineering, College of Information Science and Electronic Engineering, and I was also a member of the Shannon Advanced Class (elite program in the college, 30 selected from 340). Previously, I joined the Intelligent Computing and Network Laboratory for research intern, supervised by Prof. Guanding Yu and finished the Student Research Training Program with Excellent results. During the period, I finished two works, i.e. Low Latency Video Wireless Transmission System based on Multimodal Switching and Design and Implementation of an Edge IoT Data Processing Platform. Later, I did some research on the design of some optimization algorithms in wireless communication networks in the Intelligent Wireless Communication Laboratory.

Education

B.E. Information Engineering *Zhejiang University* **Hangzhou, China** *2020.9-2024.6*
Beyond Class Courses: Deep Learning, Wireless Communication, Optimization Theory, Game Theory, Computer Network, Data Structure, Operating System, Computer Vision, Natural Language Processing, Computer Game Design.
GPA: 3.99/4 (Rank 2/141)

Publications

- **Key Technologies of RIS-assisted Millimeter Wave Integrated Sensing and Communications**
  Fangyu Lin, Chen Zhu, Xu Gan, Dezhi Wang, Jianbin Wang, et al.
  Chinese Radio Communications Technology, 2023.

- **Low-Complexity Quantum Annealing based Beamforming for Distributed-RISs-Assisted Communication**
  Fangyu Lin, Fenghao Zhu, Chen Zhu, Chongwen Huang, Zhaohui Yang, et al.
  submitted to MECOM-2024

- **A Low-Complexity Joint Beamforming Design for Multiple-RISs-Assisted Communication System**
  Fangyu Lin, Chen Zhu, Chongwen Huang, Zhaohui Yang, Zhaoyang Zhag, et al.
  submitted to IEEE Internet of Things Journal (IoTJ)

Research Projects

- **Low Latency Video Wireless Transmission System based on Multimodal Switching**
  A wireless network system is proposed to help improve the smoothness of video conferences under poor communication conditions. Video, audio, image and text modals are chosen separately for different bandwidths via a carefully designed selection and synchronization module. A transmission control strategy is designed to ensure synchronization of transmitter and receiver. Further, the system is implemented on USRP X310 through GNURadio.

- **Design and Implementation of an Edge IoT Data Processing Platform**
  A five-tier edge computing platform is proposed for managing extensive IoT data from Internet of Everything (IoE) applications, leveraging a full IoT data workflow. A diverse, clustered testbed with four types of edge servers confirms its viability. Utilizing the EPFL smart grid project, the platform's capabilities are demonstrated. It employs Flink for real-time data stream processing and analysis and integrates a TensorFlow-based LSTM machine learning pipeline for predictive modeling of power parameters, supported by Kubernetes for scalable container management.

- **Low Complexity Beamforming Design for a Multi-RISs-Assisted Multi-User Wireless Communication System**
  Distributed RISs are deployed to assist the communication in a multi-user system. A quantum annealing based fast beamforming method is designed to reduce the complexity of solving the multi-variable non-convex optimization problem. The variables are mapped to qubits and transferred to D-wave quantum machine for further operations.

Selected Honors

- **Huawei Scholarship (top 1)**, 2022, Huawei
- **Dahua Remarkable Student Scholarship (top 1%)**, 2022, Dahua
- **Shannon Scholarship (top 1%)**, 2024, Zhejiang University Shannon Advanced Class
- **Outstanding Graduates of Zhejiang Province (top 5%)**, 2024, Zhejiang Provincial Department of Education
- **Outstanding Graduates of Zhejiang University**, 2024, Zhejiang University
- **Distinguished Undergraduate Thesis**, 2024, Zhejiang University
- **Outstanding Student**, 2023, Zhejiang University
- **Zhejiang University Scholarship-Second Prize (due to deficiencies in PE)**, 2022, 2023, Zhejiang University
- **Yongping Scholarship**, 2023, Zhejiang University & Yongping Duan
- **Silver award of The 15th China International College Students "Internet+" Innovation and Entrepreneurship Competition** , 2023, Ministry of Education of P.R. China

Community Services

- **Journal reviewer:** TWC
- **Conference reviewer:** WCSP2023, ICCC2024
- **Teaching assistant:** 85120221, Introduction to Quantum Information, ZJU, 2023-2024 Spring-Summer

Languages

- **English:** IELTS: 7.5, CET6: 560, CET4: 657