Fangyu Lin

+86 13181891757 Hangzhou, China
lin_fy@zju.edu.cn lfy13181891757

About Me

I've received my bachelor's degree (2020.9-2024.6) at 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**
  To handle the massive onsite IoT data streams from IoE applications, we propose a five-layer edge computing platform based on a comprehensive IoT data processing work flow. A heterogeneous and clustered testbed, composed of four-type fog servers, is implemented to verify its feasibility. We then select the EPFL smart grid project as a use case to test the functionality and efficiency of the proposed testbed. The platform adopts the advanced big data framework, Flink, to perform both streaming processing and statistical analysis of real-time high-velocity data streams. In addition, a specified LSTM-based ML pipeline, which comprises online training, model validation, and online prediction, is deployed with Tensorflow to predict the future power parameters based on onsite power statistical results. Furthermore, we utilize the light-weight orchestration system, Kubernetes, to scale and manage these container-based frameworks.

- **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