Fanyi Meng

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🎓 Education

The Chinese University of Hong Kong (Shenzhen) (CUHKSZ)   2023 – Present

M.Phil student in Computer and Information Engineering (CIE), expected March 2025
- GPA: **3.22 / 4**

Southern University of Science and Technology (SUSTech)   2019 – 2023

B.S. in Electrical and Electronic Engineering (EEE), Communication Engineering
- GPA: **3.47 / 4** (85 / 100)

👥 Experience

Southern University of Science and Technology   Oct. 2020 – Jun 2023

Undergrad Research Assistant   Supervisor: Rui Wang

Project with **HONOR**
- Used **MATLAB's WLAN Toolbox** for simulation of the Distributed Coordination Function (DCF) within the Wi-Fi MAC layer.
- Used **NS-3** to analyze the Enhanced Distributed Channel Access (EDCA) mechanism in 802.11ac, focusing on throughput and latency.
- Refined EDCA parameters to improve overall **QoS** performance in Channel Allocation for Wi-Fi networks.

Shenzhen Research Institute of Big Data   Mar. 2023 – Present

Research Assistant   Supervisor: Guangxu Zhu

DIIS Laboratory Internal Project
- Extracted **Channel State Information (CSI)** from Wi-Fi signals on Intel 5300 NIC, ESP32, and Router RT-AC86U.
- Built a Wi-Fi Sensing System for data collection, model training, and function visualization.
- Used **BERT**-based neural network to address **packet loss** challenges in Wi-Fi Sensing tasks.
- Employed three Intel 5300 NICs for sub-2-second latency in real-time human **tracking and localization**.

Guangdong Basic and Applied Basic Research Foundation Project
- Calibrating **Sionna** Ray-tracing(RT) models with real-world beam-wise RSRP.
- Simulating **system-level** network performance metrics (e.g., Spatial Efficiency, Localization Error) incorporating advanced 6G technologies (RIS,ISAC).
- Optimizing network performance using **gradient-based** methods, leveraging the chain rule for differentiation within Sionna's Ray-tracing and Neural Network components.

📔 Publications

★ **Environment Calibrated and Fully Differentiable Wireless Network Simulator for 6G**
Fanyi Meng, Xinhao Li, Dongzhu Liu, Guangxu Zhu
Submitted to IEEE for possible publication

★ **Finding the Missing Data: A BERT-inspired Approach Against Package Loss in Wireless Sensing**
Zhao, Zijian, Tingwei Chen, **Fanyi Meng**, Hang Li, Xiaoyang Li, and Guangxu Zhu
IEEE INFOCOM DeepWireless Workshop 2024

★ **Coverage Analysis for Air-Ground Integrated-Sensing-and-Communication Networks**
Yihang Jiang, **Fanyi Meng**, Xinhao Li, Xiaoyang Li, Guangxu Zhu, Kaifeng Han, Qingjiang Shi
International Conference on Ubiquitous Communication 2024

★ **Integrated Sensing and Communications Signal Prediction with Multi-Beam Statistical Channel**
Xinhao Li, Yihang Jiang, **Fanyi Meng**, Xiaoyang Li, Kaifeng Han, Guangxu Zhu
Submitted to IEEE for possible publication

⚙ Skills

- Programming Languages: Python > MATLAB > C++ > Labview = Java
- Platforms: Ubuntu 20.04, Debian 10, USRP X410
- Tools: Taichi, Sionna, Tensorflow, NS-3, PyTorch, AirSim, ROS

♡ Honors and Awards

3rd Prize, the First Wi-Fi Sensing Contest   Dec. 2023
Advanced to the semifinals in International Algorithm Competition of Pazhou Lab   Nov. 2023

ⓘ Miscellaneous

- Website: `http://fanyimeng0.github.io`
- GitHub: `https://github.com/fanyimeng0`
- Languages: English - TOEFL 91, Mandarin - Native speaker