Lilin Xu

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Biography

I am an incoming PhD student at Columbia University in Fall 2024. I obtained my M.E. degree from Zhejiang University in March 2024, advised by Prof. Chaojie Gu and Prof. Shibo He.

My research interests are centered around **mobile sensing and AIoT** (AI + IoT), with a primary focus on **developing intelligent sensing systems** for practical applications, including human activity recognition, gesture interaction, etc.

Education

Zhejiang University Hangzhou, China
M.Eng. in Control Science and Engineering; **GPA: 3.92/4.0** Sept. 2021 – Mar. 2024
Advisor: Prof. Chaojie Gu& Prof. Shibo He
Group of Networked Sensing and Control (NeSC), College of Control Science and Engineering

Zhejiang University Hangzhou, China
B.Eng. in Automation; **GPA: 3.95/4.0**, **Rank: 5/120** Sept. 2017 – Jun. 2021
College of Control Science and Engineering

Experience

The Chinese University of Hong Kong Hong Kong
Visiting Student Jan. 2024 – Present
Working with Prof. Guoliang Xing and Prof. Zhenyu Yan
CUHK AIoT Lab, Department of Information Engineering

Nanyang Technological University Singapore
Visiting Student Apr. 2023 – Oct. 2023
Working with Prof. Rui Tan
NTU IoT Research Group, School of Computer Science and Engineering

Selected Publications

[C1] GesturePrint: Enabling User Identification for mmWave-based Gesture Recognition Systems
Lilin Xu, Keyi Wang, Chaojie Gu, Xiuzhen Guo, Shibo He, Jiming Chen
ICDCS 2024 (Acceptance ratio: 121/552=**21.9%**)

- GesturePrint is the **first one-stop solution for mmWave-based gesture recognition with user identification**, which can extract effective features from gesture point clouds by the proposed preprocessing pipeline and GesIDNet; we **build a new gesture dataset** including 9,332 samples from 17 participants performing 15 ASL gestures in two different environments.

[C2] MESEN: Exploit Multimodal Data to Design Unimodal Human Activity Recognition with Few Labels
Lilin Xu, Chaojie Gu, Rui Tan, Shibo He, Jiming Chen
SenSys 2023 (Acceptance ratio: 34/179=**19%**)

- MESEN is the **first multimodal-empowered unimodal sensing framework** utilizing the increasing availability of multimodal data to universally enhance unimodal human activity recognition, which exploits the correlations and relationships within unlabeled multimodal data for effective unimodal feature extraction.

[C3] Generalized Global Ranking-Aware Neural Architecture Ranker for Efficient Image Classifier Search
Bicheng Guo, Tao Chen, Shibo He, Haoyu Liu, **Lilin Xu**, Peng Ye, Jiming Chen
ACM Multimedia 2022

- NAR is the **first global architecture performance ranker** with a generalizable ranking ability.

[J1] Latency-aware Neural Architecture Performance Predictor with Query-to-Tier Technique
Bicheng Guo, **Lilin Xu**, Tao Chen, Peng Ye, Shibo He, Haoyu Liu, Jiming Chen
IEEE Transactions on Circuits and Systems for Video Technology

- NARQ2T is the **first end-to-end architecture performance (accuracy & latency) predictor** to match neural architectures to various quality tiers and guide the architecture sampling in the search phrase.

Selected Awards and Honors

Columbia University Presidential Fellowship 2024
Zhejiang University Sun Youxian Scholarship (Top 1%) 2024
Zhejiang University Outstanding Graduate Student 2024
SenSys'23 SIG Student Travel Grant 2023
Zhejiang University Wen Chixiang Scholarship 2023
Zhejiang University Award of Honor for Graduate Student 2022 & 2023
AI Studio 2022 CVPR Track2: Performance Estimation Track, Top 10 Award (8/190) 2022
College Academic Excellence First-prize Scholarship 2022 & 2023
Zhejiang University First-prize Scholarship (Top 3%) 2019
Zhejiang University Outstanding Student Honor 2019
Zhejiang University Second-prize Scholarship 2018 & 2020

Professional Service

- Web Chair of ACM SenSys 2024
- Student Volunteer of IPSN 2024

Technical Skills

Programming Skills Python, C++, Java, MATLAB, JavaScript
Tools & Frameworks PyTorch, TensorFlow