Lilin Xu

Master Student, College of Control Science and Engineering, Zhejiang University

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I am a master student at Group of Networked Sensing and Control (NesC), Zhejiang University, advised by Prof. Chaojie Gu and Prof. Shibo He. I currently also work as a visiting student with Prof. Rui Tan, Nanyang Technological University. I am broadly interested in **mobile sensing and AIoT** (AI + IoT), with a primary focus on related fields of developing artificial intelligence sensing systems for practical applications, including human activity recognition, authentication, etc.

EDUCATION

Zhejiang University	Hangzhou, China
M.Sc. in Control Science and Engineering; **GPA: 3.91/4.0**	Sept. 2021 − Mar. 2024 (Expected)
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.Sc. in Automation; **GPA: 3.95/4.0**, **Rank: 5/120**	Sept. 2017 − Jun. 2021
College of Control Science and Engineering	

VISITING EXPERIENCE

Nanyang Technological University	Singapore
Visiting Research Student	Apr. 2023 − Present
Advisor: Prof. Rui Tan	
NTU IoT Research Group, School of Computer Science and Engineering	

RESEARCH EXPERIENCE & PUBLICATIONS

MESEN: Exploit Multimodal Data to Design Unimodal Human Activity Recognition with Few Labels

Accepted, SenSys 2023 (Acceptance ratio: 34/179=19%)

Lilin Xu, Chaojie Gu, Rui Tan, Shibo He, Jiming Chen

- Proposed to utilize the increasing availability of multimodal data to enhance unimodal HAR, given the widespread applicability of unimodal HAR in real-world scenarios
- Designed a multimodal-empowered unimodal sensing framework, MESEN, to exploit the correlations within unlabeled multimodal data for effective unimodal feature extraction
- Evaluated MESEN on eight public multimodal datasets, demonstrating the effectiveness of MESEN in achieving significant enhancement for unimodal HAR by exploiting unlabeled multimodal data

Work in Progress: Enabling User Identification for mmWave-based Gesture Recognition Systems

Accepted, SenSys Workshop mmWaveSys 2023

Lilin Xu, Keyi Wang, Chaojie Gu, Shibo He, Jiming Chen

- Proposed GesturePrint, a framework first achieves person-independent gesture recognition and gesture-based user identification using a commodity mmWave radar sensor
- Designed a novel architecture GesIDNet featuring a multilevel feature fusion module for recognition and identification
- Evaluated GesturePrint on our self-collected dataset and three public gesture recognition datasets, demonstrating the effectiveness of GesturePrint in both gesture recognition and user identification under different application scenarios

Latency-aware Neural Architecture Performance Predictor with Query-to-Tier Technique

Accepted, IEEE Transactions on Circuits and Systems for Video Technology

Bicheng Guo*, Lilin Xu* (*technically equal contribution), Tao Chen, Peng Ye, Shibo He, Haoyu Liu, Jiming Chen

- Proposed NARQ2T to match architectures to various quality tiers and guide the sampling in the search phase
- Obtained the rank of each architecture from a global perspective
- Designed an end-to-end technique that enables automatic tier embedding learning, which reduces training cost

GesturePrint: Enabling User Identification for mmWave-based Gesture Recognition Systems

Ongoing

Lilin Xu, Keyi Wang, Chaojie Gu, Xiuzhen Guo, Shibo He, Jiming Chen

SELECTED AWARDS

Zhejiang University Award of Honor for Graduate	2022 & 2023
AI Studio 2022 CVPR Track2: Performance Estimation Track, Top 10 Award (8/190)	2022
College Academic Excellence First-prize Scholarship	2022
Zhejiang University Second-prize Scholarship	2018 & 2020
Zhejiang University First-prize Scholarship & Outstanding Student Honor	2019

SKILLS

Programming: Python, MATLAB   **TOEFL:** 101