Lilin Xu

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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, Nangyang 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