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, 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 human activity recognition, given the widespread applicability of unimodal HAR in real-world scenarios
- Designed MESEN, a multimodal-empowered unimodal sensing framework, to exploit the correlations and relationships within unlabeled multimodal data for effective unimodal feature extraction
- Evaluated MESEN on eight public datasets, demonstrating the effectiveness of MESEN in achieving significant enhancement for unimodal HAR with few labels 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 to enable user identification for mmWave-based gesture recognition systems, thus improving the user experience in interacting with smart devices
- Designed GesturePrint to feature an efficient data preprocessing pipeline and a novel architecture GesIDNet for extracting effective features from gesture point clouds
- Evaluated GesturePrint on our self-collected dataset and three public datasets, demonstrating GesturePrint's effectiveness 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
- 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