Huatao Xu

PH.D. CANDIDATE

Country of origin: China. Country of residence: Singapore

+65 91351995 | huatao001@e.ntu.edu.sg | dapowan.github.io | dapowan

I am a third-year Ph.D. student from SCSE of Nanyang Technological University (NTU), supervised by Prof. Mo Li and co-supervised by Assoc. Prof. Rui Tan. I am broadly interested in ubiquitous computing, especially in related fields of building wearable-based or wireless-based sensing interfaces to bridge gaps between computing resources and human's daily lives. My current research focuses on wearable-based sensing, including human activity recognition, localization, authentication, etc.

Education

Nanyang Technological Univseristy (NTU) — *Singapore, Singapore*
Ph.D. of Computer Science, GPA: 4.38/5.0, Advised by Prof. Mo Li — ***Jan. 2021 - Present***

Shanghai Jiao Tong University (SJTU) — *Shanghai, China*
Master of Software Engineering, GPA: 3.51/4.0, Advised by Prof. Dong Wang — ***Sept. 2017 - Mar. 2020***

Nanjing University (NJU) — *Nanjing, China*
Bachelor of Software Engineering, GPA: 4.05/5.0 — ***Sept. 2013 - Jun. 2017***

Publications

Practically Adopting Human Activity Recognition
Huatao Xu, Pengfei Zhou, Rui Tan, Mo Li
ACM MobiCom 2023
A practical human activity recognition for mobile devices that address data heterogeneity with realistic overhead.

Facilitating Radar-Based Gesture Recognition With Self-Supervised Learning
Zhiyao Sheng, **Huatao Xu**, Qian Zhang, Dong Wang
IEEE SECON 2022
A novel representation learning framework for radar sensing applications with self-supervised learning techniques.

LIMU-BERT: Unleashing the Potential of Unlabeled Data for IMU Sensing Applications
Huatao Xu, Pengfei Zhou, Rui Tan, Mo Li, Guobin Shen
ACM SenSys 2021 (Best Paper Runner-up), GetMobile Research Highlight 2022
A BERT-Like self-supervised representation learning model for IMU sensing applications, which can extract generalizable features from unlabeled data.

FaHo: Deep Learning Enhanced Holographic Localization for RFID tags
Huatao Xu, Dong Wang, Run Zhao, Qian Zhang
ACM SenSys 2019
A new hologram called joint hologram and propose a new hologram-based position estimation method for accurate RFID tag localization.

AdaRF: Adaptive RFID-based Indoor Localization Using Deep Learning Enhanced Holography
Huatao Xu, Dong Wang, Run Zhao, Qian Zhang
ACM IMWUT (UbiComp) 2019
An RFID-based localization system that creates adaptive localization models for stable environments using synthetic aperture technique and deep learning algorithm.

PEC: Synthetic Aperture RFID Localization with Aperture Position Error Compensation
Run Zhao, Dong Wang, Qian Zhang, Haonan Chen, Huatao Xu, **Huatao Xu**
IEEE SECON 2019
An accurate synthetic aperture RFID localization system considering aperture position error compensation.

PRMS: Phase and RSSI based Localization System for Tagged Objects on Multilayer with a Single Antenna
Huatao Xu, Run Zhao, Qian Zhang, Dong Wang
ACM MSWiM 2018
A system that estimates the spatial positions of RFID tags using both phase and RSSI profiles provided by a single antenna.

Projects

General Learning Framework for IMU Sensing Applications ***2021-Present***
- A mobile sensing project that trains sensing models for IMU applications with high transferability and generalizability.

RFID-based Deep Learning Enhanced Holographic Localization System ***2019***
- A Python project that analyzes RFID signals and estimates positions of RFID tags based on Tensorflow.

Student Work Traceability Display System ***2018***
- A platform for primary school students to share videos of the processes of making handmade products.
- Responsible for the C# program that displays and records video data captured by HIKVISION cameras.

RFID Sensing Platform ***2017***
- An extensible C# program that collects and displays low level RFID signals profiles reported from ImpinJ reader using LLRP protocol.
- Responsible for implemention of localization algorithms and program controlling RFID readers and linear guide simultaneously.

Experience

Alibaba (Eleme) *Shanghai, China*
Algorithm Engineer Intern ***Apr. 2020 - Dec. 2020***
- Design effective models to sense couriers' states with smartphones, including location and activity type.

Nanjing Yikemi (Start-up company) *Nanjing, China*
Software Engineer Intern ***Jan. 2017 - Jun. 2017***
- Develop websites for Online Course Platform and Student Data Sharing Platform, which are both entrepreneurial projects.

Honor & Award

2022 **Research Highlight**, **GetMobile**
2021 **Best Paper Runner-up**, **ACM SenSys'21**
2020 **Shanghai Outstanding Graduate Student**, **SJTU**
2019 **China National Scholarship**, **SJTU**
Highest national wide scholarship for postgraduate students in China
2017-2019 **First-class Scholarship**, **SJTU**
2017 **Nanjing University Inspirational Scholarship**, **NJU**

Skills

Languages Python, Java, JavaScript, Latex, Matlab, C#
Frameworks Pytorch, Tensorflow, Android, Django, J2EE, Vue.js
Tests TOEFL(iBT) - 97 (R-27 L-25 S-21 W-25)
IELTS - 7.0 (L-7.5 R-8.5 W-6.0 S-6.0)
GRE - 324 (V-154 Q-170) + 3 (AW)
others Good communication skills