# Zhenlin An

## EDUCATION

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Hong Kong SAR, China

2017.9-2021.10

## The Hong Kong Polytechnic University

Ph.D. in Computer Science

- Chief Supervisor: Dr. Lei Yang, Co-supervisor: Prof. Jiannong Cao (IEEE Fellow)
- Thesis: "On Cross-Technology Mutualism in the Internet of Things: Communication and Localization"

#### Dalian University of Technology

Dalian, China

B.E. degree in Electronic Engineering and Information System

2013.9-2017.7

## Professional Experience

## University of Pittsburgh

Pittsburgh, PA, US

Postdoctoral Associate at Department of Computer Science

2024.7-Present

- Advised by Dr. Longfei Shangguan, Prof. Kyle Jamieson (InterDigtial: John Kaewell and Philip Pietraski)

#### Princeton University

Princeton, NJ, US

Postdoctoral Research Associate at Department of Computer Science

2023.12-2024.7

- Advised by Prof. Kyle Jamieson, Dr. Longfei Shangguan (InterDigitial: John Kaewell and Philip Pietraski)

#### The Hong Kong Polytechnic University

Hong Kong SAR, China

Postdoctoral Fellow Advised by Dr. Lei Yang, funded by Postdoc Matching Fund

2021.11-2023.11

#### Alolo Technology Limited (start-up)

Hong Kong SAR, CN

Co-founder and Engineering Consultants for BLE-Vision localization System

2022.11-2023.8

#### Huawei Technologies

Shenzhen, Guangdong, CN

Research Intern in 2012 Lab. Two patents for deep learning localization/beamforming.

 $2020.6\hbox{-}2020.12$ 

#### Summary

- (I) Summary of Research: My research interests focus on AI-driven NextG wireless systems, particularly in the PHY layer design, wireless sensing and localization, backscatter communication and wireless security. I specialize in developing and applying machine learning models for wireless channel prediction, localization, and RF-Vision multi-modality sensing and have a deep research on backscatter/RFID PHY and MAC layer optimization. I am the recipent of ACM China SIGBED Doctoral Dissertation Award, ACM MobiCom Best Paper Runner-up, and two IEEE SECON Best papers.
- (II) Summary of Publications: A total of over 40 publications on top conferences/journals range from: MobiCom (9), INFOCOM (8), MobiSys(2), SIGCOMM (1), Sensys (1), S&P (1), UbiComp (1), TMC (7), TON (4), TOSN (2). These works have garnered over 420 citations, with an h-index of 12.
- (III) Keywords: Wireless Digital Twin, Machine Learning, Sionna, Channel Prediction, Indoor Localization and Wireless Sensing, 5G/6G, WiFi, BLE, Backscatter and RFID, Acoustic, Wireless Security
- (IV) Selected Publications:
  - Xiaopeng Zhao, Zhenlin An(corresponding author), Qingrui Pan, Lei Yang, NeRF2: Neural Radio-Frequency Radiance Fields, In Proc. of ACM MobiCom, 2023. Best Paper Award Runner-up.
     Note: First introduce NeRF-like neural rendering into the RF domain and demos SOTA performance in 5G channel prediction, BLE and RFID localization.
  - Donghui Dai, Zhenlin An (co-first author), Lei Yang, Inducing Wireless Chargers to Voice Out for Inaudible Command Attacks, In IEEE Security & Privacy, 2023.

Note: First report the wireless charger EMI can be manipulated to inject inaudible commands to smart devices.

- Zhenlin An, Qiongzheng Lin, Lei Yang, Yi Guo and Ping Li, Localizing RFIDs in Pixel Dimensions in ACM Transactions on Sensor Network, 2022. Best paper in IEEE SECON.
  - Note: First to design a radio-vision co-localization platform for RFID tag tracking in robots.
- Zhenlin An, Qiongzheng Lin, Xiaopeng Zhao, Lei Yang, Dongjiang Zheng, Guiqing Wu, Shan Chang One Tag, Two Codes: Identifying Optical Barcodes with NFC In Proc. of ACM MobiCom, 2021.
   Note: First to propose a reinforcement learning-based antenna design algorithm capable of serving both UHF RFID and NFC tags.
- **Zhenlin An**, Qiongzheng Lin, Ping Li, Lei Yang, "General-Purpose Deep Tracking Platform across Protocols for the Internet of Things" In Proc. of ACM MobiSys, 2020.
  - Note: First to propose the extra-large array platform with a deep learning localization algorithm for IoT devices.
- Zhenlin An, Qiongzheng Lin, Lei Yang, Yi Guo, Revitalizing Ultrasonic Positioning Systems for
  Ultrasound-Incapable Smart Devices, in IEEE Trans on Mobile Computing, 2020. (Also in MobiCom 2019)
  Note: First to propose an ultrasound positioning system for normal microphone using intermodulation effects.

## **Publications**

 $^\dagger \text{Co-primary author},\,^\ddagger \text{Co-corresponding author},\, \textcolor{red}{\textbf{Google Scholar Page}}$  Conference Articles

- Zhenlin An, Longfei Shangguan, John Kaewell, Philip Pietraski, Kyle Jamieson RadioTwin: A Digital Building Material Twin for Wideband, Cross-link, Cross-band Wireless Channel Prediction In Submission, 2024
- Zheng Gong, Zhenlin An<sup>‡</sup>, Donghui Dai, Jingyu Tong, Sicong Liao, Lei Yang<sup>‡</sup> Enabling Cross-Medium Wireless Networks with Miniature Mechanical Antennas In Proc. of ACM MobiCom, Washington, D.C., USA, 2024.
- Jingyu Tong, Zhenlin An, Xiaopeng Zhao, Sicong Liao, Lei Yang In-Sensor Machine Learning: Radio Frequency Neural Networks for Wireless Sensing In Proc. of ACM MobiHoc, 2024.
- 4. Xueyuan Yang, **Zhenlin An**, Qingrui Pan, Lei Yang, Dangyuan Lei, Yulong Fan Binary Optical Machine Learning: Million-Scale Physical Neural Networks with Nano Neurons In Proc. of **ACM MobiCom**, Washington, D.C., USA, 2024.
- Donghui Dai, Zhenlin An<sup>‡</sup>, Zheng Gong, Qingrui Pan, Lei Yang<sup>‡</sup>
   RFID+: Spatially Controllable Identification of UHF RFIDs via Controlled Magnetic Fields
   In USENIX NSDI, Santa Clara, USA, 2024.
- Xiaopeng Zhao, Shen Wang, Zhenlin An, Lei Yang Crowdsourced Geospatial Intelligence: Constructing 3D Urban Maps with Satellitic Radiance Fields In Proc. of ACM IMWUT/UbiComp, 2024.
- Yanni Yang, Genglin Wang, Zhenlin An, Pengfei Hu, Xiuzhen Cheng, Guoming Zhang RF-Parrot: Wireless Eavesdropping on Wired Audio In Proc. of IEEE INFOCOM 2024.
- 8. Xiaopeng Zhao, Guosheng Wang, **Zhenlin An**, Qingrui Pan, Lei Yang Understanding Localization by a Tailored GPT In Proc. of **ACM MobiSys**, Tokyo, Japan, 2024.
- 9. Donghui Dai<sup>†</sup>, **Zhenlin An**<sup>†</sup>, Lei Yang Inducing Wireless Chargers to Voice Out for Inaudible Command Attacks In **IEEE Security & Privacy (Oakland)** 2023.
- Xiaopeng Zhao, Zhenlin An<sup>‡</sup>, Qingrui Pan, Lei Yang<sup>‡</sup>
   NeRF2: Neural Radio-Frequency Radiance Fields
   In Proc. of ACM MobiCom, Madrid, Spain, Oct 2-6, 2023. (Best Paper Award Runner-up)

- 11. Donghui Dai, **Zhenlin An**<sup>‡</sup>, Qingrui Pan, Lei Yang<sup>‡</sup>
  MagCode: NFC-Enabled Barcodes for NFC-Disabled Smartphones
  In Proc. of **ACM MobiCom**, Madrid, Spain, Oct 2-6, 2023.
- Sicong Liao, Zhenlin An, Qingrui Pan, Xiaopeng Zhao, Jingyu Tong, Lei Yang<sup>‡</sup>
   XiTuXi: Sealing the Gaps in Cross-Technology Communication by Neural Machine Transition
   In Proc. of ACM Sensys, Istanbul, Turkiye, Nov 13-15, 2023.
- Xueyuan Yang, Zhenlin An, Xiaopeng Zhao, Lei Yang Transfer Beamforming via Beamforming for Transfer In Proc. of IEEE INFOCOM, New York area, USA, May 17 - 20, 2023.
- Yanni Yang, Jiannong Cao, Zhenlin An, Yanwen Wang, Pengfei Hu, Guoming Zhang NFChain: A Practical Fingerprinting Scheme for NFC Tag Authentication In Proc. of IEEE INFOCOM, New York area, USA, May 17 - 20, 2023.
- 15. Qingrui Pan, **Zhenlin An**, Xiaopeng Zhao, Lei Yang Revisiting Backscatter Frequency Drifts for Fingerprinting RFIDs: A Perspective of Frequency Resolution In Proc. of **IEEE SECON**, Madrid, Spain, Sep. 11-14, 2023.(**Best Paper Award**)
- Qingrui Pan<sup>†</sup>, Zhenlin An<sup>†</sup>, Xueyuan Yang, Xiaopeng Zhao, Lei Yang RF-DNA: Large-Scale Physical-layer Identifications of RFIDs via Dual Natural Attributes In Proc. of ACM MobiCom, Sydney, Australia, Oct 17-22, 2022.
- 17. Zheng Gong<sup>†</sup>, Lubing Han<sup>†</sup>, **Zhenlin An**<sup>‡</sup>, Lei Yang<sup>‡</sup>, Siqi Ding, Yu Xiang Empowering Smart Buildings with Self-Sensing Concrete for Structural Health Monitoring In Proc. of **ACM SIGCOMM**, Amsterdam, the Netherlands, Aug 22-26, 2022.
- 18. Qingrui Pan, **Zhenlin An**, Xiaopeng Zhao and Lei Yang LSAB: Enhancing Spatio-Temporal Efficiency of AoA Tracking Systems In Proc. of **IEEE INFOCOM**, 2-5 May 2022.
- Zhenlin An, Qiongzheng Lin, Xiaopeng Zhao, Lei Yang, Dongjiang Zheng, Guiqing Wu, Shan Chang One Tag, Two Codes: Identifying Optical Barcodes with NFC In Proc. of ACM MobiCom, New Orleands, USA, Oct 25-29, 2021.
- 20. Zhenlin An, Qiongzheng Lin, Qingrui Pan, Lei Yang Turbocharging Deep Backscatter Through Constructive Power Surges with a Single RF Source In Proc. of IEEE INFOCOM, May 10-13 2021.
- 21. Zhenlin An<sup>†</sup>, Qiongzheng Lin<sup>†</sup>, Ping Li, Lei Yang General-Purpose Deep Tracking Platform across Protocols for the Internet of Things In Proc. of ACM MobiSys, Toronto, Canada, June 15-19, 2020.
- 22. **Zhenlin An**, Qiongzheng Lin, Lei Yang, Lei Xie Activating Wireless Voice for E-Toll Collection Systems with Zero Start-up Cost In Proc. of **IEEE INFOCOM**, Beijing, China, April 27-30 2020.
- 23. Qiongzheng Lin, Lei Yang, Zhenlin An, Yi Guo, Ping Li RFCamera: Identifying RFIDs in Pixel Dimension In Proc. of IEEE SECON, Combo, Italy, June 22-25, 2020. (Best Paper Award)
- 24. Qiongzheng Lin<sup>†</sup>, **Zhenlin An**<sup>†</sup>, Lei Yang Rebooting Ultrasonic Positioning Systems for Ultrasound-Incapable Smart Devices In Proc. of **ACM MobiCom**, Los Cabos, Mexico, Oct 21-25, 2019.
- 25. Zhenlin An, Qiongzheng Lin, Lei Yang, Wei Lou Embracing Tag Collisions: Acquiring Bloom Filters across RFIDs in Physical Layer In Proc. of IEEE INFOCOM, Paris, April 29 - May 2, 2019.

- Ping Li, Zhenlin An, Lei Yang, Panlong Yang Towards Physical-Layer Vibration Sensing with RFIDs In Proc. of IEEE INFOCOM, Paris, France, April 29 - May 2, 2019.
- 27. Zhenlin An, Qiongzheng Lin, Lei Yang Cross-Frequency Communication: Near-Field Identification of UHF RFIDs with WiFi! In Proc. of ACM MobiCom, New Delhi, India, Oct 29 - Nov 2, 2018.
- 28. Lei Yang, Qiongzheng Lin, Chunhui Duan, Zhenlin An Analog On-tag Hashing: Towards Selective Reading as Hash Primitives for COTS Gen2 RFID Systems In Proc. of ACM MobiCom, Snowbird, UT, USA, Oct. 16-20, 2017.

#### Journal Articles

- 29. Donghui Dai, **Zhenlin An**, Qingrui Pan, Lei Yang Harnessing NFC to Generate Standard Optical Barcodes for NFC-Missing Smartphones in **IEEE Transactions on Mobile Computing**, 2024.
- 30. Yanni Yang, **Zhenlin An**, Jiannong Cao, Yanwen Wang, Pengfei Hu, Guoming Zhang, Xiuzhen Cheng Jump out of Resonance: A Practical NFC Tag Fingerprinting Scheme in **IEEE Transactions on Mobile Computing**, 2024.
- 31. Xiaopeng Zhao, **Zhenlin An**, Qingrui Pan, Lei Yang Understanding Wireless Channels Through NeRF2 in **ACM GetMobile** (Research Highlights), 2024.
- 32. Xiaopeng Zhao, Shen Wang, **Zhenlin An**, Lei Yang Crowdsourced Geospatial Intelligence: Constructing 3D Urban Maps with Satellitic Radiance Fields in **Proc.** of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, 2024.
- 33. Yanni Yang, Pengfei Hu, Jun Luo, **Zhenlin An**⊠, Jiannong Cao, Dongxiao Yu, Xiuzhen Cheng Romeo: Fault Detection of Rotating Machinery Via Fine-Grained Mmwave Velocity Signature in **IEEE Transactions on Mobile Computing**, 2024.
- 34. Xiaopeng Zhao, Guosheng Wang, **Zhenlin An**, Qingrui Pan, Qiongzheng Lin, and Lei Yang Pushing the Boundaries of High-Precision AoA Estimation with Enhanced Phase Estimation Protocol in **IEEE Internet of Things Journal**, 2024.
- 35. Qingrui Pan, **Zhenlin An**, Xiaopeng Zhao, Lei Yang The Power of Precision: High-Resolution Backscatter Frequency Drift in RFID Identification in **IEEE Transactions on Mobile Computing**, 2023.
- 36. Xueyuan Yang, **Zhenlin An**, Xiaopeng Zhao, Lei Yang Transfer Beamforming via Beamforming for Transfer in **IEEE Transactions on Mobile Computing**, Oct 2023.
- 37. Yue Yu, Yepeng Yao, Zhewei Liu, **Zhenlin An**, Biyu Chen, Liang Chen, Ruizhi Chen A Bi-LSTM approach for modelling movement uncertainty of crowdsourced human trajectories under complex urban environments, in **International Journal of Applied Earth Observation and Geoinformation**, Aug 2023.
- 38. **Zhenlin An**, Qiongzheng Lin, Lei Yang, Lei Xie
  Tagcaster: Activating Wireless Voice of Electronic Toll Collection Systems with Zero Start-up Cost in **IEEE/ACM Transactions on Networking** (IEEE/ACM ToN), Apr 2022.
- 39. Qingrui Pan, **Zhenlin An**, Qiongzheng Lin, Lei Yang LSAB: Enhancing Spatio-Temporal Efficiency of AoA Tracking Systems in **ACM Transactions on Sensor Network** (ACM TOSN), Apr 2022.
- 40. **Zhenlin An**<sup>†</sup>, Qiongzheng Lin<sup>†</sup>, Lei Yang, Yi Guo and Ping Li Localizing RFIDs in Pixel Dimensions in **ACM Transactions on Sensor Network** (ACM TOSN), Feb 2022.

- 41. **Zhenlin An**, Lei Yang, Qiongzheng Lin Identifying UHF RFIDs in Range of Readers with WiFi in **IEEE/ACM Transactions on Networking** (IEEE/ACM ToN), Feb 2021.
- 42. Wenzhong Shi, Zhewei Liu, **Zhenlin An**, Pengfei Chen RegNet: a neural network model for predicting regional desirability with VGI data in **International Journal of Geographical Information Science** (IJGIS), 2021
- 43. **Zhenlin An**, Qiongzheng Lin, Lei Yang, Wei Lou and Lei Xie Acquiring Bloom Filters across Commercial RFIDs in Physical Layer in **IEEE/ACM Transactions on Networking** (IEEE/ACM ToN), May 2020.
- 44. **Zhenlin An**<sup>†</sup>, Qiongzheng Lin<sup>†</sup>, Lei Yang, Yi Guo Revitalizing Ultrasonic Positioning Systems for Ultrasound-Incapable Smart Devices in **IEEE Transactions on Mobile Computing** (IEEE TMC), February 2020.
- 45. Ping Li, **Zhenlin An**, Lei Yang, Panlong Yang, QiongZheng Lin RFID Harmonic for Vibration Sensing in **IEEE Transactions on Mobile Computing** (IEEE TMC), January 2019.
- 46. Qiongzheng Lin, Lei Yang, Chunhui Duan, **Zhenlin An**Tash: Towards Selective Reading as Hashing Primitives for Gen2 RFIDs in **IEEE/ACM Transactions on Networking** (IEEE/ACM ToN), April 2019.

## GRANT AND FUNDING

I have contributed to the writing of the following grants during my PhD and Postdoc:

- As a co-PI: Physical Neural Networks, PolyU Internal Funding, HKD 100M, 2023-2025, PI: Dr. Lei Yang.
- NSF: Enhancing Managed Spectrum Sharing with FR3-Cognizant Digital Twins, \$800, 000, NSF #2433914 and #2433915, 10/01/2024 09/30/2027. PI: Dr. Longfei Shangguan and Prof. Kyle Jamieson. The funding is based my submission paper and I contribute the main research objective sections.
- Others: Hong Kong Research Grants Council (RGC) General Research Fund (GRF): "A Protocol-Free Tracking Platform for the Internet of Things" and "Dual-Channel Near-Field Identification Tags: Deep-Learning Reinforced Design and Electronic-Inks Powered Fabrication"

## AWARDS AND HONOURS

• Best Paper Award Runner-up, ACM MobiCom	2023
• Graduate Award, ACM MobiCom	2023
• Best Paper Award, IEEE SECON	2023
• ACM SIGBED China Doctoral Dissertation Award	2022
• Best Demo Award Runner-up (2/20), ACM MobiCom	2022
• Best Paper Award $(1/129)$ , IEEE SECON	2020
• Best-In-Session Presentation Award, IEEE INFOCOM	2019
• Student Travel Grant, IEEE INFOCOM	2019
• Best Demo Award Runner-up (2/27), ACM MobiCom	2018
• Outstanding Graduate, Dalian University of Technology	2017
• Meritorious Winner, Interdisciplinary Contest in Modeling (ICM)	2016
Gold Award, International Visual Designer for Arduino Competition, Labcenter Electronics	2016

## TEACHING

Teaching Assistant at PolyU (Lecturer: Dr. Lei Yang)
 Web Application Design and Development (COMP 3421)

Spring 2021

• Teaching Assistant at PolyU (Lecturer: Dr. Lei Yang) Internet Computing and Applications (COMP 5322) Fall 2020, Spring 2020

• Teaching Assistant at PolyU (Lecturer: Prof. Guiling Wang) Crowdfunding and E-finance (COMP 4141) Fall 2019

Teaching Assistant at PolyU (Lecturer: Dr. Lei Yang)
 Enterprise Web and Internet Computing for Managers (COMP 5321)

Fall 2018

Teaching Assistant at PolyU (Lecturer: Dr. Lei Yang)
 Mobile Computing (COMP 4342)

Spring 2019, Spring 2018, Fall 2017

• Teaching Assistant at DUT (Lecturer: Yingjie Zhang) Microcomputer Assembly and Commissioning 2014-2017

## INVITED TALK

- 2024-10-08, "Neural Radio-Frequency Radiance Fields", Rensselaer Polytechnic Instituter, host: Ish Kumar Jain
- 2024-09-27, "Advancements in Wireless Sensing", Palantir Technologies, host: Dr. Di Wang
- 2024-07-18, "Learning to understand radio environment", Microsoft, host: Prof. Lili Qiu
- 2024-06-18, "RadioTwin", Interdigital Long Island Research Center, host: John Kaewell
- 2023-06-30, "Neural Radio Frequency Radiance Field", Dalian University of Technology, host: Prof. Chi Lin

## Demos and Patents

#### Demos

 Daidong hui, Zhenlin An, Qingrui Pan, Lei Yang Demo: MagCode: Bringing NFC Feature to All Smartphones In Proc. of ACM MobiCom, Madrid, Spain, Oct 2-6, 2023

 Jingyu Tong, Zhenlin An, Xiaopeng Zhao, Sicong Liao, Lei Yang Demo: Radio Frequency Neural Networks for Wireless Sensing In Proc. of ACM MobiCom, Madrid, Spain, Oct 2-6, 2023 (Graduate Award)

3. Daidong hui, **Zhenlin An**, Lei Yang

Demo: Inducing Wireless Chargers to Voice Out, Project Page

In Proc. of ACM MobiCom, Sydney, Australia, Oct 17-22, 2022 (Best Demo Award Runner-up)

4. Zheng Gong, **Zhenlin An**, Jingyu Tong, Donghui Dai, Lei Yang
Demo: Constructing Smart Buildings with In-concrete Backscatter Networks, Project Page

In Proc. of ACM MobiCom, Sydney, Australia, Oct 17-22, 2022 (Best Demo Award Runner-up)

5. Zhenlin An, Qiongzheng Lin, Lei Yang

Demo: Activating Wireless Voice for E-Toll Collection Systems with Zero Start-up Cost In Proc. of **ACM MobiCom**, Los Cabos, Mexico, Oct 21-25, 2019

6. Zhenlin An, Qiongzheng Lin, Lei Yang

Demo: Near-Field Identification of UHF RFIDs with WiFi!

In Proc. of ACM MobiCom, New Delhi, India, Oct 29-Nov 2, 2018 (Best Demo Award Runner-up)

#### **Patents**

1. Donghui Dai, **Zhenlin An**, Qingrui Pan, Lei Yang. CN Patents No. CN116132956B (2023): Near field communication method and system based on camera magnetic field interference

- 2. Yanni Yang, Sen Jia, Dongxiao Yu, Peng Wang, **Zhenlin An**, Huafeng Xu, Jiannong Cao, Entao Sun, Chao Du. CN Patents No. CN115436938A (2023): Passive signal measuring device and measuring method based on millimeter wave radar
- 3. Qingrui Pan, **Zhenlin An**, Lei Yang. CN Patents No. CN115377702A (2022): Antenna array optimization method, device, terminal and storage medium
- 4. **Zhenlin An**, Xueyuan Yang, Lei Yang, Yuan Li, Hong Liu, Jia Jia, Renhui Sun. CN Patents No. CN116263868A (2021): Communication system, communication method and communication device
- 5. Xiaopeng Zhao, **Zhenlin An**, Lei Yang, Jia Jia, Renhui Sun, Hong Liu. CN Patents No. CN116437435A (2021): Positioning server, positioning method and back reflection communication system
- 6. Qiongzheng Lin, **Zhenlin An**, Lei Yang. CN Patents No. CN113050022B (2019): Image positioning method and device based on rotary antenna and terminal equipment

## Professional Activities

## Referee for submissions to journals:

- ACM/IEEE Transactions on Networking (2018-2024)
- IEEE Transactions on Mobile Computing (2022-2024)
- IEEE Internet of Things Journal (2019-2024)
- IEEE Transactions on Dependable and Secure Computing (2023-2024)
- ACM Transactions on Sensor Networks (2022)
- ACM Transactions on Internet of Things (2023)
- IEEE Embedded Systems Letters (2023)
- IEEE Journal of Radio Frequency Identification (2024)
- IEEE Transactions on Information Forensics and Security (2024)
- IEEE Transactions on Automation Science and Engineering (2024)
- Nature Science Reports (2024)
- International Journal of Communication Systems (2023-2024)
- Journal of Computer Science and Technology (2022)

#### Referee for submissions to conference:

- 2024 IEEE ICPADS, ICA3PP, ACM MobiCom Artifacts
- 2023 IEEE ICPADS, ACM MobiCom Artifacts, ACM MobiArch
- 2022 IEEE ICPADS, EAI MobiQuitous, ACM SIGCOMM SRC Juror

#### **Editor Service:**

- 2024 Electronics, Special Issue: Ubiquitous Computing and Mobile Computing, Information Page
- 2023 Sensors, Special Issue: Signal Processing for Sensors, Information Page

## Reference

- Dr. Lei Yang, (Ph.D. Advisor), Email: <a href="mailto:young@tagsys.org">young@tagsys.org</a> Associate Professor in The Hong Kong Polytechnic University
- Dr. Jiannong Cao, (Ph.D. Co-advisor), Email: csjcao@comp.polyu.edu.hk
   Chair Professor in The Hong Kong Polytechnic University
- Dr. Longfei Shangguan, (Postdoc Co-advisor in Princeton), Email: <a href="longfei@pitt.edu">longfei@pitt.edu</a> Assistant Professor in University of Pittsburgh