

# Pengfei Zhou

Assistant Professor  
DINS, School of Computing and Information  
University of Pittsburgh  
Pittsburgh, Pennsylvania, USA

Office: #710, IS Building, 135 N Bellefield Ave  
Mobile: +1 412 2580843  
Email: [pez60@pitt.edu](mailto:pez60@pitt.edu)  
Website: <https://zhoupf.github.io/>

## Research Interests

---

Mobile and Networked Sensing, Mobile Intelligence for Healthcare, Artificial Intelligence of Things and Networks..

## Education

---

Nanyang Technological University	Computer Science and Engineering	Ph.D. 2016
Tsinghua University	Department of Automation	B.E. 2009

## Appointments

---

2022 – present	Assistant Professor	University of Pittsburgh
2021 – 2022	Research Scientist	Advanced Digital Sciences Center, UIUC
2019 – 2021	Research Fellow	Alibaba-NTU Joint Research Institute
2016 – 2019	Chief Executive Officer	Beijing fayfans Technology Co., Ltd.
2011 – 2015	Research Assistant	Nanyang Technological University

## Publications

---

### Conference Papers

- [CHASE'26] "P2Es: Physiology-Conditioned Diffusion for 12-Lead ECG Generation from PPG", in IEEE/ACM CHASE, 2026.  
Hui Ji, Wei Gao, **Pengfei Zhou**.
- [IMWUT'26] "Large Language Model-Guided Semantic Alignment for Human Activity Recognition", in UbiComp/ISWC, 2026.  
Hua Yan, Heng Tan, Yi Ding, **Pengfei Zhou**, Vinod Namboodiri, Yu Yang.
- [IMWUT'25] "Breaking the Resolution Barriers of mmWave Arrays via Null Steering for Sleep Monitoring in Multi-Person Scenarios", in UbiComp/ISWC, Espoo, Finland, October 14-16, 2025.  
Duo Zhang, Xusheng Zhang, Zhehui Yin, **Pengfei Zhou**, Hongliu Yang, Pei Wang, Zhiyun Yao, Junzhe Wang, Fusang Zhang, Daqing Zhang.
- [SenSys'24] "Advancing PPG-Based Continuous Blood Pressure Monitoring from a Generative Perspective", in ACM SenSys, Hangzhou, China, November 4-7, 2024.  
Hui Ji and **Pengfei Zhou**.
- [MobiSys'24] "Invisible Optical Adversarial Stripes on Traffic Sign against Autonomous Vehicles", in ACM MobiSys, Tokyo, Japan, June 3-7, 2024.  
Dongfang Guo, Yuting Wu, Yimin Dai, **Pengfei Zhou**, Xin Lou, Rui Tan.
- [MobiCom'23] "Practically Adopting Human Activity Recognition", in ACM MobiCom, Madrid, Spain, October 2-6, 2023.  
Huatao Xu, **Pengfei Zhou**, Rui Tan and Mo Li.
- [SmartGridComm'22] "Detecting Cyber Attacks in Smart Grids with Massive Unlabeled Sensing Data", in IEEE SmartGridComm, Singapore, October 25-28, 2022.  
Hanyu Zeng, Zhen Wei Ng, **Pengfei Zhou**, Xin Lou, David K.Y. Yau, Marianne Winslett.
- [MobiCom'22] "Experience: Adopting Indoor Outdoor Detection in On-demand Food Delivery Business", in ACM MobiCom, Sydney, Australia, October 17-21, 2022.  
**Pengfei Zhou**, Yi Ding, Yang Li, Mo Li, Guobin Shen, Tian He.

9. [SenSys'21] "LIMU-BERT: Unleashing the Potential of Unlabeled Data for IMU Sensing Applications", in ACM SenSys, Coimbra, Portugal, November 15-17, 2021.  
Huatao Xu, **Pengfei Zhou**, Rui Tan, Mo Li, Guobin Shen.
10. [UbiComp'19] "Amateur: Augmented Reality based Vehicle Navigation System", in ACM UbiComp, Vol.2, No.4, Article 155, London, UK, December 2019.  
Chu Cao, Zhenjiang Li, **Pengfei Zhou**, Mo Li.
11. [ICCCN'17] "Memento: An Emotion Driven Lifelogging System with Wearables", in IEEE ICCCN, Pages 1-9, Vancouver, Canada, July-August 2017.  
Shiqi Jiang, **Pengfei Zhou**, Zhenjiang Li, Mo Li.
12. [INFOCOM'17] "Large-Scale Invisible Attack on AFC Systems with NFC-Equipped Smartphones", in IEEE INFOCOM, Atlanta, USA, May 2017.  
Fan Dang, **Pengfei Zhou**, Zhenhua Li, Ennan Zhai, Aziz Mohaisen, Qingfu Wen, Mo Li.
13. [MobiCom'16] "DopEnc: Acoustic-based Encounter Profiling using Smartphones", in ACM MobiCom, New York, USA, October 3-7, 2016.  
Huanle Zhang, Wan Du, **Pengfei Zhou**, Mo Li, Prasant Mopahatra.
14. [IWCMC'16] "A Real Independent Centimeter-grade 3D Indoor Localization System on Smartphone", in 2016 International Wireless Communications and Mobile Computing Conference, pp. 824-829, 2016.  
Fan Dang, Xuan Ding, **Pengfei Zhou**.
15. [ICDCS'15] "Urban Traffic Monitoring with the Help of Bus Riders", in IEEE ICDCS 2015. Columbus, Ohio, USA, 2015.  
**Pengfei Zhou**, Shiqi Jiang, Mo Li.
16. [MobiCom'14] "Use It Free: Instantly Knowing Your Phone Attitude", in ACM MobiCom, Maui, Hawaii, USA, September 2014.  
**Pengfei Zhou**, Mo Li, Guobin Shen.
17. [SenSys'12] "IODetector: A Generic Service for Indoor Outdoor Detection", in ACM SenSys, Toronto, Canada, November 2012.  
**Pengfei Zhou**, Yuanqing Zheng, Zhenjiang Li, Mo Li, Guobin (Jacky) Shen.
18. [MobiSys'12] "How Long to Wait?: Predicting Bus Arrival Time with Mobile Phone based Participatory Sensing", in ACM MobiSys, Pages 379-392, Low Wood Bay, United Kingdom, June 2012.  
**Pengfei Zhou**, Yuanqing Zheng, Mo Li.

## Journal Articles

1. "Resilient Path Tracking of Autonomous Driving under Few-shot Action Space Attacks", in ACM Transactions on Cyber-Physical Systems, 2025.  
Yuting Wu, Xin Lou, **Pengfei Zhou**, Rui Tan, Zbigniew T. Kalbarczyk, Ravishankar K. Iyer.
2. "Invisible Adversarial Stripes on Traffic Sign: Threat and Defense for Autonomous Vehicles", in ACM Transactions on Sensor Networks, October 2025.  
Dongfang Guo, Yuting Wu, **Pengfei Zhou**, Xin Lou, Rui Tan.
3. "Memento: An Emotion Driven Lifelogging System with Wearables", in *ACM Transactions on Sensor Networks*, Vol.15, Issue 1, Article 8, January 2019.  
Shiqi Jiang, **Pengfei Zhou**, Zhenjiang Li, and Mo Li.
4. "Think Like A Graph: Real-Time Traffic Estimation at City-Scale", in *IEEE Transactions on Mobile Computing*, Vol. 18, Issue 10, October 2019.  
Zhidan Liu, **Pengfei Zhou**, Zhenjiang Li, and Mo Li.
5. "Pricing Data Tampering in Automated Fare Collection with NFC-equipped Smartphones", in *IEEE Transactions on Mobile Computing*, Vol. 18, Issue 5, May 2019.  
Fan Dang, Ennan Zhai, Zhenhua Li, **Pengfei Zhou**, Aziz Mohaisen, Kaigui Bian, Qingfu Wen, and Mo Li.

6. "An Acoustic-based Encounter Profiling System", in *IEEE Transactions on Mobile Computing*, Vol 17, Issue 8, Pages 1750-1763, August 2018.  
Huanle Zhang, Wan Du, **Pengfei Zhou**, Mo Li, and Prasant Mohapatra.
7. "A Participatory Urban Traffic Monitoring System: The Power of Bus Riders", in *IEEE Transactions on Intelligent Transportation Systems*, Vol.18, Issue 10, October 2017.  
Zhidan Liu, Shiqi Jiang, **Pengfei Zhou**, and Mo Li.
8. "IODetector: A Generic Service for Indoor/Outdoor Detection", in *ACM Transactions on Sensor Networks*, Vol. 11, Issue 2, Article 28, February 2015.  
Mo Li, **Pengfei Zhou**, Yuanqing Zheng, Zhenjiang Li, and Guobin (Jacky) Shen.
9. "How Long to Wait?: Predicting Bus Arrival Time with Mobile Phone based Participatory Sensing", in *IEEE Transactions on Mobile Computing*, Vol. 13, Issue 6, Pages 1228-1241, June 2014.  
**Pengfei Zhou**, Yuanqing Zheng, and Mo Li.

### Other Papers: Preprints, Workshop Papers, Demos, Posters and Technical Reports

10. [SenSys'24] "Demo Abstract: Advancing PPG-Based Continuous Blood Pressure Monitoring from a Generative Perspective", in ACM SenSys, Demo Session, Hangzhou, China, November 4-7, 2024.  
Hui Ji, **Pengfei Zhou**.
11. [SenSys'24] "Demo Abstract: Invisible Adversarial Stripes against Traffic Sign Recognition in Autonomous Driving", in ACM SenSys, Demo Session, Hangzhou, China, November 4-7, 2024.  
Dongfang Guo, Yuting Wu, Yimin Dai, **Pengfei Zhou**, Xin Lou, Rui Tan.
12. [Preprint] "Language-centered Human Activity Recognition", in arXiv preprint arXiv:2410.00003, October 2024.  
Hua Yan, Heng Tan, Yi Ding, **Pengfei Zhou**, Vinod Namboodiri, Yu Yang.
13. [Preprint] "Unleashing the Power of Unlabeled Data: A Self-supervised Learning Framework for Cyber Attack Detection in Smart Grids", in arXiv preprint arXiv:2405.13965, May 2024.  
Hanyu Zeng, **Pengfei Zhou**, Xin Lou, Zhen Wei Ng, David K.Y. Yau, Marianne Winslett.
14. [ICCCPS'23] "Effects of Learning-Based Action-Space Attacks on Autonomous Driving Agents", in ACM/IEEE ICCPS (with CPS-IoT Week 2023), Work in Progress (WIP) Session, May 9-12, 2023.  
Yuting Wu, Xin Lou, **Pengfei Zhou**, Rui Tan, Zbigniew T. Kalbarczyk, Ravishankar K. Iyer.
15. [R2HCAI'23] "The Measurement of Knowledge in Knowledge Graphs", in the AAAI 2023 Workshop on Representation Learning for Responsible Human-Centric AI, Washington DC, USA, February 2023.  
Jason Xiaotian Dou, Haiyi Mao, Runxue Bao, Paul Pu Liang, Xiaoqing Tan, Shiyi Zhang, Minxue Jia, **Pengfei Zhou**, Zhi-Hong Mao.
16. [MiSeNet'17] "NFC-enabled Attack on Cyber Physical Systems: A Practical Case Study", in the 6th IEEE Annual International Workshop on Mission-Oriented Wireless Sensor and Cyber-Physical System Networking, May. 1-4, 2017.  
Fan Dang, **Pengfei Zhou**, Zhenhua Li, Yunhao Liu.
17. [VLCS'14] "Harnessing Visible Light: Characterization and Applications", in the 1st ACM Workshop on Visible Light Communication Systems (VLCS), Demo Session, Maui, Hawaii, USA, September 2014.  
**Pengfei Zhou**, Zhenjiang Li, Yuanqing Zheng, and Mo Li
18. [MobiCom'14] "Demo: instant phone attitude estimation and its applications", in ACM MobiCom, Demo Session, Maui, Hawaii, USA, September 2014.  
**Pengfei Zhou**, Weiming Chan, Shiqi Jiang, Jiajue Ou, Mo Li, Guobin Shen.
19. [SECON'14] "Demo Abstract: Wind Measurements for Water Quality Studies in Urban Reservoirs", in IEEE SECON, Demo Session, Singapore, June 30~July 3, 2014.  
Wan Du, Mo Li, Zikun Xing, Bingsheng He, Lloyd Hock Chye Chua, Zhenjiang Li, Yuanqing Zheng and **Pengfei Zhou**.
20. [SenSys'13] "Poster Abstract: Smart traffic monitoring with participatory sensing", in ACM SenSys, Poster Session, Rome, Italy, November 11-14, 2013.

**Pengfei Zhou**, Zhiyuan Chen, Mo Li.

21. [APSys'13] "Demo Abstract: Building Smart Transportation with Participatory Sensing", in the 4th Asia-Pacific Workshop on Systems, Demo Session, Singapore, July 2013.

**Pengfei Zhou** and Mo Li.

22. [SenSys'12] "Demo Abstract: IODetector – A Generic Service for Indoor Outdoor Detection", In ACM SenSys, Demo Session, Toronto, Canada, November 2012.

**Pengfei Zhou**, Yuanqing Zheng, Zhenjiang Li, Mo Li, and Guobin (Jacky) Shen.

23. [MobiSys'12] "Demo - How Long to Wait?: Predicting Bus Arrival Time with Mobile Phone based Participatory Sensing", in ACM MobiSys, Demo Session, Low Wood Bay, United Kingdom, June 2012.

**Pengfei Zhou**, Yuanqing Zheng, and Mo Li.

## Teaching

---

- University of Pittsburgh
- APPLIED DEEP LEARNING: Summer 2026  
ALGORITHM DESIGN: Spring 2026, Fall 2025, Spring 2025, Fall 2024, Fall 2023  
NETWORKS AND INFORMATION: Spring 2026  
APPLICATIONS OF NETWORKS: Spring 2023

## Honors and Awards

---

- Best Demo Award, ACM SenSys, Hangzhou, 2024.
- Test of Time Award, ACM SenSys, Boston, 2022.
- GetMobile Research Highlight, ACM GetMobile Magazine, 2022.
- Best Paper Award Runner-up, ACM SenSys, 2021.
- Recipient of millions of RMB investment, Beijing, 2017.
- Silver Medal, first innovation and entrepreneurship competition for Tsinghua alumni, Beijing, 2016.
- Best Demo Award, IEEE SECON, Singapore, 2014.
- Outstanding Press Operation Volunteer for Beijing Olympics, Water Cube, Beijing, 2008.
- Vice President, Student Association of the Department, Tsinghua University, Beijing, 2008.

## Professional Services

---

### Journal Editorship

- ACM Transactions on Internet of Things (Associate Editor, 2025-now)

### Conference Organization

- Local Chair, CHASE 2026: The IEEE/ACM conference on Connected Health: Applications, Systems and Engineering Technologies
- TPC co-chair, PICASSO 2025: Eighth International Workshop on Physics Embedded AI Solutions in Mobile Computing, co-located with Ubicomp/ISWC 2025
- Registration Chair, HotMobile 2025: The International Workshop on Mobile Computing Systems and Applications
- TPC Track co-Chair, ICPADS 2024: The International Conference on Parallel and Distributed Systems (Interdisciplinary Distributed Systems and Applications track)
- PhD Forum co-Chair, IPSN 2023: The ACM/IEEE International Conference on Information Processing in Sensor Networks
- Demo and Poster co-Chair, ICDCS 2023: The IEEE International Conference on Distributed Computing Systems

### TPC Member

- SECON 2026: Annual IEEE International Conference on Sensing, Communication, and Networking
- MobiSys 2025: The ACM International Conference on Mobile Systems, Applications, and Services
- SenSys 2024, 2025: The ACM Conference on Embedded Artificial Intelligence and Sensing Systems
- IoTDI 2023, 2024 (merged to ACM SenSys in 2025): The ACM/IEEE Conference on Internet of Things Design and Implementation
- TheWebConf 2023, 2026 (WWW 2023, 2026): The ACM Web Conference (Systems and Infrastructure for Web, Mobile Web, and Web of Things Track)
- ICDCS 2024: The IEEE International Conference on Distributed Computing Systems
- SmartGridComm 2024: The IEEE International Conference on Communications, Control, and Computing Technologies for Smart Grids

## Talks

---

- "Mobile Healthcare in the Wild", Sensforge, invited talk, Pittsburgh, April 2026.
- "Beyond Resolution PPG Sensing for Continuous Blood Pressure Monitoring", Sensor Data Science and AI Seminars, University of Georgia, USA, December 2024.
- "Beyond Resolution PPG Sensing for Continuous Blood Pressure Monitoring", University of Pittsburgh, USA, October 2024.
- "Practical Mobile Sensing at Scale", University of Pittsburgh, DINS Speaker Series & Telecom Seminar, USA, March 2024.
- "Practical Mobile Sensing at Scale", Pittsburgh, USA, October 2023.
- "IODetector - From Research to Practice", ACM SenSys Test of Time Award talk, Boston, USA, November 2022.
- "Adopting Indoor Outdoor Detection for On-demand Food Delivery Business", ACM MobiCom, Sydney, Australia, October 2022.
- "Mobile Crowdsensing", Online, School of Computing and Engineering, Nanyang Technological University, Singapore, May 2022.
- "Unleashing the Potential of Unlabeled Data for IMU Sensing Applications", Global Innovation Exchange, Tsinghua University, China, November 2021.
- "Intelligent Mobile Sensing: From Research to Practice", School of Computing and Information Systems, Singapore Management University, Singapore, July 2021.
- "Mobile Sensing and Applications: Industry Opportunities", School of Computer Science and Engineering, Nanyang Technological University, Singapore, 2017.