Di Duan

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**Research Interests: Wearable Sensing | Wireless Sensing | Hardware-Software Co-Design System | Healthcare+AI
Mobile Sensing × Human-Computer Interaction**
Special Focus: Pioneering Sensing Technologies | Affordable, Secure, and User-friendly Applications | Health
👁 **Research Vision: Advancing the next generation of human-machine-environment interaction through ubiquitous mobile systems—making it more accessible, affordable, and reliable.**

Positions

The Chinese University of Hong Kong (CUHK)   Aug. 2024 – Present
Postdoctoral Fellow (Full-Time) in the Department of Information Engineering   *Hong Kong*
Advisor: Prof. Guoliang Xing.

Centre for Perceptual and Interactive Intelligence (CPII)   Nov. 2024 – Apr. 2025
Postdoctoral Fellow   *Hong Kong*
Mentor: Prof. Guoliang Xing.

Education

City University of Hong Kong (CityU)   Aug. 2020 – Jul. 2024
Ph.D. in Computer Science   *Hong Kong*
Supervised by Prof. Weitao Xu, co-supervised by Prof. Xiaohua Jia. I also work closely with Prof. Tianxing Li at MSU.

Hong Kong University of Science and Technology (HKUST)   Aug. 2018 – Nov. 2019
M.Sc. in Electronic Engineering   *Hong Kong*

Harbin Engineering University (HEU)   Aug. 2014 – Aug. 2018
B.Eng. in Optoelectronic Information Science and Engineering   *Harbin, Heilongjiang, China*

Selected Awards

✸ **Outstanding Research Thesis Award 2024**   *CityU, 2025*
🏆 **Best Paper Honorable Mention Award**   *SenSys'25, 2025*
🏆 **Honorable Mention Award**   *MobileHCI'24, 2024*
🏆 **Mark Weiser Best Paper Award**   *PerCom'23, 2023*
🏆 **Best Demo Runner-up Award**   *SenSys'24, 2024*
✸ **Elsevier Monetary Award**   *Elsevier, 2023*
✸ **Studentship**   *CityU, 2020*

Publications

[UIST'25] PricoEye: The Eye of Primary Colors for Fast and Convenient 3D Reconstruction of Fine-grained Palmprint on Smartphones

Di Duan*, Kaicheng Xiao*, Lixing He, Wei Gao, Guoliang Xing

2025

[SenSys'25] Argus: Multi-View Egocentric Human Mesh Reconstruction Based on Stripped-Down Wearable mmWave Add-on

Di Duan*, Shengzhe Lyu*, Mu Yuan, Hongfei Xue, Tianxing Li, Weitao Xu, Kaishun Wu, Guoliang Xing

🏆 **Best Paper Honorable Mention Award (5/235)**, *2025*

[MobiSys'24] F^{2}Key: Dynamically Converting Your Face into a Private Key Based on COTS Headphones for Reliable Voice Interaction

Di Duan, Zehua Sun, Tao Ni, Shuaicheng Li, Xiaohua Jia, Weitao Xu, Tianxing Li

2024

[IMWUT/UbiComp'24] EarSE: Bringing Robust Speech Enhancement to COTS Headphones

Di Duan, Yongliang Chen, Weitao Xu, Tianxing Li

2024

[PerCom'23] EMGSense: A Low-Effort Self-Supervised Domain Adaptation Framework for EMG Sensing
Di Duan, Huanqi Yang, Guohao Lan, Tianxing Li, Xiaohua Jia, Weitao Xu

🏆 **Best Paper Award (1/159)**, *2023*

[MobileHCI'24] Medusa3D: The Watchful Eye Freezing Illegitimate Users in Virtual Reality Interactions
Aochen Jiao*, **Di Duan*** (*co-first authors), Weitao Xu

🏆 **Honorable Mention Award (3/141)**, *2024*

[INFOCOM'25] iRadar: Synthesizing Millimeter-Waves from Wearable Inertial Inputs for Human Gesture Sensing
Huanqi Yang, Mingda Han, Xinyue Li, **Di Duan**, Tianxing Li, Weitao Xu

2025

[TMC] Mitigating Tail Latency for On-Device Inference with Load-Balanced Heterogeneous Models
Mu Yuan, Lan Zhang, **Di Duan**, Liekang Zeng, Miao-Hui Song, Zichong Li, Guoliang Xing, Xiang-Yang Li

2025

[SIGCOMM'25] SCX: Stateless KV-Cache Encoding for Cloud-Scale Confidential Transformer Serving
Mu Yuan, Lan Zhang, Liekang Zeng, Siyang Jiang, Bufang Yang, **Di Duan**, Guoliang Xing

2025

[MobiCom'24] RF-Egg: An RF Solution for Fine-Grained Multi-Target and Multi-Task Egg Incubation Sensing
Zehua Sun, Tao Ni, Yongliang Chen, **Di Duan**, Kai Liu, Weitao Xu

2024

[TMC] Scenario-Adaptive Key Establishment Scheme for LoRa-enabled IoV Communications
Huanqi Yang, **Di Duan**, Hongbo Liu, Chengwen Luo, Yuezhong Wu, Wei Li, Albert Y. Zomaya, Linqi Song, Weitao Xu

2024

[TOSN] mmSign: mmWave-based Few-Shot Online Handwritten Signature Verification
Mingda Han, Huanqi Yang, Tao Ni, **Di Duan**, Mengzhe Ruan, Yongliang Chen, Jia Zhang, Weitao Xu

2023

[CSCAIoTSys] EarDA: Towards Accurate and Data-Efficient Earable Activity Sensing
Shengzhe Lyu, Yongliang Chen, **Di Duan**, Renqi Jia, Weitao Xu

2024

[SenSys'24 Demo] Myotrainer: Muscle-Aware Motion Analysis and Feedback System for In-Home Resistance Training
Yuting He, Xinyan Wang, Mu Yuan, **Di Duan**, Doris S. F. Yu, Guoliang Xing, Hongkai Chen

🏆 **Best Demo Runner-up Award**, *2024*

Professional Services

Organizing Committee:
2024: Publicity Chair of BodySys Workshop (MobiSys)

Technical Program Committee:
2025: SenSys (Demo)
2024: ICPADS, CHCHI (Chinese CHI)

Artifact Evaluation Committee:
2025: MobiCom
2024: MobiSys

Conference Review:
2025: MobiCom, CHI, UbiComp, SIGCOMM
2024: IPSN, IOTDI, ICDCS, DCOSS-IoT, SenSys
2023: IPSN

Journal Review:
2025: IMWUT, TMC (IEEE Trans), HEALTH (ACM Trans), TIOT (ACM Trans)
2024: TMC (IEEE Trans), HEALTH (ACM Trans), Ad Hoc Networks

Reference

Guoliang Xing (Postdoc Advisor)   ACM Fellow, IEEE Fellow, HKIE Fellow
Professor   *The Chinese University of Hong Kong*
Email: glxing@ie.cuhk.edu.hk

Xiaohua Jia (Ph.D. Advisor)   IEEE Fellow, ACM Distinguished Member
Chair Professor, Former Head of Department of Computer Science   *City University of Hong Kong*
Email: csjia@cityu.edu.hk

Weitao Xu (Ph.D. Advisor)   IEEE Senior Member
Associate Professor   *City University of Hong Kong*
Email: weitaoxu@cityu.edu.hk

Tianxing Li (Close Collaborator)
Assistant Professor   *Michigan State University*
Email: litianx2@msu.edu