Di Duan

✉ duandiacademic@gmail.com | 🌐 Personal Homepage | G Google Scholar | in LinkedIn

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 Honors and Awards

🏆 **ACM SIGBED China Doctoral Dissertation Award (3 awardees nationwide)**   *ACM China, 2025*
   Contribution and Criteria: The award recognizes the author(s) of a doctoral dissertation that has made significant breakthroughs in fundamental theory or applied foundational research in the fields of embedded systems, Internet of Things (IoT), Electronic Design Automation (EDA), Cyber-Physical Systems (CPS), and related areas, or that has demonstrated important innovations in key technologies or application technologies. [Official Website]

✸ **Outstanding Research Thesis Award 2024**   *CityU, 2025*
   Contribution and Criteria: The award is offered by the Chow Yei Ching School of Graduate Studies in recognition of research students who have produced a thesis of outstanding quality and achievement in their relevant research area.

🏆 **Best Paper Honorable Mention Award**   *ACM SenSys'25, 2025*

🏆 **Honorable Mention Award**   *ACM MobileHCI'24, 2024*

🏆 **Mark Weiser Best Paper Award**   *IEEE PerCom'23, 2023*

🏆 **Best Demo Runner-up Award**   *ACM SenSys'24, 2024*

✸ **Elsevier Monetary Award**   *Elsevier, 2023*

✸ **Studentship**   *CityU, 2020*

Travel Grants

⚲ **N2Women Workshop Travel Grant**   *ACM MobiSys'24, 2024*
   Description: The grant supports attendance at the 14th N2Women Workshop, fostering networking, mentorship, and research for women, underrepresented minorities, and explicitly encouraged males who support women's career development in the field. [Official Website]

Publications

Latest publication list is available at Google Scholar ↗ and my Homepage ↗.

* indicates co-primary authors, ＿＿ indicates students under my supervision.

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

<u>Di Duan</u>*, 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

<u>Di Duan</u>*, 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

<u>Di Duan</u>, Zehua Sun, Tao Ni, Shuaicheng Li, Xiaohua Jia, Weitao Xu, Tianxing Li

2024

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

<u>Di Duan</u>, Yongliang Chen, Weitao Xu, Tianxing Li

2024

[PerCom'23] EMGSense: A Low-Effort Self-Supervised Domain Adaptation Framework for EMG Sensing

<u>Di Duan</u>, 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

<u>Aochen Jiao</u>*, <u>Di Duan</u>* (*co-first authors), Weitao Xu

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

[SenSys'26] (Just Accepted) COACH: Adaptive Robust Human-Robot Collaboration for Efficient Smart Manufacturing

Hui Wang, Liekang Zeng, Zhiwen Yu, Yao Zhang, <u>Di Duan</u>, Mu Yuan, Bin Guo, Guoliang Xing

2026

[RTSS'25] (Just Accepted) Grape: Efficient Spatiotemporal Prediction Services with Stale Sensing Streams

Liekang Zeng, Yunchao Liu, Shengyuan Ye, Mu Yuan, <u>Di Duan</u>, Xu Chen, Guoliang Xing

2025

[TMC] (Just Accepted) SwiftChannel: Algorithm-Hardware Co-Design for Deep Learning-Based 5G Channel Estimation

Shengzhe Lyu, Yuhan She, <u>Di Duan</u>, Tao Ni, Yu Hin Chan, Chengwen Luo, Ray C. C. Cheung, Weitao Xu

2025

[INFOCOM'25] iRadar: Synthesizing Millimeter-Waves from Wearable Inertial Inputs for Human Gesture Sensing

Huanqi Yang, Mingda Han, Xinyue Li, <u>Di Duan</u>, Tianxing Li, Weitao Xu

2025

[TMC] Mitigating Tail Latency for On-Device Inference with Load-Balanced Heterogeneous Models

Mu Yuan, Lan Zhang, <u>Di Duan</u>, 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, <u>Di Duan</u>, 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, <u>Di Duan</u>, Kai Liu, Weitao Xu

2024

[TMC] Scenario-Adaptive Key Establishment Scheme for LoRa-enabled IoV Communications

Huanqi Yang, <u>Di Duan</u>, 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, <u>Di Duan</u>, Mengzhe Ruan, Yongliang Chen, Jia Zhang, Weitao Xu

2023

[CSCAIoTSys] EarDA: Towards Accurate and Data-Efficient Earable Activity Sensing

Shengzhe Lyu, Yongliang Chen, <u>Di Duan</u>, 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, <u>Di Duan</u>, Doris S. F. Yu, Guoliang Xing, Hongkai Chen

Mentoring Experience

Aochen Jiao	CityU CS Research Assistant, now Ph.D. candidate at The University of Sydney
2023–2024	**Research Output:** a MobileHCI'24 paper (with **Honorable Mention Award**)

Teaching Experience

IERG6200 **Advanced Topics in Computer Networks** (CUHK), **Course Administrator**
2025 R1 - Curated a dynamic list of cutting-edge research papers for the advanced topics in computer networks; mentored students through presentations with targeted feedback; evaluated course projects and final exams

IERG6200 **Advanced Topics in Computer Networks** (CUHK), **Course Administrator**
2024 R1 - Curated a dynamic list of cutting-edge research papers for the advanced topics in computer networks; mentored students through presentations with targeted feedback; evaluated course projects and final exams

CS1302 **Introduction to Computer Programming** (CityU), **Teaching Assistant**
2023/24 Sem. B - Held office hours; graded and wrote solutions for assignments and exams

CS1302 **Introduction to Computer Programming** (CityU), **Tutor**
2023/24 Sem. A - Held office hours; taught lab tutorials; graded course projects and exams

CS1302 **Introduction to Computer Programming** (CityU), **Teaching Assistant**
2022/23 Sem. A&B - Held office hours; graded and wrote solutions for assignments and exams

CS1302 **Introduction to Computer Programming** (CityU), **Tutor**
2021/22 Sem. B - Held office hours; taught lab tutorials; graded course projects and exams

CS1302 **Introduction to Computer Programming** (CityU), **Teaching Assistant**
2021/22 Sem. A - Held office hours; graded and wrote solutions for assignments and exams

CS1302 **Introduction to Computer Programming** (CityU), **Teaching Assistant**
2020/21 Sem. A&B - Held office hours; graded and wrote solutions for assignments and exams

Professional Services

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

Technical Program Committee:
2026:   MobiSys, ASSETS, MobiQuitous, CHASE
2025:   ICPADS, SenSys (Demo)
2024:   ICPADS, CHCHI (Chinese CHI)

Artifact Evaluation Committee:
2025:   MobiCom
2024:   MobiSys

Conference Review:
2026:   MobiSys, ASSETS, MobiQuitous, CHASE
2025:   MobiCom, CHI, UbiComp, SIGCOMM, ICPADS
2024:   IPSN, IOTDI, ICDCS, ICPADS, DCOSS-IoT, SenSys
2023:   IPSN

Journal Review:
Distinguished Reviewer Board Member   TOSN (ACM Trans), 2026–Present
2026:   TMC (IEEE Trans); HEALTH (ACM Trans)
2025:   IMWUT; TMC, TSC (IEEE Trans); HEALTH, TIOT (ACM Trans)

Invited Talks

Wireless-Enhanced Ubiquitous Wearable Sensing System

2025 Embedded Intelligence Summit (ACM SIGBED China)   📍 *Zhengzhou, Henan, 2025*

Reference

Guoliang Xing (Postdoc Advisor)   ACM Fellow, IEEE Fellow

Professor   *The Chinese University of Hong Kong*

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📞 **Phone:** (852) 3943-8474   📠 **Fax:** (852) 2603-5032

Xiaohua Jia (Ph.D. Advisor)   ACM Fellow, IEEE Fellow

Chair Professor, Former Head of CS Department   *City University of Hong Kong*

✉ **Email:** csjia@cityu.edu.hk
📞 **Phone:** (852) 3442-9670   📠 **Fax:** (852) 3442-0503

Weitao Xu (Ph.D. Advisor)   IEEE Senior Member

Associate Professor   *City University of Hong Kong*

✉ **Email:** weitaoxu@cityu.edu.hk
📞 **Phone:** (852) 3442-8626   📠 **Fax:** (852) 3442-0503