

# 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

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### The Chinese University of Hong Kong (CUHK)

Postdoctoral Fellow (Full-Time) in the Department of Information Engineering  
Advisor: Prof. [Guoliang Xing](#).

Aug. 2024 – Present  
*Hong Kong*

### Centre for Perceptual and Interactive Intelligence (CPII)

Postdoctoral Fellow  
Mentor: Prof. [Guoliang Xing](#).

Nov. 2024 – Apr. 2025  
*Hong Kong*

## Education

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### City University of Hong Kong (CityU)

Ph.D. in Computer Science

Supervised by Prof. [Weitao Xu](#), co-supervised by Prof. [Xiaohua Jia](#). I also work closely with Prof. [Tianxing Li](#) at MSU.

Aug. 2020 – Jul. 2024  
*Hong Kong*

### Hong Kong University of Science and Technology (HKUST)

M.Sc. in Electronic Engineering

Aug. 2018 – Nov. 2019  
*Hong Kong*

### Harbin Engineering University (HEU)

B.Eng. in Optoelectronic Information Science and Engineering

Aug. 2014 – Aug. 2018  
*Harbin, Heilongjiang, China*

## Selected Honors and Awards

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### 🏆 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

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### ♀️ 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

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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**

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<sup>2</sup>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**

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

Hui Wang, Liekang Zeng, Zhiwen Yu, Yao Zhang, Di Duan, 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, Di Duan, Xu Chen, Guoliang Xing

2025

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

Shengzhe Lyu, Yuhan She, Di Duan, 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, 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

## Mentoring Experience

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**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

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**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

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### Organizing Committee:

**2024:** Publicity Chair of BodySys Workshop (MobiSys)

### Technical Program Committee:

**2026:** MobiSys, ASSETS, MobiQuitous, CHASE,  
MobiDx (MobiCom Workshop)

**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

**2026:** TOSN (ACM Trans), 2026–Present

TMC (IEEE Trans); HEALTH (ACM Trans); TOSN (ACM Trans);

TIOT (ACM Trans); TPCI (CCF Trans)  
IMWUT; TMC, TSC (IEEE Trans); HEALTH, TIOT (ACM Trans)  
TMC (IEEE Trans), HEALTH (ACM Trans), Ad Hoc Networks

2025:

2024:

## Invited Talks

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### Wireless-Enhanced Ubiquitous Wearable Sensing System

2025 Embedded Intelligence Summit (ACM SIGBED China)

📍 *Zhengzhou, Henan, 2025*

## Reference

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**Guoliang Xing** (Postdoc Advisor)

**Professor**

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

ACM Fellow, IEEE Fellow

*The Chinese University of Hong Kong*

**Xiaohua Jia** (Ph.D. Advisor)

**Chair Professor, Former Head of CS Department**

✉ **Email:** csjia@cityu.edu.hk

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ACM Fellow, IEEE Fellow

*City University of Hong Kong*

**Weitao Xu** (Ph.D. Advisor)

**Associate Professor**

✉ **Email:** weitaoxu@cityu.edu.hk

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IEEE Senior Member

*City University of Hong Kong*