

Yi Ding

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RESEARCH INTERESTS

- My research interests lie at the intersection of **mobile computing**, **wireless sensing**, and **machine learning**. I focus on building **perceptive mobile AI** systems that can sense and understand the *physical environment* and *human behavior*, enabling intelligent and context-aware applications.

EMPLOYMENT

Assistant Professor in Computer Science <i>University of Texas at Dallas, Richardson, TX, USA</i>	Aug. 2023 - Now
Postdoctoral Associate <i>Massachusetts Institute of Technology (MIT), MA, USA</i> Advisor: Prof. Alex “Sandy” Pentland (MIT Media Lab, MIT IDSS)	Oct. 2022 - Jul. 2023

EDUCATION

Ph.D. of Computer Science <i>University of Minnesota, USA</i> Advisor: Prof. Tian He (IEEE/ACM Fellow)	Sep. 2016 - Oct. 2022
Visiting Student <i>Rutgers University, USA</i> Host: Prof. Desheng Zhang	Feb. 2022 - Oct. 2022
Master of Control Science and Engineering <i>Zhejiang University, China</i> Advisor: Prof. Zuhua Xu	Sep. 2013 - Jun. 2016
Visiting Student <i>IMT Lucca, Italy</i> Host: Prof. Alberto Bemporad (IEEE Fellow)	Aug. 2015 - Oct. 2015
Bachelor of Control Science and Engineering <i>Zhejiang University, China</i>	Sep. 2009 - Jun. 2013 with Outstanding Thesis Award

HONORS & AWARDS

- CPS Rising Star, CPS Rising Stars Workshop, University of Virginia, 2022
- Outstanding Paper Award, IEEE RTSS, 2021
- Outstanding Thesis Award, Zhejiang University, 2013

PUBLICATIONS

Highlights: 31 papers, featuring 19 papers in top-tier conferences, including NSDI, SIGCOMM, MobiCom, UbiComp, RTSS, VLDB, SIGKDD, and WWW, with 1 outstanding paper award. The authors with * are the students working primarily with me.

Preprints

[P2] Ziqi Liu*, Pei Zeng*, **Yi Ding**
ArXiv’25 *Predictability-Aware Compression and Decompression Framework for Multichannel Time Series Data*

[P1] Hua Yan, Heng Tan, **Yi Ding**, Pengfei Zhou, Vinod Namboodiri, Yu Yang
ArXiv’24 *Language-centered Human Activity Recognition*

Conference

[C24] Zhiqing Hong, Weibing Wang, Anlan Yu, S. Zhong, H. Wang, **Yi Ding**, Tian He, Desheng Zhang
MobiCom’25 *Experience Paper: Nationwide Human Behavior Sensing in Last-mile Delivery*
 Proceedings of the 31th Annual International Conference on Mobile Computing and Networking

[C23] Feng Lyu, Lijuan He, Mingliu Liu, Sijing Duan, H. Wu, J. Zhou, **Yi Ding**, Zaixun Ling, Yibo Cui
MobiCom’25 *Auto-UIT: Automated UAV Inspection Trajectory Generation from Noisy Sparse 3D Point Cloud*
 Proceedings of the 31th Annual International Conference on Mobile Computing and Networking

[C22] Zhiqing Hong, Yiwei Song, Zelong Li, Anlan Yu, S. Zhong, **Yi Ding**, Tian He, Desheng Zhang
SIGKDD’25 *Generalizable On-device Human Activity Recognition with Pretrained LLMs for Last-mile Delivery*
 Proceedings of the 31th ACM SIGKDD Conference on Knowledge Discovery and Data Mining

[C21] Xiao Yan*, **Yi Ding**
FmSys’25 *Are We There Yet? A Measurement Study of Efficiency for LLM Applications on Mobile Devices*
 International Workshop on Foundation Models for Cyber-Physical Systems & Internet of Things

[C20] Wenjun Lyu, S. Zhong, G. Yang, H. Wang, **Yi Ding**, S. Wang, Y. Liu, T. and Desheng Zhang
WWW’25 *InCo: Exploring Inter-Trip Cooperation for Efficient Last-mile Delivery*
 ACM The Web Conference 2025

[C19] Anlan Yu*, X. Wang, P. Wang, J. Li, X. Ma, Z. Hong, Haotian Wang, **Yi Ding**, Daqing Zhang
PerCom’25 *FineSat: Enhancing GNSS Signals for High-precision Sensing*
 2025 IEEE International Conference on Pervasive Computing and Communications (PerCom)

[C18] Guang Yang*, Meiqi Tu, Z. Li, J. Hang, T. Liu, R. Liu, **Yi Ding**, Yu Yang and Desheng Zhang
CIKM’24 *Behavior-Aware Hypergraph Convolutional Network for Illegal Parking Prediction with Multi-Source Contextual Information*
 33rd ACM International Conference on Information and Knowledge Management

[C17] Zhiqing Hong, Zelong Li, S. Zhong, W. Lyu, Haotian Wang, **Yi Ding**, Tian He, Desheng Zhang.
UbiComp’24 *CrossHAR: Generalizing Cross-dataset Human Activity Recognition via Hierarchical Self-Supervised Pretraining*
 In ACM International Joint Conference on Pervasive & Ubiquitous Computing

[C16] Zhiqing Hong, Haotian Wang, **Yi Ding**, Guang Wang, Tian He, Desheng Zhang.
UbiComp’24 *SmallMap: Low-cost Community Road Map Sensing with Uncertain Delivery Behavior*
 In ACM International Joint Conference on Pervasive & Ubiquitous Computing

- [C15]
VLDB'24 Sijing Duan, Feng Lyu, Xin Zhu, **Yi Ding**, H. Wang, Desheng Zhang, Xue Liu, Y. Zhang, Ju Ren
VeLP: Vehicle Loading Plan Learning from Human Behavior in Nationwide Logistics System
International Conference on Very Large Data Bases
- [C14]
SIGSPATIAL'22 Zhiqing Hong, Guang Wang, W. Lyu, B. Guo, **Yi Ding**, H. Wang, S. Wang, Y. Liu, D. Zhang
CoMiner: Nationwide Behavior-driven Unsupervised Spatial Coordinate Mining
ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems
- [C13]
SIGKDD'22 Wei Liu*, **Yi Ding**, Shuai Wang, Yu Yang, Desheng Zhang.
Para-Pred: Addressing Heterogeneity for City-Wide Indoor Status Estimation
195/753=26%
Proceedings of the 28th ACM SIGKDD Conference on Knowledge Discovery and Data Mining
- [C12]
UbiComp'22 Baoshen Guo, Weijian Zuo, Shuai Wang, W. Lyu, Z. Hong., **Yi Ding**, Tian He, Desheng Zhang.
WePos: Weak-supervised Indoor Positioning with Unlabeled WiFi for On-demand Delivery
In ACM International Joint Conference on Pervasive & Ubiquitous Computing
- [C11]
MobiCom'22 Pengfei Zhou, **Yi Ding**, Yang Li, Mo Li, Guobin Shen, Tian He.
Experience: Adopting Indoor Outdoor Detection in On-demand Food Delivery Business
16/91=18%
In Annual International Conference on Mobile Computing and Networking
- [C10]
UbiComp'22 **Yi Ding**, Dongzhe Jiang, Yu Yang, Yunhuai Liu, Desheng Zhang, Tian He.
P2-Loc: A Person-2-Person Indoor Localization System in On-Demand Delivery
In ACM International Joint Conference on Pervasive & Ubiquitous Computing
- [C09]
UbiComp'22 **Yi Ding**, Dongzhe Jiang, Yunhuai Liu, Desheng Zhang, Tian He.
SmartLOC: Indoor Localization with Smartphone Anchors for On-Demand Delivery
In ACM International Joint Conference on Pervasive & Ubiquitous Computing
- [C08]
ICPADS'21 Zhigang Dai, Wenjun Lyu, **Yi Ding**, Yiwei Song
OPTI: Order Preparation Time Inference for On-demand Delivery
In IEEE International Conference on Parallel and Distributed System
- [C07]
RTSS'21 Baoshen Guo, Shuai Wang, **Yi Ding**, Guang Wang, Suining He, Desheng Zhang, Tian He.
Concurrent Order Dispatch for Instant Delivery with Time-Constrained Actor-Critic Reinforcement Learning
In IEEE Real-Time Systems Symposium (**Outstanding Paper Award**)
- [C06]
UbiComp'21 Dongzhe Jiang, **Yi Ding**, Hao Zhang, Yunhuai Liu, Tian He, Yu Yang, Desheng Zhang.
ALWAES: an Automatic Outdoor Location-Aware Correction System
In ACM International Joint Conference on Pervasive & Ubiquitous Computing
- [C05]
UbiComp'21 **Yi Ding**, Baoshen Guo, Lin Zheng, M. Lu, Desheng Zhang, S. Wang, Sang H. Son, Tian He.
A City-Wide Crowdsourcing Delivery System with Reinforcement Learning
In ACM International Joint Conference on Pervasive & Ubiquitous Computing
- [C04]
SIGCOMM'21 **Yi Ding**, Yu Yang, Wenchao Jiang, Yunhuai Liu, Tian He, Desheng Zhang.
Nationwide Deployment and Operation of a Virtual Arrival Detection System in the Wild
55/241=22%
In the Annual Conference of the ACM Special Interest Group on Data Communication
- [C03]
NSDI'21 **Yi Ding**, Ling Liu, Yu Yang, Yunhuai Liu, Desheng Zhang, Tian He.
A Lifetime Story of a 3-Year-Old Operational Wireless Beacon System in the Wild
19/114=17%
In USENIX Symposium on Networked Systems Design and Implementation
- [C02]
MobiCom'20 Yu Yang, **Yi Ding**, D. Yuan, G. Wang, X. Xie, Yunhuai Liu, Tian He, Desheng Zhang.
Transparent Indoor Localization with Uncertain Human Participation for Instant Delivery
62/384=16%
In Annual International Conference on Mobile Computing and Networking

- [C01]
UbiComp'19 Yan Zhang, Yunhuai Liu, **Yi Ding**, G. Li, N. Chen, H. Zhang, Tian He, Desheng Zhang.
Route Prediction for Instant Delivery
In ACM International Joint Conference on Pervasive & Ubiquitous Computing

Journal

- [J05]
TKDE'24 Zhiqing Hong, G. Wang, W. Lyu, B. Guo, **Yi Ding**, H. Wang, S. Wang, Yunhuai Liu, Desheng Zhang
Nationwide Behavior-Aware Coordinates Mining from Uncertain Delivery Events
In IEEE Transactions on Knowledge and Data Engineering
- [J04]
TMC'23 Shuai Wang, Baoshen Guo, **Yi Ding**, Guang Wang, Suining He, Desheng Zhang, Tian He
Time-Constrained Actor-Critic Reinforcement Learning for Concurrent Order Dispatch in On-demand Delivery
In ACM Transactions on Mobile Computing
- [J03]
TOSN'23 Zhigang Dai, Wenjun Lyu, **Yi Ding**, Yiwei Song, Yunhuai Liu
OPTI: Order Preparation Time Inference for On-demand Delivery
In ACM Transactions on Sensor Network
- [J02]
ToN'22 **Yi Ding**, Yu Yang, Wenchao Jiang, Yunhuai Liu, Tian He, Desheng Zhang.
Nationwide Deployment and Operation of a Virtual Arrival Detection System in the Wild
In IEEE/ACM Transactions on Networking
- [J01]
ToN'21 **Yi Ding**, Ling Liu, Yu Yang, Yunhuai Liu, Desheng Zhang, Tian He.
A Lifetime Story of a 3-Year-Old Operational Wireless Beacon System in the Wild
In IEEE/ACM Transactions on Networking

PROFESSIONAL ACTIVITIES

Invited Talks

- Invited Talk at CPS-IoT Week 2025 Sensor S&P workshop
- Invited Talk at the University of North Dakota, U.S., August 2024
- Invited Talk at MIT (Media Lab), U.S., August 2022
- Invited Talk at Kargo (Logistics Startup), U.S., July 2022
- Invited Talk at Location-Based Service Team, ByteDance, China, June 2022
- Invited Talk at Zhongshan Workshop, China Computer Federation (CCF), Nanjing, China, December 2021

Organizers

- ACM SIGSPATIAL SpatialConnect Workshop 2025
- IEEE Cloud Summit (Track Chair) 2025

Associate Editors

- Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)

Program Committee for Conferences

- ACM MobiSys 2025
- ACM Special Interest Group on Data Communication Posters and Demos (SIGCOMM'25,'24,'23)
- ACM SenSys IoT-MMLM Workshop 2024
- ACM MobiCom Picasso Workshop 2024
- International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP 2024, 2023)

(External) Reviewer

- ACM Transactions on Sensor Networks (TOSN)
- ACM Transactions Internet Things (TIOT)
- IEEE Transactions on Network Science and Engineering (TNSE)
- IEEE Robotics and Automation Letters (RA-L)
- IEEE Transactions on Intelligent Transportation Systems
- ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (SIGKDD)
- Annual AAAI Conference on Artificial Intelligence
- ACM Conference on Information and Knowledge Management (CIKM)

Panelist

- NSF CPS, 2024
- NSF SBIR, 2024
- NSF SCC, 2024

University and Department Service

- CS Department Admission Committee 2023-2025
- CS Department K-12 Outreach Committee 2023-2025

TEACHING

- Spring 2025, Fall 2024, Spring 2024: Computer Networks (UTD CS/CE 4390)
- Spring 2025: Research, Inquiry, Design Experience (RIDE) (UTD ECS1192/2192/3192/4192)
- Fall 2023: Special Topics in CS: Data Science for Smart Cities (UTD CS 6301)

MENTORING

- PhD: Ziqi Liu, Xiao Yan, Tong Liu (Visiting)
- Master: Pei Zeng
- Undergraduate: Anindo Majumdar, Dishita Thathapuram, Sanskriti Aripineni, Hishita Rakesh Shah

DATA-SET RELEASE

- aBeacon: collected from a citywide physical beacon system, including the data of Bluetooth, manual report, and location from 31,131 couriers at 2,466 merchant locations in one month. [[Link](#)]
- VALID: collected from a nationwide virtual beacon system, including the data of Bluetooth, manual report, and manual feedback from 55,000 couriers at 113,000 merchant locations in ten cities in one month. [[Link](#)]
- RL-Dispatch: collected from a citywide crowdsourcing delivery system, including the on-demand delivery order data in one month. [[Link](#)]
- P2Loc: collected in a encounter-based localization project, including the BLE-based indoor encounter data and reported data of 176 couriers at 54 merchant locations in a mall in one month.. [[Link](#)]

MEDIA EXPOSURE

- MIT Technology Review
- Alibaba Technology

PATENTS

- Embedded MPC method based on convergence depth control [\[Link\]](#)
- Indoor positioning method and apparatus, electronic device and computer readable storage medium. [\[Link\]](#)
- Information processing method and device. [\[Link\]](#)
- Position state acquisition method and device, readable storage medium and electronic equipment. [\[Link\]](#)
- Order processing method and device, storage medium and electronic equipment [\[Link\]](#)
- Beacon association method and device. [\[Link\]](#)
- Task execution method and device based on gesture interaction. [\[Link\]](#)