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   Aug. 2023 - Now
University of Texas at Dallas, Richardson, TX, USA

Postdoctoral Associate   Oct. 2022 - Jul. 2023
Massachusetts Institute of Technology (MIT), MA, USA
   Advisor: Prof. Alex "Sandy" Pentland (MIT Media Lab, MIT IDSS)

EDUCATION

Ph.D. of Computer Science   Sep. 2016 - Oct. 2022
University of Minnesota, USA
   Advisor: Prof. Tian He (IEEE/ACM Fellow)

Visiting Student   Feb. 2022 - Oct. 2022
Rutgers University, USA
   Host: Prof. Desheng Zhang

Master of Control Science and Engineering   Sep. 2013 - Jun. 2016
Zhejiang University, China
   Advisor: Prof. Zuhua Xu

Visiting Student   Aug. 2015 - Oct. 2015
IMT Lucca, Italy
   Host: Prof. Alberto Bemporad (IEEE Fellow)

Bachelor of Control Science and Engineering   Sep. 2009 - Jun. 2013
Zhejiang University, China   **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: 33 papers, featuring 20 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

[P1] **ArXiv'25**	Ziqi Liu*, Pei Zeng*, **Yi Ding** *Predictability-Aware Compression and Decompression Framework for Multichannel Time Series Data*

Conference

[C26] **UbiComp** **IMWUT'25**	Zhiqing Hong, Zelong Li, S. Zhong, W. Lyu, Haotian Wang, **Yi Ding**, Tian He, Desheng Zhang. *Large Language Model-Guided Semantic Alignment for Human Activity Recognition* In ACM International Joint Conference on Pervasive & Ubiquitous Computing
[C25] **CIKM'25**	Shanshan Wang*, S. Duan, S. Zhong, Z. Hong, Z. Zhou, H. Lin, W. Zuo, Desheng Zhang, **Yi Ding** *Fraudulent Delivery Detection with Multimodal Courier Behavior Data in Last-Mile Delivery* 34rd ACM International Conference on Information and Knowledge Management
[C24] **MobiCom'25**	Zhiqing Hong, Weibing Wang, Anlan Yu, S. Zhong, H. Wang, **Yi Ding**, Tian He, Desheng Zhang *Experience Paper: Nationwide Human Behavior Sensing in Last-mile Delivery* Proceedings of the 31th Annual International Conference on Mobile Computing and Networking
[C23] **MobiCom'25**	Feng Lyu, Lijuan He, Mingliu Liu, Sijing Duan, H. Wu, J. Zhou, **Yi Ding**, Zaixun Ling, Yibo Cui *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] **SIGKDD'25**	Zhiqing Hong, Yiwei Song, Zelong Li, Anlan Yu, S. Zhong, **Yi Ding**, Tian He, Desheng Zhang *Generalizable On-device HAR with Pretrained LLMs for Last-mile Delivery* Proceedings of the 31th ACM SIGKDD Conference on Knowledge Discovery and Data Mining
[C21] **FmSys'25**	Xiao Yan*, **Yi Ding** *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] **WWW'25**	Wenjun Lyu, S. Zhong, G. Yang, H. Wang, **Yi Ding**, S. Wang, Y. Liu, T. and Desheng Zhang *InCo: Exploring Inter-Trip Cooperation for Efficient Last-mile Delivery* ACM The Web Conference 2025
[C19] **PerCom'25**	Anlan Yu*, X. Wang, P. Wang, J. Li, X. Ma, Z. Hong, Haotian Wang, **Yi Ding**, Daqing Zhang *FineSat: Enhancing GNSS Signals for High-precision Sensing* 2025 IEEE International Conference on Pervasive Computing and Communications (PerCom)
[C18] **CIKM'24**	Guang Yang*, Meiqi Tu, Z. Li, J. Hang, T. Liu, R. Liu, **Yi Ding**, Yu Yang and Desheng Zhang *Behavior-Aware Hypergraph Convolutional Network for Illegal Parking Prediction with Multi-Source Contextual Information* 33rd ACM International Conference on Information and Knowledge Management
[C17] **UbiComp'24** **IMWUT'24**	Zhiqing Hong, Zelong Li, S. Zhong, W. Lyu, Haotian Wang, **Yi Ding**, Tian He, Desheng Zhang. *CrossHAR: Generalizing Cross-dataset HAR via Hierarchical Self-Supervised Pretraining* In ACM International Joint Conference on Pervasive & Ubiquitous Computing
[C16] **UbiComp'24** **IMWUT'24**	Zhiqing Hong, Haotian Wang, **Yi Ding**, Guang Wang, Tian He, Desheng Zhang. *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** 195/753=26%
Wei Liu*, **Yi Ding**, Shuai Wang, Yu Yang, Desheng Zhang.
Para-Pred: Addressing Heterogeneity for City-Wide Indoor Status Estimation
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** 16/91=18%
Pengfei Zhou, **Yi Ding**, Yang Li, Mo Li, Guobin Shen, Tian He.
Experience: Adopting Indoor Outdoor Detection in On-demand Food Delivery Business
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** 55/241=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 the Annual Conference of the ACM Special Interest Group on Data Communication

[C03] **NSDI'21** 19/114=17%
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 USENIX Symposium on Networked Systems Design and Implementation

[C02] **MobiCom'20** 62/384=16%
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
In Annual International Conference on Mobile Computing and Networking

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

Journal

[J06]   Sijing Duan, Feng Lyu, Shanshan Wang, **Yi Ding**, Xiaohao He, Yaoxue Zhang
TMC'25   *Exploring Cellular User Re-Identification Risks with Networking Behaviors Analysis and Modeling*
              In ACM Transactions on Mobile Computing

[J05]   Zhiqing Hong, G. Wang, W. Lyu, B. Guo, **Yi Ding**, H. Wang, S. Wang, Yunhuai Liu, Desheng Zhang
TKDE'24   *Nationwide Behavior-Aware Coordinates Mining from Uncertain Delivery Events*
              In IEEE Transactions on Knowledge and Data Engineering

[J04]   Shuai Wang, Baoshen Guo, **Yi Ding**, Guang Wang, Suining He, Desheng Zhang, Tian He
TMC'23   *Time-Constrained Actor-Critic Reinforcement Learning for Concurrent Order Dispatch in On-demand Delivery*
              In ACM Transactions on Mobile Computing

[J03]   Zhigang Dai, Wenjun Lyu, **Yi Ding**, Yiwei Song, Yunhuai Liu
TOSN'23   *OPTI: Order Preparation Time Inference for On-demand Delivery*
              In ACM Transactions on Sensor Network

[J02]   **Yi Ding**, Yu Yang, Wenchao Jiang, Yunhuai Liu, Tian He, Desheng Zhang.
ToN'22   *Nationwide Deployment and Operation of a Virtual Arrival Detection System in the Wild*
              In IEEE/ACM Transactions on Networking

[J01]   **Yi Ding**, Ling Liu, Yu Yang, Yunhuai Liu, Desheng Zhang, Tian He.
ToN'21   *A Lifetime Story of a 3-Year-Old Operational Wireless Beacon System in the Wild*
              In IEEE/ACM Transactions on Networking

GRANTS
- NSF CISE NeTS CSR, Leveraging Satellite Signals for Ubiquitous Mobile Wireless Sensing, 08/2025 - 07/2027, $400,000

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'26, Fall'25, Spring'25: Research, Inquiry, Design Experience (RIDE) (UTD ECS1192/2192/3192/4192)
- Fall'25: Special Topics in CS: Machine Learning in Mobile Computing (UTD CS 6301)
- Spring'25, Fall'24, Spring'24: Computer Networks (UTD CS/CE 4390)
- Fall'23: Special Topics in CS: Data Science for Smart Cities (UTD CS 6301)

MENTORING
- PhD: Ziqi Liu, Xiao Yan, Tong Liu (Visiting)
- Master: Pei Zeng (Now in LexisNexis)
- Undergraduate: Sanskriti Aripineni (UTD RIDE, Spring 25, Fall 25), Khoa A Tran (UTD RIDE, Fall 25), Rishi Simhadri (UTD RIDE, Fall 25), Lucky Srini (UTD RIDE, Fall 25), Dishita Thathapuram (UTD RIDE, Spring 25), Hishita Rakesh Shah (UTD RIDE, Spring 25), Anindo Majumdar (UTD, Fall 24, Spring 25)

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]