

# Yi Ding

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## RESEARCH INTERESTS

- My research interests lie at the intersection of **cyber-physical systems**, **mobile computing**, and **machine learning**. I am interested in combining wireless sensing and machine learning on mobile devices in **cyber-physical systems (CPS)** and **cyber-human systems (CHS)** like *location-based services*, *urban delivery*, and *smart cities*.

## EMPLOYMENT

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

## EDUCATION

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

## 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:** 25 papers, featuring 17 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.

### Conference Papers

- [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] Sijing Duan, Feng Lyu, Xin Zhu, **Yi Ding**, H. Wang, Desheng Zhang, Xue Liu, Y. Zhang, Ju Ren  
**VLDB'24** *VeLP: Vehicle Loading Plan Learning from Human Behavior in Nationwide Logistics System*  
 International Conference on Very Large Data Bases
- [C14] Zhiqing Hong, Guang Wang, W. Lyu, B. Guo, **Yi Ding**, H. Wang, S. Wang, Y. Liu, D. Zhang  
**SIGSPATIAL'22** *CoMiner: Nationwide Behavior-driven Unsupervised Spatial Coordinate Mining*  
 ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems
- [C13] Wei Liu\*, **Yi Ding**, Shuai Wang, Yu Yang, Desheng Zhang.  
**SIGKDD'22** *Para-Pred: Addressing Heterogeneity for City-Wide Indoor Status Estimation*  
 195/753=26%  
 ACM SIGKDD Conference on Knowledge Discovery and Data Mining
- [C12] Baoshen Guo, Weijian Zuo, Shuai Wang, W. Lyu, Z. Hong., **Yi Ding**, Tian He, Desheng Zhang.  
**UbiComp'22** *WePos: Weak-supervised Indoor Positioning with Unlabeled WiFi for On-demand Delivery*  
 In ACM International Joint Conference on Pervasive & Ubiquitous Computing
- [C11] Pengfei Zhou, **Yi Ding**, Yang Li, Mo Li, Guobin Shen, Tian He.  
**MobiCom'22** *Experience: Adopting Indoor Outdoor Detection in On-demand Food Delivery Business*  
 16/91=18%  
 In Annual International Conference on Mobile Computing and Networking
- [C10] **Yi Ding**, Dongzhe Jiang, Yu Yang, Yunhuai Liu, Desheng Zhang, Tian He.  
**UbiComp'22** *P2-Loc: A Person-2-Person Indoor Localization System in On-Demand Delivery*  
 In ACM International Joint Conference on Pervasive & Ubiquitous Computing
- [C09] **Yi Ding**, Dongzhe Jiang, Yunhuai Liu, Desheng Zhang, Tian He.  
**UbiComp'22** *SmartLOC: Indoor Localization with Smartphone Anchors for On-Demand Delivery*  
 In ACM International Joint Conference on Pervasive & Ubiquitous Computing

- [C08] Zhigang Dai, Wenjun Lyu, **Yi Ding**, Yiwei Song  
**ICPADS'21** *OPTI: Order Preparation Time Inference for On-demand Delivery*  
 In IEEE International Conference on Parallel and Distributed System
- [C07] Baoshen Guo, Shuai Wang, **Yi Ding**, Guang Wang, Suining He, Desheng Zhang, Tian He.  
**RTSS'21** *Concurrent Order Dispatch for Instant Delivery with Time-Constrained Actor-Critic Reinforcement Learning*  
 In IEEE Real-Time Systems Symposium (**Outstanding Paper Award**)
- [C06] Dongzhe Jiang, **Yi Ding**, Hao Zhang, Yunhuai Liu, Tian He, Yu Yang, Desheng Zhang.  
**UbiComp'21** *ALWAES: an Automatic Outdoor Location-Aware Correction System*  
 In ACM International Joint Conference on Pervasive & Ubiquitous Computing
- [C05] **Yi Ding**, Baoshen Guo, Lin Zheng, M. Lu, Desheng Zhang, S. Wang, Sang H. Son, Tian He.  
**UbiComp'21** *A City-Wide Crowdsourcing Delivery System with Reinforcement Learning*  
 In ACM International Joint Conference on Pervasive & Ubiquitous Computing
- [C04] **Yi Ding**, Yu Yang, Wenchao Jiang, Yunhuai Liu, Tian He, Desheng Zhang.  
**SIGCOMM'21** *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] **Yi Ding**, Ling Liu, Yu Yang, Yunhuai Liu, Desheng Zhang, Tian He.  
**NSDI'21** *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] Yu Yang, **Yi Ding**, D. Yuan, G. Wang, X. Xie, Yunhuai Liu, Tian He, Desheng Zhang.  
**MobiCom'20** *Transparent Indoor Localization with Uncertain Human Participation for Instant Delivery*  
 62/384=16% 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 Article

- [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

## PROFESSIONAL ACTIVITIES

### Invited Talks

- 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

### Program Committee for Conferences

- ACM MobiSys 2025
- Track Chair for 2025 IEEE Cloud Summit
- 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

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

### 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](#)]