

# Yi Ding

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## RESEARCH INTERESTS

- My research interests lie at the intersection of **cyber-physical systems**, **mobile computing**, and **spatio-temporal data mining**. I am interested in studying human behavior through smartphone sensing and machine learning in **cyber-physical systems (CPS)** and **cyber-human systems (CHS)** like *location-based services*, *urban delivery*, and *smart cities*.

## EMPLOYMENT

**Assistant Professor in Computer Science**

*University of Texas at Dallas, Richardson, TX, USA*

Aug. 2023 - Now

**Postdoctoral Associate**

*Massachusetts Institute of Technology (MIT), MA, USA*

Oct. 2022 - Jul. 2023

Advisor: Prof. Alex “Sandy” Pentland (MIT Media Lab, MIT IDSS)

## EDUCATION

**Ph.D. of Computer Science**

*University of Minnesota, USA*

Advisor: Prof. Tian He (IEEE/ACM Fellow)

Sep. 2016 - Oct. 2022

**Visiting Student**

*Rutgers University, USA*

Host: Prof. Desheng Zhang

Feb. 2022 - Oct. 2022

**Master of Control Science and Engineering**

*Zhejiang University, China*

Advisor: Prof. Zuhua Xu

Sep. 2013 - Jun. 2016

**Visiting Student**

*IMT Lucca, Italy*

Host: Prof. Alberto Bemporad (IEEE Fellow)

Aug. 2015 - Oct. 2015

**Bachelor of Control Science and Engineering**

*Zhejiang University, China*

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
- Novel Patent, Alibaba Group, Local Service Company, 2019
- Outstanding Thesis Award, Zhejiang University, 2013

## PUBLICATIONS

**Highlights:** 19 papers, featuring 14 papers in top-tier conferences, including SIGKDD, SIGCOMM, NSDI, MobiCom, UbiComp, RTSS, and VLDB, with 1 outstanding paper award.

### Conference Papers

- [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. (\* = equal contribution)  
*Para-Pred: Addressing Heterogeneity for City-Wide Indoor Status Estimation*  
195/753=26%  
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] **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

- [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 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

### (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)
- ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (SIGKDD)

### Program Committee for Conferences

- The 23rd International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP 2023)
- The 37th ACM Special Interest Group on Data Communication Posters and Demos (SIGCOMM'23 Posters and Demos)

**TEACHING**

- Spring 2024 Computer Networks (UTD CS/CE 4390)
- Fall 2023 Special Topics in CS: Data Science for Smart Cities (UTD CS 6301)

**MENTORING**

- Informally advised seven graduate students on their projects with weekly meetings.

**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](#)]

**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](#)]

**MEDIA EXPOSURE**

- MIT Technology Review
- Alibaba Technology