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   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

- Novel Patent, Alibaba Group, Local Service Company, 2019

- Outstanding Thesis Award, Zhejiang University, 2013

PUBLICATIONS

Highlights: 18 papers, featuring 13 papers in top-tier conferences, including SIGKDD, SIGCOMM, NSDI, MobiCom, UbiComp, and RTSS, 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
195/753=26%
Wei Liu*, **Yi Ding***, Shuai Wang, Yu Yang, Desheng Zhang. (* = equal contribution)
Para-Pred: Addressing Heterogeneity for City-Wide Indoor Status Estimation
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]	**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

[J01]	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 Networking

[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

[J03]	**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 2023 Special Topics in CS: Data Science for Smart Cities (UTD CS 6301)
- Spring 2018 Introduction to Machine Learning (UMN CSci 5521, Teaching Assistant)
- Spring 2017 Data Communications and Computer Networks (UMN CSci 4211, Teaching Assistant)

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