

YI DING

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RESEARCH INTERESTS

Sustainable Computing, Machine Learning for Systems, Datacenter Computing, Causal Inference

PROFESSIONAL EXPERIENCE

Purdue University Assistant Professor in Elmore Family School of Electrical and Computer Engineering PI, STYLE (SusTainable computing sYstems and LEarning) Lab	West Lafayette, IN, USA 8/2023 – Present
Massachusetts Institute of Technology Postdoctoral Associate & NSF Computing Innovation Fellow. Mentor: Michael Carbin	Cambridge, MA, USA 1/2021 – 8/2023
Meta Visiting Researcher	Cambridge, MA, USA 10/2021–12/2022
Google Research Intern	Sunnyvale, CA, USA 6/2019–9/2019

EDUCATION

University of Chicago Ph.D. & MS in Computer Science. Advisor: Henry Hoffmann	Chicago, IL, USA 8/2015 – 12/2020
Nanyang Technological University Doctoral Student in Computer Science. Passed Qualification Exam.	Singapore 7/2013 – 7/2015
Beijing Jiaotong University B.E. in Electronic Science and Technology. Graduated with Highest Honor.	Beijing, China 9/2008 – 6/2012

SELECTED AWARDS AND HONORS

CRA/CCC/NSF Computing Innovation Fellowship	2020-2023
Meta Research Award	2021
EECS Rising Stars at UC Berkeley	2020

PUBLICATIONS

Turaco: Complexity-Guided Data Sampling for Training Neural Surrogates of Programs

Alex Renda, Yi Ding, Michael Carbin

ACM SIGPLAN conference on Systems, Programming, Languages, and Applications (OOPSLA), 2023

CAFQA: A Classical Simulation Bootstrap for Variational Quantum Algorithms

Gokul Ravi, Pranav Gokhale, Yi Ding, William M. Kirby, Kaitlin N. Smith, Jonathan M. Baker, Peter J. Love, Henry Hoffmann, Kenneth R. Brown, Frederic T. Chong

ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), 2023

Minimax Designs for Causal Effects in Temporal Experiments with Treatment Habituation

Guillaume Basse, Yi Ding, Panos Toulis

Biometrika, (Top theoretical statistics journal), 2023

NURD: Negative-Unlabeled Learning for Online Datacenter Straggler Prediction

Yi Ding, Avinash Rao, Hyebin Song, Rebecca Willett, Henry Hoffmann

Conference on Machine Learning and Systems (MLSys), 2022

Generalizable and Interpretable Learning for Configuration Extrapolation

Yi Ding, Ahsan Pervaiz, Michael Carbin, Henry Hoffmann.

ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), 2021

Programming with Neural Surrogates of Programs

Alex Renda, Yi Ding, Michael Carbin

ACM SIGPLAN International Symp. on New Ideas, New Paradigms, and Reflections on Programming and Software (Onward!), 2021

Neighborhood Street Activity and Greenspace Usage Uniquely Contribute to Predicting Crime

Kathryn Schertz, James Saxon, Carlos Cardenas-Iniguez, Luís Bettencourt, Yi Ding, Henry Hoffmann, Marc G Berman

npj Urban Sustainability, Nature Research Journal, 2021

Dynamical Systems Theory for Causal Inference with Application to Synthetic Control Methods

Yi Ding, Panos Toulis

International Conference on Artificial Intelligence and Statistics (AISTATS), 2020

A Polynomial-time Algorithm for Learning Nonparametric Causal Graphs

Ming Gao, Yi Ding, Bryon Aragam

Advances in Neural Information Processing Systems (NeurIPS), 2020

Generative and Multi-phase Learning for Computer Systems Optimization

Yi Ding, Nikita Mishra, Henry Hoffmann

International Symposium on Computer Architecture (ISCA), 2019

Multiresolution Kernel Approximation for Gaussian Process Regression

Yi Ding, Risi Kondor, Jonathan Eskreis-Winkler

Advances in Neural Information Processing Systems (NeurIPS), 2017 (**Spotlight**)

Large Scale Kernel Methods for Online AUC Maximization

Yi Ding, Chenghao Liu, Peilin Zhao, Steven CH Hoi

IEEE International Conference on Data Mining (ICDM), 2017 (**Long Oral**)

An Adaptive Gradient Method for Online AUC Maximization

Yi Ding, Peilin Zhao, Steven CH Hoi, Yew-Soon Ong

AAAI Conference on Artificial Intelligence (AAAI), 2015 (**Oral**)

Learning Relative Similarity by Stochastic Dual Coordinate Ascent

Pengcheng Wu, Yi Ding, Peilin Zhao, Chunyan Miao, Steven CH Hoi

AAAI Conference on Artificial Intelligence (AAAI), 2014

WORKSHOP CONTRIBUTIONS

Causal and Interpretable Learning for Datacenter Latency Prediction

Yi Ding, Avinash Rao, Henry Hoffmann

Women in Machine Learning Workshop co-located with NeurIPS (WiML), 2020

A Polynomial-time Algorithm for Learning Nonparametric Causal Graphs

Ming Gao, Yi Ding, Bryon Aragam

Women in Machine Learning Workshop co-located with NeurIPS (WiML), 2020

Minimax Crossover Designs

Yi Ding, Guillaume Basse, Panos Toulis

NeurIPS Workshop on “Do the right thing”: machine learning and causal inference for improved decision making (CausalML), 2019

Minimax Crossover Designs for Digital Experimentation

Guillaume Basse, Yi Ding, Panos Toulis

Conference on Digital Experimentation at MIT (CODE@MIT), 2019

Generative and Multi-phase Learning for Computer Systems Optimization

Yi Ding, Nikita Mishra, Henry Hoffmann

Women in Machine Learning Workshop co-located with NeurIPS (WiML), 2019

Nonparametric Causal Inference in Dynamical Systems with Synthetic Controls

Yi Ding, Panos Toulis

Women in Machine Learning Workshop co-located with NeurIPS (WiML), 2018

PROFESSIONAL SERVICE**Program Committee**

USENIX Annual Technical Conference (ATC)	2024
Conference on Systems and Machine Learning (MLSys)	2024
ACM Student Research Competition at PACT	2023
SPLASH Onward!	2022
Conference on Systems and Machine Learning (MLSys)	2022
ACM Asia-Pacific Workshop on Systems	2022
Journal of Systems Research	2022

Technical Reviewing

Neural Information Processing Systems (NeurIPS)	2022
International Conference on Learning Representations (ICLR)	2022
International Conference on Machine Learning (ICML)	2022
Neural Information Processing Systems (NeurIPS)	2021
AAAI Conference on Artificial Intelligence (AAAI)	2021
AAAI Conference on Artificial Intelligence (AAAI)	2020
Neural Information Processing Systems (NeurIPS)	2019
International Conference on Machine Learning (ICML)	2019

RESEARCH ADVISING**PhD Students**

Tianyao Shi, Purdue University	2024–
Zachary Gou, Purdue University	2024–
William Meng, University of Pennsylvania	Fall 2023–

Master Students

Ashutosh Sharma, UIUC	Spring 2024–
Hyunji Kim, MIT, Current: Strip	2021–2022

Undergraduate Students

Yuqi Bai, University of Waterloo	Fall 2024–
Zihan Pan, University of Waterloo	Fall 2024–
Amy Li, University of Waterloo	Spring 2024
Beihao Zhou, University of Waterloo	Spring 2024
Sophia Nguyen, University of Waterloo	Spring 2024
Avinash Rao, University of Chicago, Current: Goldman Sachs	2019–2020

GRANTS

Title:	Conference: DESC: Type III: A Holistic AI Computing Framework: Incorporating the Water and Biodiversity Dimensions of Sustainability
Funder:	NSF
Duration:	2024–2025
People:	Inez Hua (PI), Yi Ding
Awarded:	\$9,992 (My share: 50%)
Title:	Computing Innovation Fellows 2020 Project
Funder:	NSF
Duration:	2020–2023
People:	Michael Carbin (PI), Yi Ding
Awarded:	\$295,704

Title: Meta Research Award on Statistics for Improving Insights, Models, & Decisions
Funder: Meta
Duration: 2021–2022
People: Michael Carbin (PI), Yi Ding
Awarded: \$46,000

TEACHING

Instructor, Purdue University, West Lafayette, IN

Python for Data Science (ECE 20875)

Spring 2024

Python for Data Science (ECE 20875)

Fall 2023

Teaching Assistant, University of Chicago, Chicago, IL

Machine Learning and Large Scale Data Analysis (CMSC 25025)

Spring 2017

Machine Learning (CMSC 25400)

Winter 2017

Machine Learning (MPCS 53111)

Spring 2016

Machine Learning for Public Policy (CAPP 30255)

Winter 2016

INVITED TALKS

A Holistic View on Machine Learning for Systems

University of Waterloo, Department of Computer Science

Jun. 2023

Microsoft Research

Apr. 2023

Texas A&M University, Department of Computer Science & Engineering

Apr. 2023

University of Southern California, Department of Electrical & Computer Engineering

Apr. 2023

University of Illinois, Department of Computer Science

Mar. 2023

Cornell Tech, Department of Electrical & Computer Engineering

Mar. 2023

Washington University in St. Louis, Department of Computer Science & Engineering

Mar. 2023

Purdue University, School of Electrical & Computer Engineering

Mar. 2023

Purdue University, Department of Computer Science

Mar. 2023

Virginia Tech, Department of Computer Science

Mar. 2023

Indiana University Bloomington, Department of Computer Science

Feb. 2023

University of Colorado Boulder, Department of Computer Science

Feb. 2023

University of Massachusetts Amherst, College of Information and Computer Sciences

Feb. 2023

NURD: Negative-Unlabeled Learning for Online Datacenter Straggler Prediction

Conference presentation at MLSys, Santa Clara, USA

Aug. 2022

Predictable Maintenance Job Planning in Datacenters

Meta Infrastructure Data Science Faculty Workshop at KDD, DC, USA

Aug. 2022

Generalizable and Interpretable Learning for Configuration Extrapolation

Conference presentation at ESEC/FSE, Virtual

Nov. 2021

Dynamical Systems Theory for Causal Inference with Application to Synthetic Controls

Causal Data Science Meeting, Virtual

Nov. 2020

Conference presentation at AISTATS, Virtual

Aug. 2020

Generative and Multi-phase Learning for Computer Systems Optimization

Conference presentation at ISCA, Phoenix, USA

Jun. 2019

Multiresolution Kernel Approximation for Gaussian Process Regression

Conference presentation at NeurIPS, Long Beach, USA

Dec. 2017

Large Scale Kernel Methods for Online AUC Maximization

Conference presentation at ICDM, New Orleans, USA

Nov. 2017

An Adaptive Gradient Method for Online AUC Maximization

Conference presentation at AAAI, Austin, USA

Jan. 2015

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