

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 Ph.D. Candidate 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 AND PRESENTATIONS

 [Google Scholar](#)

† Students mentored by me; ★ Equal contribution; ‡ Corresponding faculty author

Peer-reviewed Conference Proceedings

- [C1] **Yi Ding**[†] and Tianyao Shi[†]. “Sustainable LLM Serving: Environmental Implications, Challenges, and Opportunities”. In: *Proceedings of the 15th International Green and Sustainable Computing Conference (IGSC)*. 2024.
- [C2] Amy Li[†], Sihang Liu, and **Yi Ding**[†]. “Uncertainty-Aware Decarbonization for Datacenters”. In: *Proceedings of the 3rd Workshop on Sustainable Computer Systems (HotCarbon)*. 2024.
- [C3] Sophia Nguyen^{★,†}, Beihao Zhou^{★,†}, **Yi Ding**, and Sihang Liu. “Towards Sustainable Large Language Model Serving”. In: *Proceedings of the 3rd Workshop on Sustainable Computer Systems (HotCarbon)*. 2024.
- [C4] Gokul Subramanian Ravi, Pranav Gokhale, **Yi Ding**, William Kirby, Kaitlin Smith, Jonathan M Baker, Peter J Love, Henry Hoffmann, Kenneth R Brown, and Frederic T Chong. “CAFQA: A classical simulation bootstrap for variational quantum algorithms”. In: *Proceedings of the 28th ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*. 2023.

- [C5] Alex Renda, **Yi Ding**, and Michael Carbin. “Turaco: Complexity-Guided Data Sampling for Training Neural Surrogates of Programs”. In: *Proceedings of the ACM on Programming Languages (OOPSLA)*. 2023.
- [C6] **Yi Ding**, Avinash Rao[†], Hyebin Song, Rebecca Willett, and Henry Hoffmann. “NURD: Negative-Unlabeled Learning for Online Datacenter Straggler Prediction”. In: *Proceedings of Machine Learning and Systems (MLSys)*. 2022.
- [C7] **Yi Ding**, Ahsan Pervaiz, Michael Carbin, and Henry Hoffmann. “Generalizable and interpretable learning for configuration extrapolation”. In: *Proceedings of the 29th ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE)*. 2021.
- [C8] Alex Renda, **Yi Ding**, and Michael Carbin. “Programming with neural surrogates of programs”. In: *Proceedings of the 2021 ACM SIGPLAN International Symposium on New Ideas, New Paradigms, and Reflections on Programming and Software (Onward!)* 2021.
- [C9] **Yi Ding** and Panos Toulis. “Dynamical systems theory for causal inference with application to synthetic control methods”. In: *International Conference on Artificial Intelligence and Statistics (AISTATS)*. 2020.
- [C10] Ming Gao, **Yi Ding**, and Bryon Aragam. “A polynomial-time algorithm for learning nonparametric causal graphs”. In: *Advances in Neural Information Processing Systems (NeurIPS)*. 2020.
- [C11] **Yi Ding**, Nikita Mishra, and Henry Hoffmann. “Generative and multi-phase learning for computer systems optimization”. In: *Proceedings of the 46th International Symposium on Computer Architecture (ISCA)*. 2019.
- [C12] **Yi Ding**, Risi Kondor, and Jonathan Eskreis-Winkler. “Multiresolution kernel approximation for Gaussian process regression”. In: *Advances in Neural Information Processing Systems (NeurIPS)*. 2017.
- [Spotlight, top 4% submissions](#).
- [C13] **Yi Ding**, Chenghao Liu, Peilin Zhao, and Steven CH Hoi. “Large scale kernel methods for online auc maximization”. In: *2017 IEEE International Conference on Data Mining (ICDM)*. 2017.
- [Long oral, top 8% submissions](#).
- [C14] **Yi Ding**, Peilin Zhao, Steven Hoi, and Yew-Soon Ong. “An adaptive gradient method for online auc maximization”. In: *Proceedings of the AAAI Conference on Artificial Intelligence (AAAI)*. 2015.
- [Oral, top 10% submissions](#).
- [C15] Pengcheng Wu, **Yi Ding**, Peilin Zhao, Chunyan Miao, and Steven Hoi. “Learning relative similarity by stochastic dual coordinate ascent”. In: *Proceedings of the AAAI Conference on Artificial Intelligence (AAAI)*. 2014.

Peer-reviewed Journals

- [J1] Guillaume Basse, **Yi Ding**, and Panos Toulis. “Minimax designs for causal effects in temporal experiments with treatment habituation”. In: *Biometrika*. 2023.
- [One of the top journals in statistics](#).
- [J2] Kathryn E Schertz, James Saxon, Carlos Cardenas-Iniguez, Luís Bettencourt, **Yi Ding**, Henry Hoffmann, and Marc G Berman. “Neighborhood street activity and greenspace usage uniquely contribute to predicting crime”. In: *Npj Urban Sustainability*. 2021.

Workshop Presentations

- [W1] **Yi Ding**, Avinash Rao, and Henry Hoffmann. “Causal and Interpretable Learning for Datacenter Latency Prediction”. In: *Women in Machine Learning Workshop co-located with NeurIPS (WiML)* (2020).
- [W2] Ming Gao, **Yi Ding**, and Bryon Aragam. “A Polynomial-time Algorithm for Learning Nonparametric Causal Graphs”. In: *Women in Machine Learning Workshop co-located with NeurIPS (WiML)* (2020).
- [W3] Guillaume Basse, **Yi Ding**, and Panos Toulis. “Minimax Crossover Designs for Digital Experimentation”. In: *Conference on Digital Experimentation at MIT (CODE@MIT)* (2019).
- [W4] **Yi Ding**, Guillaume Basse, and Panos Toulis. “Minimax Crossover Designs”. In: *NeurIPS Workshop on “Do the right thing”: machine learning and causal inference for improved decision making (CausalML)* (2019).

- [W5] **Yi Ding**, Nikita Mishra, and Henry Hoffmann. “Generative and Multi-phase Learning for Computer Systems Optimization”. In: *Women in Machine Learning Workshop co-located with NeurIPS (WiML)* (2019).
- [W6] **Yi Ding** and Panos Toulis. “Nonparametric Causal Inference in Dynamical Systems with Synthetic Controls”. In: *Women in Machine Learning Workshop co-located with NeurIPS (WiML)* (2018).

RESEARCH ADVISING**PhD Students**

Tianyao Shi, Purdue University	Fall 2024–
William Meng, University of Pennsylvania	Fall 2022–

Master Students

Ashutosh Sharma, UIUC	Spring 2024–Fall 2024
Hyunji Kim, MIT	2021–2022

Undergraduate Students

Sarah Deniz, Purdue University (DUIRI)	Fall 2024–
Gavin Fortwendel, Purdue University (DUIRI)	Fall 2024–
Yutao Han, University of Waterloo	Fall 2024–
Shirley Wang, University of Waterloo	Fall 2024–
Leyi Yan, University of Waterloo	Fall 2024–
Linda Wang, University of Waterloo	Fall 2024–
Yuqi Bai, University of Waterloo	Fall 2024–
Zihan Pan, University of Waterloo	Fall 2024–
Amy Li, University of Waterloo (One HotCarbon’24 paper published)	Spring 2024
Beihao Zhou, University of Waterloo (One HotCarbon’24 paper published)	Spring 2024
Sophia Nguyen, University of Waterloo (One HotCarbon’24 paper published)	Spring 2024
Avinash Rao, University of Chicago (One MLSys’22 paper published)	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 (co-PI)
Awarded:	\$9,9992 (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 (co-PI)
Awarded:	\$46,000

TEACHING**Instructor, Purdue University, West Lafayette, IN**

Machine Learning in Cloud Computing (ECE 69500)	Fall 2024
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
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Machine Learning (CMSC 25400)	Winter 2017
Machine Learning (MPCS 53111)	Spring 2016
Machine Learning for Public Policy (CAPP 30255)	Winter 2016

PROFESSIONAL SERVICE

Program Committee

IEEE International Symposium on High-Performance Computer Architecture (HPCA)	2025
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

PRESENTATIONS

Invited Seminars**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

Conference Presentations**Uncertainty-Aware Decarbonization for Datacenters**

Conference presentation at HotCarbon, Santa Cruz, USA	Jul. 2024
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Uncertainty-Aware Carbon Optimization in Cloud Computing

Conference presentation at SoDec Workshop at E-Energy, Singapore	Jun. 2024
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NURD: Negative-Unlabeled Learning for Online Datacenter Straggler Prediction

Conference presentation at MLSys, Santa Clara, USA	Aug. 2022
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Predictable Maintenance Job Planning in Datacenters

Meta Infrastructure Data Science Faculty Workshop at KDD, DC, USA	Aug. 2022
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Generalizable and Interpretable Learning for Configuration Extrapolation

Conference presentation at ESEC/FSE, Virtual	Nov. 2021
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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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