YI DING

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RESEARCH INTERESTS

AI/ML Systems, Sustainable Computing, Datacenter Computing, AI for Healthcare

PROFESSIONAL EXPERIENCE

Purdue University — West Lafayette, IN, USA
Assistant Professor in Elmore Family School of Electrical and Computer Engineering — 8/2023 – Present
PI, STYLE (**S**us**T**ainable computing s**Y**stems and **LE**arning) Lab

Massachusetts Institute of Technology — Cambridge, MA, USA
Postdoctoral Associate & NSF Computing Innovation Fellow. Mentor: Michael Carbin — 1/2021 – 8/2023

Meta — Cambridge, MA, USA
Visiting Researcher — 10/2021–12/2022

Google — Sunnyvale, CA, USA
Research Intern — 6/2019–9/2019

EDUCATION

University of Chicago — Chicago, IL, USA
Ph.D. & MS in Computer Science. Advisor: Henry Hoffmann. — 8/2015 – 12/2020

Nanyang Technological University — Singapore
Ph.D. Candidate in Computer Science. Passed Qualification Exam. — 7/2013 – 7/2015

Beijing Jiaotong University — Beijing, China
B.E. in Electronic Science and Technology. Graduated with Highest Honor. — 9/2008 – 6/2012

SELECTED AWARDS AND HONORS

Innovation Award, Quantum Computing for Drug Discovery Challenge at ICCAD	2023
CRA/CCC/NSF Computing Innovation Fellowship	2020-2023
Meta Research Award	2021
EECS Rising Stars at UC Berkeley	2020

PUBLICATIONS

G Google Scholar; *Underline* Students advised by me; ⋆ Equal contribution; † Corresponding faculty author

Peer-reviewed Conference Proceedings

[C1] Yanran Wu, Inez Hua, and **Yi Ding**†. "Unveiling Environmental Impacts of Large Language Model Serving: A Functional Unit View." *The 63rd Annual Meeting of the Association for Computational Linguistics (ACL)*, 2025.

[C2] Yanran Wu, Inez Hua, and **Yi Ding**†. "Not All Water Consumption Is Equal: A Water Stress Weighted Metric for Sustainable Computing." *The 4th Workshop on Sustainable Computer Systems (HotCarbon) and ACM SIGENERGY Energy Informatics Review (EIR)*, 2025.

[C3] Tianyao Shi, Ritbik Kumar, Inez Hua, and **Yi Ding**†. "When Servers Meet Species: A Fab-to-Grave Lens on Computing's Biodiversity Impact." *The 4th Workshop on Sustainable Computer Systems (HotCarbon) and ACM SIGENERGY Energy Informatics Review (EIR)*, 2025.

[C4] Leyi Yan, Linda Wang, Sihang Liu, and **Yi Ding**†. "EnsembleCI: Ensemble Learning for Carbon Intensity Forecasting." *The 16th ACM International Conference on Future Energy Systems (e-Energy)*, 2025.

[C5] Meghna Roy Chowdhury, Wei Xuan, Sheyres Sen, Yixue Zhao, and **Yi Ding**†. "Predicting and Understanding College Student Mental Health with Interpretable Machine Learning." *IEEE/ACM Conference on Connected Health: Applications, Systems and Engineering Technologies (CHASE)*, 2025.

[C6] Wei Xuan, Meghna Roy Chowdhury, **Yi Ding**, and Yixue Zhao. "Unlocking Mental Health: Exploring College Students' Well-being through Smartphone Behaviors." *IEEE/ACM 12th International Conference on Mobile Software Engineering and Systems (MOBILESoft)*, 2025.

[C7] Meghna Roy Chowdhury, **Yi Ding**, and Sheyres Sen. "SSL-SE-EEG: A Framework for Robust Learning from Unlabeled EEG Data with Self-Supervised Learning and Squeeze-Excitation Networks." *The 47th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, 2025.

[C8] **Yi Ding**† and Tianyao Shi. "Sustainable LLM Serving: Environmental Implications, Challenges, and Opportunities." *The 15th International Green and Sustainable Computing Conference (IGSC)*, 2024.

[C9] Amy Li, Sihang Liu, and **Yi Ding**†. "Uncertainty-Aware Decarbonization for Datacenters." *The 3rd Workshop on Sustainable Computer Systems (HotCarbon) and ACM SIGENERGY Energy Informatics Review (EIR)*, 2024.

[C10] Sophia Nguyen, Beihao Zhou, **Yi Ding**, and Sihang Liu. "Towards Sustainable Large Language Model Serving." *The 3rd Workshop on Sustainable Computer Systems (HotCarbon) and ACM SIGENERGY Energy Informatics Review (EIR)*, 2024.

[C11] 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." *The 28th ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*, 2023.
2023 Innovation Award, Quantum Computing for Drug Discovery Challenge at ICCAD.

[C12] Alex Renda, **Yi Ding**, and Michael Carbin. "Turaco: Complexity-Guided Data Sampling for Training Neural Surrogates of Programs." *ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA)*, 2023.

[C13] **Yi Ding**, Avinash Rao, Hyebin Song, Rebecca Willett, and Henry Hoffmann. "NURD: Negative-Unlabeled Learning for Online Datacenter Straggler Prediction." *Machine Learning and Systems (MLSys)*, 2022.

[C14] **Yi Ding**, Ahsan Pervaiz, Michael Carbin, and Henry Hoffmann. Generalizable and Interpretable Learning for Configuration Extrapolation." *The 29th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE)*, 2021.

[C15] Alex Renda, **Yi Ding**, and Michael Carbin. "Programming with Neural Surrogates of Programs." *ACM SIGPLAN International Symposium on New Ideas, New Paradigms, and Reflections on Programming and Software (Onward!)*, 2021.

[C16] **Yi Ding** and Panos Toulis. "Dynamical Systems Theory for Causal Inference with Application to Synthetic Control Methods." *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2020.

[C17] Ming Gao, **Yi Ding**, and Bryon Aragam. A Polynomial-Time Algorithm for Learning Nonparametric Causal Graphs." *Advances in Neural Information Processing Systems (NeurIPS)*, 2020.

[C18] **Yi Ding**, Nikita Mishra, and Henry Hoffmann. "Generative and Multi-Phase Learning for Computer Systems Optimization." *The 46th International Symposium on Computer Architecture (ISCA)*, 2019.

[C19] **Yi Ding**, Risi Kondor, and Jonathan Eskreis-Winkler. "Multiresolution Kernel Approximation for Gaussian Process Regression." *Advances in Neural Information Processing Systems (NeurIPS)*, 2017.
Spotlight Presentation, Top 4% Submissions.

[C20] **Yi Ding**, Chenghao Liu, Peilin Zhao, and Steven C.H. Hoi. "Large Scale Kernel Methods for Online AUC Maximization." *IEEE International Conference on Data Mining (ICDM)*, 2017.
Long Oral, Top 8% Submissions.

[C21] **Yi Ding**, Peilin Zhao, Steven C.H. Hoi, and Yew-Soon Ong. "An Adaptive Gradient Method for Online AUC Maximization." *The AAAI Conference on Artificial Intelligence (AAAI)*, 2015.
Oral Presentation, Top 10% Submissions.

[C22] Pengcheng Wu, **Yi Ding**, Peilin Zhao, Chunyan Miao, and Steven C.H. Hoi. "Learning Relative Similarity by Stochastic Dual Coordinate Ascent." *The AAAI Conference on Artificial Intelligence (AAAI)*, 2014.

Peer-reviewed Journals

[J23] Guillaume Basse, **Yi Ding**, and Panos Toulis. "Minimax Designs for Causal Effects in Temporal Experiments with Treatment Habituation." *Biometrika*, 2023.

[J24] Kathryn E. Schertz, James Saxon, Carlos Cardenas-Iniguez, Luis Bettencourt, **Yi Ding**, Henry Hoffmann, and Marc G. Berman. "Neighborhood Street Activity and Greenspace Usage Uniquely Contribute to Predicting Crime." *npj Urban Sustainability*, 2021.

RESEARCH ADVISING

PhD Students

Asher Sprigler (ECE), Purdue University	Fall 2025–
Lauren Caccamise (ECE), Purdue University	Fall 2025–
Tianyao Shi (ECE), Purdue University	Fall 2024–
Yanran Wu (CS), Purdue University	Fall 2023–
Zhuoli Yin (IE, Co-advised with Hua Cai), Purdue University	Fall 2021–
Meghna Roy Chowdhury (ECE, Co-advise with Shreyes Sen), Purdue University	Fall 2020–

Master Students

Hyunji Kim, MIT	2021–2022

Undergraduate Students

Jaewon Cho, Purdue University (DUIRI, awarded $1,000 fellowship)	Spring 2025
Isha Shamim, Purdue University (DUIRI, awarded $1,000 fellowship)	Spring 2025
Gavin Fortwendel, Purdue University (DUIRI, awarded $1,000 fellowship)	Fall 2024
- Won the **1st Place** in Research Talk in CoE at Fall 2024 Undergrad Research Expo	
Sarah Deniz, Purdue University (DUIRI, awarded $1,000 fellowship)	Fall 2024
Leyi Yan, University of Waterloo (One e-Energy'25 paper published)	Fall 2024
Linda Wang, University of Waterloo (One e-Energy'25 paper published)	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:	Seed Funding for High-Impact Review Papers
Funder:	Purdue University
Duration:	2024–2025
People:	Inez Hua (PI), Yi Ding (Co-PI)
Awarded:	$10,000 (My share: 50%)

Title:	Conference: DESC: Type III: A Holistic AI Computing Framework: Incorporating the Water and Biodiversity Dimensions of Sustainability
Funder:	NSF
Duration:	2024–2026
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
Awarded:	$46,000

TEACHING

Instructor, Purdue University, West Lafayette, IN

Python for Data Science (ECE 20875)	Spring 2025
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
Machine Learning (CMSC 25400)	Winter 2017
Machine Learning (MPCS 53111)	Spring 2016
Machine Learning for Public Policy (CAPP 30255)	Winter 2016

PROFESSIONAL SERVICE

Organizer

NSF Workshop on Sustainable Computing: AI, Water, and Biodiversity, Co-Chair	August 2024

Invited Participant

Indiana Water Summit	August 2025
CCC Computing Futures Symposium	May 2025
CIFellows 2025 Symposium	May 2025
Dagstuhl Perspectives Workshop: Climate Change: What is Computing's Responsibility?	March 2025
NSF Workshop on Sustainable Computing for Sustainability	April 2024
NITRD 30th Anniversary Symposium	May 2022
CIFellows 2022 Workshop	May 2022

Program Committee

ACM International Conference on Future and Sustainable Energy Systems (e-Energy)	2026
ACM International Conference on Architectural Support for PL and OS (ASPLOS)	2026
IEEE Computer Architecture Letters (CAL)	2025
ACM Workshop on Sustainable Computer Systems (HotCarbon)	2025
SIGOPS Asia-Pacific Workshop on Systems (APSys)	2025
IEEE/ACM International Symposium on Computer Architecture (ISCA)	2025
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
ACM 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

MEDIA COVERAGE

Big Tech's big thirst — AI's demand for Texas water. 8/15/2025
Companies focus on ways of achieving energy efficiency as consumption keeps increasing. 7/15/2025
Tech Giants Scramble To Meet AI's Looming Energy Crisis. 7/14/2025

PRESENTATIONS

Invited Seminars

Not All Water Consumption Is Equal: An AI, Datacenter, and Semiconductor Perspective
Indiana Water Summit, Indianapolis, USA Aug. 2025

Towards Sustainable Next Generation AI and Cloud Systems
Meta, Sunnyvale, USA Sep. 2024

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

Sustainable LLM Serving: Environmental Implications, Challenges, and Opportunities
Conference presentation at IGSC, Austin, USA Oct. 2024

Uncertainty-Aware Decarbonization for Datacenters
Conference presentation at HotCarbon, Santa Cruz, USA Jul. 2024

Uncertainty-Aware Carbon Optimization in Cloud Computing
Conference presentation at SoDec Workshop at E-Energy, Singapore Jun. 2024

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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