

YI DING

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RESEARCH INTERESTS

AI/ML Systems, Sustainable Computing, Human-Centered Computing

PROFESSIONAL EXPERIENCE

Purdue University

Assistant Professor in Elmore Family School of Electrical and Computer Engineering

Affiliated Faculty, Institute for a Sustainable Future (ISF)

Affiliated Faculty, Institute for Physical Artificial Intelligence (IPAI)

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 Engineering. Graduated with Highest Honor.

Beijing, China

9/2008 – 6/2012

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

[J1] Tianyao Shi[★], Yanran Wu[★], Sihang Liu, and **Yi Ding**[†]. “Disaggregated Speculative Decoding for Carbon-Efficient LLM Serving.” *IEEE Computer Architecture Letters (CAL)*, 2025.

[C2] 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.

[C3] 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.

[C4] Tianyao Shi, Ritvik 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.

- [C5] 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.
- [C6] 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.
- [C7] 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.
- [C8] 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.
- [C9] **Yi Ding**[†] and Tianyao Shi. “Sustainable LLM Serving: Environmental Implications, Challenges, and Opportunities.” *The 15th International Green and Sustainable Computing Conference (IGSC)*, 2024.
- [C10] 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.
- [C11] 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.
- [C12] 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.
- [C13] 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.
- [J14] Guillaume Basse, **Yi Ding**, and Panos Toulis. “Minimax Designs for Causal Effects in Temporal Experiments with Treatment Habituation.” *Biometrika*, 2023.
- [C15] **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.
- [C16] **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.
- [C17] 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.
- [J18] 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.
- [C19] **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.
- [C20] Ming Gao, **Yi Ding**, and Bryon Aragam. A Polynomial-Time Algorithm for Learning Nonparametric Causal Graphs.” *Advances in Neural Information Processing Systems (NeurIPS)*, 2020.
- [C21] **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.

- [C22] **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.
- [C23] **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.
- [C24] **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.
- [C25] 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.

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–
Meghna Roy Chowdhury (ECE, co-advise with Shreyas Sen), Purdue University	Fall 2021–

PhD Thesis Committee

Zhuoli Yin (IE), Purdue University	Fall 2021–
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Master Students

Hyunji Kim, MIT	2021–2022
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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

Machine Learning in Cloud Computing (ECE 69500)	Fall 2025
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	Aug. 2024
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Invited Participant

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

Program Committee

IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS)	2026
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

Purdue ECE research reveals how computing impacts global biodiversity. 10/15/2025
 Economic boom or environmental disaster? Rural Texas grapples with pros, cons of data centers. 10/2/2025
 Data centers are thirsty for Texas' water, but state planners don't know how much they will need. 9/25/2025
 Spain's data centre law: supporting local groups in the public consultation. 9/16/2025
 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: A Water Stress Weighted Metric for Sustainable Computing Green Software Foundation, Virtual	Sep. 2025
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

Last updated November 15, 2025