

YI DING

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RESEARCH INTERESTS

Machine Learning for Systems, Computer Architecture, Cloud Computing, Sustainability, Causal Inference

PROFESSIONAL EXPERIENCE

Purdue University Assistant Professor in Elmore Family School of Electrical and Computer Engineering	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

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

Master

Hyunji Kim , MIT	2021–2022
Current: Strip	

Undergraduate

Avinash Rao , University of Chicago	2019–2020
Current: Goldman Sachs	

GRANTS

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) 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
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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

Xiapeisu Youth Forum at ICT, Chinese Academy Of Sciences, Virtual	Sep. 2020
Conference presentation at ISCA, Phoenix, USA	Jun. 2019

Multiresolution Kernel Approximation for Gaussian Process Regression

Conference presentation at NeurIPS, Long Beach, USA	Dec. 2017
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Large Scale Kernel Methods for Online AUC Maximization

Conference presentation at ICDM, New Orleans, USA	Nov. 2017
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An Adaptive Gradient Method for Online AUC Maximization

Conference presentation at AAAI, Austin, USA	Jan. 2015
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EQUITY, DIVERSITY, AND INCLUSION

Prime Minister of PhD Student Representatives in UChicago CS 2018–2020

Acted as the primary interface between faculty and PhD students and responsible for handling faculty-grad interactions and concerns to improve departmental equity and inclusion.

Co-chair of Graduate Women in UChicago CS (GWiCS) 2018–2019

Managed funding for events that foster a community of peer mentorship, which have been attended by 75% of the female PhD students. Also advocated for better department-wide dissemination of resources for female-identifying graduate students.

REFERENCES

Michael Carbin

Associate Professor
 Electrical Engineering and Computer Science
Massachusetts Institute of Technology
 Email: mcarbin@csail.mit.edu

School of Engineering and Applied Science
University of Pennsylvania
 Email: leebcc@seas.upenn.edu

Henry Hoffmann

Professor
 Computer Science
University of Chicago

Benjamin C. Lee

Professor

Email: hankhoffmann@cs.uchicago.edu

Frederic T. Chong

Seymour Goodman Professor

Computer Science

University of Chicago

Email: chong@cs.uchicago.edu

Last updated August 28, 2023