

ANGELA ZHOU

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POSITIONS

Assistant Professor, USC Marshall Data Science & Operations	<i>June 2022-</i>
Research Fellow at Simons Institute Program on Causality	<i>Spring 2022</i>
Postdoc at Foundations of Data Science Institute, UC Berkeley	<i>Fall 2021</i>

Hosted by Bin Yu; Michael I. Jordan.

EDUCATION

Cornell University	<i>September 2016 - May 2021</i>
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Department of Operations Research and Information Engineering.

Princeton University	<i>2012-2016</i>
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Undergraduate: Class of 2016, Operations Research and Financial Engineering.
Graduated summa cum laude.
Thesis: Sequential Decision-Making Problems: Online Learning for Optimization over Networks

RESEARCH INTERESTS

I develop methodology with guarantees for data-driven decision-making under uncertainty and ambiguity, building on optimization, statistics, and machine learning. My work is often motivated by high-impact domains such as e-commerce, healthcare, and public policy.

REFEREED PUBLICATIONS

Author order is alphabetical, following Operations Research convention. The primary publishing venues for machine learning are selective “top-tier” refereed conferences (e.g. Neurips (20-25% acceptance rates), ICML (20-25%), AISTATS (30%), FAccT (formerly known as FAT*, 25%)).

Empirical Gateaux Derivatives for Causal Inference Neurips 2022, “Oral-designated”.
Journal version in preparation.
With M. Jordan and Y. Wang.

Stateful Offline Contextual Policy Evaluation and Learning AISTATS 2022
With N. Kallus

Off-Policy Evaluation with Policy-Dependent Optimization Response Accepted at Neurips 2022.
With W. Guo and M. Jordan.

Minimax-Optimal Policy Learning Under Unobserved Confounding Management Science, 2021.
With N. Kallus

Preliminary results appeared in Neurips 2018 under the title “Confounding-Robust Policy Improvement”.

Assessing Algorithmic Fairness with Unobserved Protected Class Using Data Combination Management Science, 2021.

With N. Kallus and X. Mao

It's COMPASlicated: The Messy Relationship between RAI Datasets and Algorithmic Fairness Benchmarks Neurips 2021 Datasets and Benchmarks Track, Oral

M. Bao, A. Zhou, S. Zottola, B. Brubach, S. Desmarais*, A. Horowitz*, K. Lum*, S. Venkatasubramanian**

* alphabetical; otherwise contributinal.

Fairness, Welfare, and Equity in Personalized Pricing Accepted at FAccT 2021.

With N. Kallus

Confounding-Robust Policy Evaluation in Infinite-Horizon Reinforcement Learning

Neurips 2020

With N. Kallus.

Assessing Disparate Impacts of Personalized Interventions: Identifiability and Bounds

Proceedings of Neurips 2019.

With N. Kallus

The Fairness of Risk Scores Beyond Classification: Bipartite Ranking and the xAUC Metric Proceedings of Neurips 2019.

With N. Kallus

Interval Estimation of Individual-Level Causal Effects Proceedings of AISTATS 2019.

With N. Kallus and X. Mao

Residual Unfairness in Fair Machine Learning from Prejudiced Data Proceedings of ICML 2018

With N. Kallus

Policy Evaluation and Optimization with Continuous Treatments Proceedings of AISTATS 2018

With N. Kallus

WORKING PAPERS

Optimizing and Learning Assortment Decisions in the Presence of Platform Disengagement Submitted to a conference. Journal version in preparation.

With M. Sumida.

Robust Fitted-Q-Evaluation and Iteration under Sequentially Exogenous Unobserved Confounders Submitted to a conference. Journal version in preparation.

With D. Bruns-Smith.

Multi-CATE: Robust Conditional Average Treatment Effect Estimation via Multi-Accurate Learning Submitted to a conference.

With C. Kern and M. Kim.

An Empirical Evaluation of the Impact of New York's Bail Reform on Crime Using Synthetic Controls

Under review.

With T. Bergin, N. Kallus, S. Koppel, A. Koo, R. Peterson, R. Ropac.

TEACHING

BUAD 311: Business Analytics, Marshall School of Business

Fall 2022, 23

HONORS/AWARDS

Rising Star in AI (Harvard Center for Research on Computation and Society)	2021
Rising Star in Data Science (University of Chicago Center for Data and Computing)	2020
Winner, INFORMS Data Mining Best Paper Award (Confounding-Robust Policy Improvement)	2018
Finalist for Best Paper of INFORMS Data Mining and Decision Analytics Workshop (Confounding-Robust Policy Improvement)	2017
National Defense Science and Engineering Graduate Fellowship	2016
Ahmet S. Cakmak Thesis prize winner for undergraduate thesis	2016

ADVISING/MENTORSHIP/STUDENT CO-AUTHORS

I've been very fortunate to work with my collaborators, including junior colleagues.

David Bruns-Smith	UC Berkeley
Defu Cao	USC
Wenshuo Guo	UC Berkeley
Ezinne Nwankwo	UC Berkeley
Luyang Zhang	USC

PROFESSIONAL EXPERIENCE

Microsoft Research New York City	2019
(Hosts: Jenn Wortman Vaughan and Miro Dudik)	
PlaceIQ Data Science	2016
AppNexus Data Science/Optimization	2015

INVITED TALKS

Stanford University, Operations and Information Technology	2023
ShowCAIS, University of Southern California	2023
University of California, Irvine, Statistics	2023
University of Michigan, Computer Science and Engineering	2023
INFORMS Annual Meeting	2022

Adobe Research	2022
Joint Statistical Meetings	2022
Keynote, CPAIOR masterclass on Machine Learning and Optimization	2022
Engelhardt Lab, Gladstone	2022
American Causal Inference Conference	2022
Simons Workshop on Algorithmic Advances in Causal Inference	2022
Simons Fellow Seminar Series	2022
Berkeley Biostatistics Seminar	2022
NYU Langone	2022
INFORMS Annual Meeting	2021
Berkeley Causal Inference Research Group; BLISS; Semi-Autonomous Systems	2021
INFORMS Healthcare conference	2021
Center for Causal Inference Seminar	2021
ANU HMI Seminar Series	2021
Health Data Science Workshop	2021
Harvard CRCS AI for Social Impact	2021
Minimax-Optimal Policy Learning under Unobserved Confounding:	
Northwestern IEMS	2021
USC Marshall School of Business, Operations	2021
UNC Kenan-Flagler School of Business	2021
Cornell Johnson School of Business	2021
Stanford Management Science and Engineering	2021
MIT Sloan/Schwarzman	2021
UBC Sauder Operations and Logistics	2020
Berkeley Haas (Operations and IT)	2020
Columbia IEOR	2020
University of Minnesota ISYE	2020
Columbia Biostatistics Causal Inference Learning Group	2020
Facebook Core Data Science	2020
Kellogg-Wharton OM Workshop	2020
Duke Fuqua Workshop on Operations Research and Data Science	2019
Confounding-Robust Policy Evaluation in Infinite-Horizon Reinforcement Learning:	
INFORMS 2020.	
Assessing Algorithmic Unfairness with Unobserved Protected Class:	
HMI DAIS Seminar at Australian National University	2021
Experian DataLab Brazil	2020
CMU Fairness/Ethics/Accountability Reading Group	2020
Assessing Fairness of Personalized Interventions:	
INFORMS	2019

Confounding-Robust Policy Improvement:

INFORMS Conference on Healthcare	2019
Princeton	2019
MSR NYC	2018
INFORMS	2018

Residual Unfairness:

Crime Lab New York (UChicago Urban Labs)	2018
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Policy Evaluation and Optimization with Continuous Treatments:

Spotify	2017
INFORMS	2017

SERVICE AND REFEREEING

Journal refereeing:

Management Science (MS), Operations Research (OR), Manufacturing & Service Operations Management (M&SOM), Marketing Science, Journal of Machine Learning Research (JMLR), Annals of Statistics (AOS), Journal of the American Statistical Association (JASA), Journal of the Royal Statistical Society: Series B (JRSS:B), Biometrika, Annals of Applied Statistics (AOAS), INFORMS Journal on Computing, Naval Research Logistics, Statistics in Medicine

Conference review:

NeurIPS 18-22 (and Datasets and Benchmarks 21), ICML 18-22, AISTATS 19/22, EC 23, FAccT 20/22-23, MD4SG '20. Conference on Causal Learning and Reasoning (CLearR) 22. Top reviewer at NeurIPS, ICML, AISTATS (top 400, top 5%, 33%, 10%). Expert reviewer ICML 2021. Workshops: Neurips 2021 Workshops, Theoretical Foundations of Reinforcement Learning (ICML 2020), Workshop on Reinforcement Learning Theory (ICML 2021), Causal Inference for Sequential Decision-Making (Neurips 2021), Strategic Machine Learning (Neurips 2021)

Program co-chair: ACM Equity and Access in Algorithms, Mechanisms, and Optimization (EAAMO) (2022).

ACM EAAMO is a new conference that aims to highlight work where techniques from algorithms, optimization, and mechanism design, along with insights from the social sciences and humanistic studies, can help improve equity and access to opportunity for historically disadvantaged and underserved communities.

Senior Program Committee: Theory Area Chair for EAAMO 2021. Area chair for FAccT 2023.

Senior Conference Organization: UAI Scientific Integrity Chair 2023. Tutorials chair for FAccT 2023.

Other: NSF Panelist (2021). Judge, INFORMS Applied Probability Society Student Paper Competition (2021-22). UAI 2023 Scientific Integrity Chair. FAccT Tutorials co-chair.

Workshop Co-organizing

“Do the right thing: machine learning and causal inference for improved decision making”
Neurips 2019

Participatory Approaches to Machine Learning ICML 2020

Workshop on Consequential Decision Making in Dynamic Environments Neurips 2020

Machine Learning Meets Econometrics Neurips 2021

Bridging Prediction and Intervention Problems in Social Systems Banff, 2024