ANGELA ZHOU

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POSITIONS

Assistant Professor, USC Marshall Data Science & Operations *June 2022-*

Research Fellow at Simons Institute Program on Causality *Spring 2022*

Postdoc at Foundations of Data Science Institute, UC Berkeley *Fall 2021*
Hosted by Bin Yu; Michael I. Jordan.

EDUCATION

Cornell University *September 2016 - May 2021*
Department of Operations Research and Information Engineering.

Princeton University *2012-2016*
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 contributional.

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.

A Note on Task-Aware Loss via Reweighing Prediction Loss by Decision-Regret
Working paper.
With C. Lawless.

An Empirical Evaluation of the Impact of New York's Bail Reform on Crime Using Synthetic Controls Under review, 2021+.
With T. Bergin, N. Kallus, S. Koppel, A. Koo, R. Peterson, R. Ropac.

TEACHING

BUAD 311: Business Analytics, Marshall School of Business Fall 2022

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

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

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

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), Journal of Machine Learning Research (JMLR), Journal of the American Statistical Association (JASA), Annals of Statistics (AOS), 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 (CLeaR) 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