

ANGELA ZHOU

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POSITIONS

Assistant Professor, USC Marshall Data Science & Operations	<i>June 2022-</i>
Affiliated Faculty, USC Center for AI and Society	<i>2023-</i>
Research Fellow at Simons Institute Program on Causality	<i>Spring 2022</i>
Postdoc at Foundations of Data Science Institute, UC Berkeley	<i>2021- 2022</i>

EDUCATION

Cornell University	<i>September 2016 - May 2021</i>
Department of Operations Research and Information Engineering.	
Princeton University	<i>2012-2016</i>
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.

UNDER REVIEW

Optimizing and Learning Assortment Decisions in the Presence of Platform Disengagement	Submitted to a journal.
<i>With M. Sumida.</i>	
Robust Fitted-Q-Evaluation and Iteration under Sequentially Exogenous Unobserved Confounders	Submitted to a journal.
<i>With D. Bruns-Smith[†].</i>	

[†] indicates student co-author at the time of collaboration.

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 (25-30%), FAccT (formerly known as FAT*, 25%)).

Reward-Relevance-Filtered Linear Offline Reinforcement Learning	AISTATS 2024
(Artificial Intelligence and Statistics 2024). Journal version in preparation	
<i>Solo-authored paper.</i>	

Optimal and Fair Encouragement Policy Evaluation and Learning Neurips 2023
(Neural Information Processing Systems). Journal version in preparation
Solo-authored paper

An Empirical Evaluation of the Impact of New York’s Bail Reform on Crime Using Synthetic Controls Statistics and Public Policy. 2023
With T. Bergin, N. Kallus, S. Koppel, A. Koo, R. Peterson, R. Ropac.

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

Off-Policy Evaluation with Policy-Dependent Optimization Response Neurips 2022.
With W. Guo[†] and M. Jordan.

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

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 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 Neurips 2019.
With N. Kallus

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

Interval Estimation of Individual-Level Causal Effects 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

Orthogonalized Estimation of Difference of Q -functions: Adapting to Structure In preparation.

Denoised Multiobjective Policy Learning In preparation.
With E. Nwankwo[†].

Multi-CATE: Robust Conditional Average Treatment Effect Estimation via Multi-Accurate Learning In preparation.
With C. Kern and M. Kim.

[†] indicates student co-author at the time of collaboration.

TEACHING

BUAD 311: Business Analytics, Marshall School of Business Fall 2022, 23

Taught 4 sections in Fall 2022 of ≈ 70 students each, and 5 sections in Fall 2023.

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 collaborators, including junior colleagues.

David Bruns-Smith UC Berkeley

Defu Cao USC

Wenshuo Guo UC Berkeley

Ezinne Nwankwo UC Berkeley

Luyang Zhang

USC

GRANTS/FUNDING AWARDS

Microsoft Accelerate Foundation Models Research Program 20,000 in Azure credits.	2023
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SERVICE

Student committees	
Qualifying Exam Committee member, Zhan Gao (USC)	2024
Qualifying Exam Committee member, Wesley Huang (USC)	2023
Qualifying Exam Committee member, Yanfei Zhou (USC)	2023
Undergraduate students	
Sam Zhang (USC)	2023

PROFESSIONAL EXPERIENCE

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

INVITED TALKS AND PRESENTATIONS

(*) indicates presentation by a junior coauthor.

ACIC	2024
CIFAR Workshop: World Models: Causality, Neuroscience, and AI Safety	2024
Cal Poly San Luis Obispo Economics Seminar	2024
UCLA Statistics Seminar	2024
Robust Fitted-Q-Iteration under Unobserved Confounders	
INFORMS Annual Meeting (*)	Oct 2023
USC Machine Learning Lunch	Oct 2023
Machine Learning and Friends Seminar, UMass Amherst	Sept 2023
Harvard/MIT Econometrics Department Seminar	Sept 2023
Bravo Center/JEA/SNSF Workshop on Using Data to Make Decisions	July 2023
Optimal and Fair Encouragement Policy Evaluation and Learning	
Neurips (poster)	Nov 2023
Mechanism Design for Social Good, Inequality Working Group	Oct 2023

ShowCAIS, University of Southern California	April 2023
Optimizing and Learning Assortment Decisions in the Presence of Platform Disengagement	
INFORMS Annual Meeting	Oct 2023
INFORMS Manufacturing and Service Operations Management Conference (MSOM)	Oct 2023
Empirical Gateaux Derivatives for Causal Inference and Stochastic Optimization	
International Conference on Stochastic Programming	Aug 2023
Stanford University, Operations and Information Technology	2023
Southern California OR/OM Day	2023
Simons Institute, Causality Reunion	2023
USC Econometrics Reading Group	2023
INFORMS Annual Meeting	2022
Adobe Research	2022
Keynote, CPAIOR masterclass on Machine Learning and Optimization	2022
Joint Statistical Meetings (on confounding-robust infinite-horizon RL)	2022
American Causal Inference Conference (on Stateful Off-Policy Evaluation)	2022
Minimax-Optimal Policy Learning under Unobserved Confounding:	
University of California, Irvine, Statistics	2023
University of Michigan, Computer Science and Engineering	2023
Engelhardt Lab, Gladstone	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
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)
 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
 Journal of Business and Economic Statistics (JBES)
 Annals of Applied Statistics (AOAS)
 Journal of Causal Inference
 INFORMS Journal on Computing

Naval Research Logistics

Statistics in Medicine

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, 2024

Area chair for AISTATS 2024

Awards for refereeing:

Management Science Meritorious Service Award 2023

Top reviewer at NeurIPS, ICML, AISTATS (top 400, top 5%, 33%, 10%).

Conference review:

NeurIPS 18-23 (and Datasets and Benchmarks 21)

ICML 18-24

AISTATS 19/22

EC 23

FAccT 20/22-23

MD4SG '20

Conference on Causal Learning and Reasoning (CLear) 22

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)

Senior Conference Organization:

UAI Scientific Integrity Chair 2023

Workflow co-chair, American Causal Inference Conference 2022

Tutorials chair for FAccT 2023

Other:

NSF Panelist (2021)

Judge, INFORMS Applied Probability Society Student Paper Competition (2021-22)

Judge, INFORMS Public Sector Operations Research Student Paper Competition (2023)

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