

# ANGELA ZHOU

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## EDUCATION

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### **Cornell University**

Fifth Year PhD Student,

Department of Operations Research and Information Engineering.

Undergraduate: Princeton University. Class of 2016, Operations Research and Financial Engineering. Summa cum laude.

Citizenship status: US citizen.

*September 2016 - Present*

Overall GPA: 4.067

## RESEARCH INTERESTS

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Statistical machine learning, causal inference, data-driven decision-making under ambiguity (sensitivity analysis), partial identification, personalization, trustworthy machine learning.

## SELECTED PUBLICATIONS

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Author order is alphabetical, following Operations Research convention.

### **Confounding-Robust Policy Evaluation in Infinite-Horizon Reinforcement Learning**

Neurips 2020

*With Nathan Kallus*

### **Assessing Algorithmic Fairness with Unobserved Protected Class Using Data Combination**

Accepted at Management Science.

*With Nathan Kallus and Xiaojie Mao*

### **Minimax-Optimal Policy Learning Under Unobserved Confounding**

Accepted at Management Science.

*With Nathan Kallus*

## REFEREED PUBLICATIONS

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The primary publishing venues for machine learning are selective “top-tier” refereed conferences (e.g. Neurips (20.8%, 21.1%, 20.1% acceptance rates), ICML (25.1%), AISTATS (33.2%,32.4%).

### **Assessing Disparate Impacts of Personalized Interventions: Identifiability and Bounds**

Proceedings of Neurips 2019.

*With Nathan Kallus*

### **The Fairness of Risk Scores Beyond Classification: Bipartite Ranking and the xAUC Metric**

Proceedings of Neurips 2019.

*With Nathan Kallus*

### **Interval Estimation of Individual-Level Causal Effects**

Proceedings of AISTATS 2019.

*With Nathan Kallus and Xiaojie Mao*

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

*With Nathan Kallus*

**Policy Evaluation and Optimization with Continuous Treatments** Proceedings of AISTATS 2018

*With Nathan Kallus*

## WORKING PAPERS

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**Fairness, Welfare, and Equity in Personalized Pricing** Submitted.

*With Nathan Kallus*

**Data Collection for Fair Regression** Paper in progress.

*With Miro Dudik and Jenn Wortman Vaughan.*

## HONORS/AWARDS

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Winner, INFORMS 2018 Data Mining Best Paper Award (Confounding-Robust Policy Improvement)

2nd place, INFORMS 2018 Junior Faculty Interest Group Paper Competition (Confounding-Robust Policy Improvement)

Finalist for Best Paper of INFORMS 2017 Data Mining and Decision Analytics Workshop (Policy Evaluation and Optimization with Continuous Treatments)

National Defense Science and Engineering Graduate Fellowship, awarded 2016

Ahmet S. Cakmak Thesis prize winner for undergraduate thesis, 2016.

## PROFESSIONAL EXPERIENCE

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**Microsoft Research New York City** June 2019 - August 2019

*Research Intern; Mentors: Jenn Wortman Vaughan and Miro Dudik* *New York*

- Researched optimal data collection strategies for improving inequities in machine learning regression model performance across groups.

**PlaceIQ** June 2016 - August 2016

*Data Science Intern* *New York*

- Analyzed geospatial basemap data for data analytics company assessing causal effects of online advertising on brick-and-mortar visitation.

**AppNexus** June 2015 - August 2015

*Optimization Intern* *New York*

- Developed a A/B testing experiment reporting and analysis tool to analyze revenue lift of production experiments.

## TEACHING

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Guest lecture, Applied Machine Learning ORIE 5750 (Spring 2018, Spring 2019)

Spring 2018: Co-organized PhD student research seminar on Fairness and Ethics in Operations Research

## RELEVANT COURSES

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Convex Optimization x2, Mathematical Programming (Linear), Probability Theory, Statistical Principles, Theoretical Machine Learning, Analysis of Algorithms, Machine Learning and Causality for Intelligent Decision-Making, Semi/Non-Parametric Econometrics, Bayesian Machine Learning, Optimal Learning, Stochastic Processes, Real Analysis

## INVITED TALKS

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Kellogg-Wharton OM Workshop (7/2020), Duke Fuqua Workshop on Operations Research and Data Science (12/2019).

*Assessing Algorithmic Unfairness with Unobserved Protected Class*: Experian DataLab Brazil, (7/2020).

*Assessing Fairness of Personalized Interventions*: INFORMS (11/2019)

*Towards an Ecology of Care for Data-Driven Decision Making*: Cornell Digital Life Initiative (4/2019).

*Confounding-Robust Policy Improvement*: INFORMS Conference on Healthcare (7/2019), Princeton (4/2019), MSR NYC (9/2018), INFORMS (11/2018)

*Residual Unfairness*: Crime Lab New York (UChicago Urban Labs) (7/2018)

*Policy Evaluation and Optimization with Continuous Treatments*: Spotify (7/2017), INFORMS (11/2017)

## SERVICE

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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

Reviewer (conferences): Neurips 2019 (top 400 reviewer)-2020, ICML 2019 (top 5%) -2020 (top 33%), FAT\* 2020, AAAI Emerging Track on AI for Social Impact 2020, UAI 2019.

Refereeing (journals): Management Science, Journal of Machine Learning Research, Statistics in Medicine, ACM Computing Surveys

Program Committee (incl. reviewing): IJCAI Workshop for Social Good 2019, Theoretical Foundations of Machine Learning ICML 2020 workshop, AI in Financial Services Neurips 2020 workshop, MD4SG Conference 2020