

# Roshni Sahoo

rsahoo@stanford.edu  
[roshni714.github.io](https://github.com/roshni714)  
she/her

## Research Interests

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I develop statistical methodology to address global development challenges, such as how to design data-driven cash-transfer policies for poverty alleviation and how to develop multi-modal systems for population health monitoring. My work leverages tools from machine learning, causal inference, and optimization.

## Education

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### Stanford University

9/2020 - 6/2026

Ph.D. in Computer Science.

Committee: Emma Brunskill, Lihua Lei, Gregory Valiant, Stefan Wager (advisor)

### Massachusetts Institute of Technology

9/2016 - 6/2020

B.S. in Computer Science and Engineering; Mathematics.

Minor in Literature.

GPA: 4.9/5.0.

## Awards

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Rising Star in ISyE-MS&E-IOE, Georgia Tech

2025

Rising Star in Data Science, University of Chicago

2023

Future Leader in Data Science, University of Michigan

2023

Phi Beta Kappa Honor Society

2020

IEEE Eta Kappa Nu (HKN) Honor Society

2019

## Fellowship and Grants

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Stanford Diversifying Academia, Recruiting Excellence Fellowship (\$54,800 support for 2 years)

2024

Spectrum Population Health Sciences Pilot Grant Recipient (\$12,000)

2023

Stanford Data Science Scholar Fellowship (\$79,380 support for 1 year)

2022

McCoy Family Center for Ethics in Society Graduate Fellowship (\$3000)

2021

NSF Graduate Research Fellowship

2020

## Industry Experience

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**Google Research**, Algorithms and Optimization Team, Student Researcher

6/2024 - 9/2024

Supervised by Jennifer Brennan, Jean Pouget-Abadie.

**Two Sigma**, Software Engineering Intern

6/2019 - 8/2019

**Cruise Automation**, Software Engineering Intern

6/2018 - 8/2018

**Northrop Grumman**, Machine Learning Intern

6/2017 - 8/2017

## Job Market Paper

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1. **Sahoo, Roshni**, Joshua Blumenstock, Paul Niehaus, Leo Selker, Stefan Wager. (2025) The Cost of Ending Extreme Poverty. Draft available upon request.

## Preprints

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$\alpha\beta$  indicates alphabetical author order,  $\dagger$  denotes trainee author.

1. **Sahoo, Roshni**, Joshua Blumenstock, Paul Niehaus, Leo Selker, Stefan Wager. (2025) The Cost of Ending Extreme Poverty. Draft available upon request.
2. ( $\alpha\beta$ ) Guan, Amy $\dagger$ , Marissa Reitsma, **Roshni Sahoo**, Joshua Salomon, Stefan Wager. (2025) Data Fusion for Distribution Learning. Draft available upon request.
3. ( $\alpha\beta$ ) Lei, Lihua, **Roshni Sahoo**, Stefan Wager. (2023) Policy Learning under Biased Sample Selection. *Arxiv e-prints*, [abs/2304.11735](#).
4. **Sahoo, Roshni**, Lihua Lei, Stefan Wager. (2022) Learning from a Biased Sample. *Arxiv e-prints*, [abs/2209.01754](#). Reject and Resubmit at *Management Science*.

## Publications

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1. **Sahoo, Roshni**, Stefan Wager. (2025) Policy Learning with Competing Agents. *Arxiv e-prints*, [abs/2204.01884](#). Forthcoming in *Operations Research*.
2. **Sahoo, Roshni**, Shengjia Zhao, Alyssa Chen, Stefano Ermon. (2021) Reliable Decisions with Threshold Calibration. *Advances in Neural Information Processing Systems*.
3. Zhao, Shengjia, Michael P. Kim, **Roshni Sahoo**, Tengyu Ma, Stefano Ermon. (2021) Calibrating Predictions to Decisions: A Novel Approach to Multi-Class Calibration. *Advances in Neural Information Processing Systems*.
4. Gilitschenski, Igor, **Roshni Sahoo**, Wilko Schwarting, Alexander Amini, Sertac Karaman, Daniela Rus. (2020) Deep Orientation Uncertainty Learning based on a Bingham Loss. In *International Conference on Learned Representations*.

## Selected Talks

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1. *Data Fusion for High-Resolution Estimation*  
Joint Statistical Meetings 8/2025  
International Conference on Statistics and Data Science 6/2025  
American Causal Inference Conference 5/2025
2. *Data Leakage in Recommendation System A/B Tests*  
Bridging Industry and Academia in Causal Data Science Workshop 11/2024  
Omega-Causal, Google Research, NYC 7/2024
3. *The Cost of Ending Extreme Poverty*  
Statistics Seminar, Stanford University 7/2025  
AI in Social Science Conference, University of Chicago 9/2025  
Emma Brunskill Group Meeting 6/2025  
Workshop on AI and Analytics for Social Good, University of Maryland 5/2025  
Guest Lecture Stanford CS 106EA 2/2025  
Machine Learning in Economics Summer Conference, University of Chicago 8/2024  
Bravo/SNSF Workshop on Using Data to Make Decisions, Brown University 7/2024  
Algorithmic Fairness Seminar, Stanford University 4/2024  
Machine Learning Lunch, Stanford University 4/2024  
Econometrics Lunch, Stanford University 4/2024
4. *Policy Learning under Biased Sample Selection*.  
INFORMS Annual Meeting 10/2024  
Interactive Causal Learning Conference 11/2023  
Causal Data Science Meeting 11/2023  
Econometrics Lunch, Stanford University 10/2023  
Cornell Causal Reading Group, Cornell Tech 10/2023  
Emma Brunskill Group Meeting, Stanford University 5/2023

Machine Learning Lunch, Stanford University	4/2023
Causal Inference Seminar, Stanford University	4/2023
5. <i>Learning from a Biased Sample</i>	
BIRS Workshop on Bridging Prediction and Intervention Problems in Social Systems	6/2024
FDA Statistical Assessment Methodology and Diagnostic Biomarkers Meeting (SAMDB)	3/2024
Rising Stars in Data Science, University of Chicago	11/2023
ACM EAAMO	10/2023
INFORMS Annual Meeting	10/2023
Joint Statistical Meetings	8/2023
Data Science for Social Good Summer Program, Stanford University	8/2023
MIDAS Future Leaders Summit, University of Michigan	4/2023
Machine Learning Lunch, Stanford University	11/2022
Algorithmic Fairness Seminar, Stanford University	10/2022
Causal Inference Seminar, Stanford University	9/2022
6. <i>Policy Learning with Competing Agents.</i>	
Causal Science Conference, Stanford University	11/2022
ACM EAAMO	10/2022
Algorithmic Fairness Seminar, Stanford University	4/2022
Causal Inference Seminar, Stanford University	4/2022
Machine Learning Lunch, Stanford University	3/2022
7. <i>Deep Orientation Uncertainty Learning based on a Bingham Loss.</i>	
Schlumberger Robotics and Intelligent Automation Webinar	6/2020

## Academic Service

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### RESEARCH MENTEEES

Amy Guan	9/2023 - 6/2025
Melissa Liu	6/2023 - 9/2023

### OUTREACH

Stanford FAST (Future Advancers of Science and Technology), Mentor	9/2021 - 9/2023
Stanford Graduate Women in Computer Science, Chair	9/2022 - 9/2023
Stanford Computing and Society, Organizer	12/2020 - 4/2023
Stanford CS Mentorship Program, Mentor	9/2020 - 9/2021
Stanford First-Generation and/or Low-Income (FLI) Mentorship Program, Mentor	9/2020 - 9/2021

### REVIEWING

**Journals** (13): (# of papers in parentheses) *Biometrika* (3), *Communications in Statistics - Simulation and Computation* (1), *Journal of the American Statistical Association* (1), *Journal of Econometrics* (1), *Journal of the Royal Statistical Society: Series B* (3), *Management Science* (1), *Operations Research* (2), *Quantitative Economics* (1).

**Conferences:** FORC 2023, ACM FAccT (2023, 2024, 2025), NeurIPS 2025 (Workshop Proposals), NeurIPS 2023 (Conference), NeurIPS 2023 (Ethics), WiML (2023, 2024), ICLR (2024, 2025).

### COMMITTEES

Marketing Committee Lead, Stanford Data Science Conference	2023
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## OTHER

Session Chair, International Conference of Statistics and Data Science.	2025
Discussant of "Principal-Agent Hypothesis Testing," International Seminar of Selective Inference.	2022
Panelist for Stanford AI4ALL.	2022

## Teaching

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<b>Exploring Artificial Intelligence (CS 106EA)</b> , Stanford University, Course Assistant	1/2025 - 3/2025
<b>Machine Learning (CS229)</b> , Stanford University, Course Assistant	9/2024 - 12/2024
<b>Introduction to Deep Learning (6.S191)</b> , MIT, Teaching Assistant	1/2020
<b>Elements of Software Construction (6.031)</b> , MIT, Lab Assistant	2/2018 - 6/2018