# Shreya Prakash

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Research Interests: Causal Inference/Discovery, Fairness, Sensitivity Analysis

Personal Website

## EDUCATION

**University of Washington** 2020 - 2025

PhD in Statistics, Advanced Data Science Track. *(Advisors: Elena Erosheva and Carlos Cinelli)*

**Carnegie Mellon University** 2016 - 2019

B.S in Statistics and Machine Learning, University Honors

## RESEARCH EXPERIENCE

**University of Washington**

*Research Assistant advised by Carlos Cinelli and Elena Erosheva* 2022 - Present

- Quantifying discrimination in the NIH Peer Review using causal decomposition methods

*Research Assistant advised by Elena Erosheva* 2021 - Present

- Studying finite sample performance for causal structure learning

*Research Assistant in WA Notify project* 2021

- Conducted research on the impact of the privacy-protected exposure notification app (WA Notify) on COVID-19 transmission and identified factors influencing willingness to quarantine and get tested using statistical methods

**Carnegie Mellon University**

*Undergraduate Research Assistant advised by Alexandra Chouldechova* 2019

- Assessed the presence of age, race, or gender-based discrimination in the utilization of fully or semi-automated decision-making processes for determining when a case worker should investigate specific abuse cases

*Undergraduate Research Assistant advised by Peter Freeman* 2019

- Developed a data pipeline to aid astronomers in understanding the evolution of galaxies based on their current appearances, employing techniques to address imbalanced data

*Undergraduate Research Intern in Black & Veatch Corporate Capstone Project* 2018 - 2019

- Created an R Shiny app for analyzing historical company data, predicting injury and property damage cases, and generating prevention strategies through partial dependence plots (pdp).

*Undergraduate Research Intern for the KONAM Foundation* 2017

- Designed and implemented a machine learning algorithm that assesses the risk of planting certain crops for marginalized farmers in India

## PUBLICATIONS, TALKS, & MEDIA

1. **S. Prakash**, C. Cinelli, E. Erosheva, C. Lee, "A Causal Decomposition Analysis of Black-White Disparity in Selection into Discussion during NIH Proposal Review Process", (2023), (in preparation)
2. **S. Prakash**, F. Xia, E. Erosheva, "Towards Causal Discovery with Statistical Guarantees", (2023), (in preparation)
3. **S. Prakash**, F. Xia, E. Erosheva, "Towards Causal Discovery with Statistical Guarantees", *The Western North American Region of The International Biometric Society (WNAR),* (2023)
4. **S. Prakash**, et al., "Characterizing Incidents at Black & Veatch", *Carnegie Mellon University Meeting of the Minds Undergraduate Research Symposium,* (2019), (3rd Place winner in Poster Presentation Competition)

5. **S. Prakash**, P. Freeman, "Linking Galaxies Across Time via Conditional Density Estimation", *Carnegie Mellon University Meeting of the Minds Undergraduate Research Symposium,* (2019).
6. S. Konam, **S. Prakash**, et al., "New App for Indigenous Farmers", *The Hans India,* (2017), Link.

## PROFESSIONAL EXPERIENCE

**Marinus Analytics**

*Data Scientist* 2020 - 2021

- Applied machine learning and time series analysis for unstructured child welfare case records
- Launched spam filter and underage person detection algorithms for TraffickJam: an application that uses human trafficking advertisement data to aid law enforcement with finding trafficking victims and traffickers

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*Data Science and Research Intern* 2019

- Fixed issues and tested optimization algorithms for grocery promotion; recommended running promotion optimization for 52 weeks to increase category performance by 4%

## TEACHING EXPERIENCE

**University of Washington**

*Teaching Assistant* 2021 - Present

- Autumn 2022: Statistical Reasoning (STAT 220)
- Spring 2022: Causal Modeling (STAT 566)
- Winter 2021: Statistical Concepts and Methods for the Social Sciences (STAT 221)

**Carnegie Mellon University**

*Teaching Assistant* 2017 - 2019

- Fall 2019: Introduction to Probability Theory (36-225)
- Spring 2019: Introduction to Machine Learning (10-601)
- Fall 2017 & 2018: Methods for Statistics and Data Science (36-202)

## RELEVANT COURSEWORK

- Statistical Learning
- Advanced Theory for Statistical Inference
- Foundations of Machine Learning
- Advanced Regression Methods
- Causal Modeling
- Foundations of Fairness in Machine Learning
- Causal Inference: Identifiability and Estimation
- Statistical Graphics and Visualization
- Parallel and Sequential Data Structures and Algorithms (C/SML)
- Linear Algebra
- Probability Theory

## SKILLS

**Software/Programming:** R, Python, SQL, MATLAB, Object-Oriented Programing, Parallel Programming

## LEADERSHIP & ACTIVITIES

- Peer Mentor for underclassmen in UW Statistics PhD Program 2022 - Present
- Member of Statisticians and Biostatisticians of Underrepresented Genders 2020 - Present
- Mentor for underclassmen in CMU's Women in Statistics 2018 - 2019