

# Zhiyu Guo

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## EDUCATION

**Carnegie Mellon University** | Pittsburgh, PA

M.Phil. Public Policy and Management

Aug 2025

M.S. Statistics

May 2023

Completed PhD coursework requirements in both Statistics and Public Policy

**New York University** | New York, NY

B.A. Mathematics (cum laude)

May 2021

## RELEVANT EXPERIENCE

**Carnegie Mellon University** | Graduate Researcher

Sep 2021 – Aug 2025

- Conducted causal inference research on disparity assessment using doubly robust methods and propensity score matching on datasets up to 97K records in R
- Teaching Assistant for 8+ courses including Probability Theory, Text Analysis, Management Science, and Digital Transformations, mentoring 200+ students
- Published peer-reviewed research and presented at Joint Statistical Meetings 2025 and American Causal Inference Conference 2023

**Regeneron Pharmaceuticals** | Research Intern

Jun 2024 – Aug 2024

- Implemented multistate survival models to predict attrition rates and durations for drug development projects in R
- Built Bayesian predictive model with adjustable industry vs. internal data weights for pipeline optimization, increased efficiency in predicting required resources for new pipeline products
- Presented findings on optimization strategies to VP-level finance and planning leadership to inform strategic planning of pipeline expansion

**NYU Stern School of Business** | Research Assistant

Jan 2020 – May 2021

- Analyzed gender technology gap using US Census data and systematic literature reviews
- Wrote and presented annotated bibliography to the PI weekly

## TECHNICAL PROJECTS

**Racial Disparities in Jury Selection**

- Applied doubly robust causal inference methods to analyze prosecutorial peremptory strikes on 2,300 jurors with 120 covariates
- Identified 37% difference in strike rates between Black and white jurors using variable importance measures in R
- Presented findings at Joint Statistical Meetings 2025 and conducted sensitivity analysis to assess robustness across model specifications

**Gender Disparity Analysis in Social Media**

- Implemented propensity score and cardinality matching on 97K Reddit posts using structural topic models and sentiment analysis
- Applied causal inference framework to assess gender disparities in social media engagement outcomes (upvotes, comments)
- Presented research as poster at American Causal Inference Conference 2023

**Algorithmic Fairness in Housing Assessment**

- Evaluated fairness and effectiveness of Allegheny Housing Assessment (AHA) algorithm using 25K records from 2018-2023
- Analyzed three-LASSO prediction model for adverse outcomes (mental health, ER visits, jail bookings) across racial and score groups
- Assessed disparate impact of algorithmic tool compared to traditional VI-SPDAT survey in real-world implementation

## TECHNICAL SKILLS

**Programming:** R, Python (Pandas, NumPy, scikit-learn, PyTorch), SQL, MATLAB, Git, Tableau

**Methods:** Causal Inference, Double Machine Learning, Survival Analysis, Text Analysis, Bayesian Methods, Survey Methodology

**Tools:** RStudio, Jupyter, LaTeX, Large-Scale Data Processing