

LOS ANGELES, CALIFORNIA

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# **Core Competencies**

**Research Expertise** Statistics; Causal Inference; Quasi-Experiments; Experimental Design

Professional Expertise Statistical Modelling and Computing; Econometrics; Data Analysis; ML Ethics; Machine Learning

**Programming Languages** SQL, Python (also proficient in R, SAS, Stata, LTpX)

## **Education**

## **University of California, Los Angeles**

PHD, STATISTICS; FIELD: CAUSAL INFERENCE; C.PHIL. AS OF 6/10/2022; GPA: 3.96

2019 - 2023

- Courses: Statistical Programming; Statistical Modeling and Learning; Methods in Machine Learning; Optimization; Natural Language Processing; Causal Inference; Monte Carlo Methods; Advanced Modeling and Inference; Hierarchical Linear Models; Computer Intensive Methods; Cognitive Al
- TA for STATS 256 (Causal Inference) and STATS 420 (Causal Inference in Social Science Practice)

## **Boston College**

BACHELORS OF ARTS, MATHEMATICS AND ECONOMICS; GPA: 3.70

2009 - 2013

• Giffuni Prize for outstanding Honors Thesis in Economics; Honors in Economics; Undergraduate Research Fellow; Led Fed Challenge Team

# **Professional Experience**

## Twitter: ML Ethics, Transparency, and Accountability (META)

Los Angeles, CA

ML ETHICS INTERN

Summer 2022

• Investigated whether there is differential algorithmic amplification of elected officials from different political parties using tools of causal inference. Study aimed to uncover algorithmic bias favoring certain political parties over others; (perception of) bias affects trust in and bottom line for Twitter.

### **Charles River Associates: Antitrust and Competition Economics Practice**

Oakland, CA & Boston, MA

CONSULTING ASSOCIATE [SENIOR DATA SCIENTIST] (2015-2019); ASSOCIATE [DATA SCIENTIST] (2014-2015); ANALYST (2012-2014)

2012 - 2019

- Conducted empirical analyses of market dynamics related to mergers, acquisitions, and antitrust litigations using large datasets (e.g., claims data, prescription data, sales data) to understand competition, pricing, and client operations. Led teams of analysts and coordinated with clients, resulting in favorable settlements and successful acquisitions.
- Led a team of 3 analysts and coordinated with another consulting firm and 5 of the largest national health insurers in an antitrust litigation brought against a hospital system. Analyzed terabytes of health insurance claims data in modeling patient willingness to pay, prices, and demand.
- Directed a team of 3 analysts and coordinated with clients in an antitrust litigation seeking up to \$100M in damages between 3 of the largest national health insurers and a group of ambulatory surgical centers. Analysis led to a favorable settlement. Modeled price; analyzed market definition and dynamics.
- Coordinated team of 4 analysts related to the \$1.9B successful acquisition by CVS of Target's 1,660 pharmacies. Analyses showed little danger to consumers. Programmatically analyzed local geographic markets; conducted event study related to newly opened locations.
- Worked on numerous pre-deal mergers and acquisitions, analyzing the potential competitive effects of the proposed deals. Built statistical models of
  prices, demand, and other key metrics like customer-to-store drive times. Also conducted various econometric studies using designs like difference-indifferences and event studies.
- Led corporate recruiting and Green Office Initiative (sustainability project) for the Boston Office of CRA. Served as "SAS Expert" by assisting colleagues with difficult tasks and problems and mentored four Analysts and Associates on programming, data analysis, presentation skills, and career development. Promoted from Analyst to Associate and from Associate to Consulting Associate on accelerated schedule.

## Research

#### PhD Dissertation: Causal Inference with Sample Selection and Placebos

Los Angeles, CA

ADVISOR: CHAD HAZLETT

2020-2023

• My PhD work focuses on building tools that practitioners can use to solve real-world problems using credible causal inference, with possible applications in science, policy, business, and technology. My work has focused on the underappreciated issue of sample selection (how units observed in a data set were selected to be in that data set) for internal validity and how to leverage information from placebo outcomes and treatments. The methods I have developed include a graphical procedure for evaluating sample selection as a threat to internal validity, a sensitivity analysis for sample selection, and a flexible and powerful partial identification framework for leveraging information about placebo outcomes and treatments to make defensible causal claims. See drafts on personal website: [Link].

#### Software, Previous Research, Side Projects, Etc.

SOLE AUTHOR AND WITH VARIOUS CO-AUTHORS

- Developing R package placeboPartialID for leveraging information about placebo outcomes and treatments to make defensible causal claims.
- Stanford CISIL Data Challenge 2022: Studied causal relationship between King County Metro Transit fare reinstatement on October 1, 2020 and ridership overall and by socio-economic group. Used an interrupted time series design and a variety of estimation strategies.
- Murphy, R., Rohde, A. Rational Bias in Inflation Expectations. Eastern Econ J 44, 153–171 (2018). [Link]
- A variety of additional projects can be found on my personal website: [Link]