Contact Information:
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Summary of Interest: I am interested in the intersection of AI and economics because these tools are well suited to addressing unanswered questions in economics. Specifically, I am interested in applying AI to better understand discrimination. Traditionally, many individuals have expressed concern over the ability of algorithms to exacerbate current inequities (which is undoubtedly an important area of research); that said, AI and machine learning have the potential to allow economists to study discrimination in a more nuanced way. In my research, I use photos of inmates to see if I can detect colorism in sentencing length, i.e. harsher sentences for darker skinned individuals. While some researchers have done this using labeled classifications of light, medium or dark skinned, I have created a more continuous spectrum by detecting the average color from each photo and using a neural network to predict race. Using both measures of race and skin tone as running variables allows me to study how average sentence length varies throughout the distribution of race. Doing so reveals differential rates of discrimination, namely that lighter skinned individuals experience lower amounts of discrimination. The confluence of AI and economics is highly engaging and constantly evolving. I want to continue to build my knowledge in both data science and economics, as I believe these fields enable researchers to utilize new data and methodologies to better understand fundamental questions in the economics literature.

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EDUCATION

Harvard Kennedy School *Cambridge, MA*
Ph.D. Student in Public Policy Expected 2024
Primary Field: Labor Economics
Secondary Field: Data Science- School of Engineering and Applied Science
Interests: Criminal Justice, Machine Learning, Social Policy
Awards: NSF GRFP Honorable Mention, Peggy Howard Fellowship

Wellesley College *Wellesley, MA*
B.A. Economics with Honors, summa cum laude, Phi Beta Kappa May 2016
Minor: Mathematics

RELEVANT EXPERIENCE

Harvard Kennedy School *Cambridge, MA*
Teaching Fellow for Machine Learning and Big Data Analytics to Prof. Saghafian Jan. - May 2019

- Lead weekly coding session to teach 50+ masters students R and machine learning techniques
- Generated curriculum for masters students, including problem sets and midterms

Princeton University *Princeton, NJ*
Senior Research Specialist for Industrial Relations Section July 2016 - May 2018

- Performed statistical data analysis on large data sets using Stata, R, and ArcGIS to evaluate public policy outcomes in fields of labor, crime, and education
- Investigated impact of opioid crisis on labor market outcomes for millions of individuals through econometric analysis using CDC data for Professor Alan Krueger
- Analyzed education data to generate reports on diversity and inclusion of minority students and women in economics and public policy fields for Dean Cecilia Rouse
- Designed recruitment materials and formulated strategy for experiment to expunge criminal records, targeted at 1000s of low income individuals for Professor Alex Mas

RELEVANT WORKING PAPERS

Using Photo Analysis and Transfer Learning to Detect Colorism in Mississippi Inmate Sentencing
Abstract In this paper, I apply image processing techniques and transfer learning to detect if darker skinned individuals are sentenced to longer prison terms using data from Mississippi prisons. I find that for a one standard deviation increase in skin color, individual sentence length increases by approximately 415 days. Using FaceNet architecture, I create a model to predict the probability an individual is black using his or her prison mug shot. I find for a one standard deviation increase in probability of black, sentence length increases by 200 days. These results, while not causal, highlight the additional nuances that photo analysis can add to studies of disparate outcomes in the criminal justice system. Beyond criminal justice, this project highlights the potential for machine learning to add insights in the social sciences' study of bias in numerous fields such as education, employment, and healthcare.

SKILLS AND COURSEWORK

Languages Python, R, ArcGIS, Stata, SQL, and LaTeX
Courses Intro. and Adv. Data Science, Big Data Analytics and Machine Learning, Sequential Decision Making, Critical Thinking in Data Science, History of Human Capital, Labor Market Analysis