Summary:

I'm a Ph.D. candidate in economics at Brown University, and I've been using machine learning for economic research this past year as a full-time RA for Dan Bjorkegren and Joshua Blumenstock. In particular, I've applied a variety of standard machine-learning techniques for their paper "Manipulation in Machine Learning," where we seek to estimate costs of behavior manipulation that may occur in response to machine-learning inference in order to develop more stable ML algorithms. I've also studied CS and machine learning during my coursework prior to coming to Brown.

In my own future work, I hope to use machine learning to construct measures of environmental degradation and air pollution from satellite data in China, which I'll then use to try and estimate the relationship between urbanization and environmental pollution; in particular, I hope to estimate the welfare implications of the size of Chinese cities, to determine whether or not the finding in recent urban papers that Chinese cities are 'too small' is strengthened or disputed when including environmental factors in welfare evaluation.

Samsun Knight

19 Benefit St., Providence, RI 02904 • 617-276-2054 (Cell) • samsundknight@gmail.com

EDUCATION

Brown University, Providence, RI
2015 – 2016, AM in Economics
2015 – 2022 (expected), Ph.D. in Economics (formerly on leave 2016 – 2018)

University of Iowa, Iowa City, IA
2016 – 2018, MFA in Fiction
Truman Capote Fellow and Graduate Fellow

Oberlin College, Oberlin, OH
2010 – 2014, BA with High Honors in Economics
Majored in Economics, Mathematics and Creative Writing

EXPERIENCE

Economics Department, Brown University, Providence, RI
Research Assistant to Daniel Björkegren, Sept 2018 – Present

- Built code infrastructure for running a randomized controlled experiment in Kenya on manipulation in machine learning, using primarily Python as well as R and SQL to perform cross-validated LASSO, PCA, as well as structural econometric estimation
- Coauthoring paper to estimate social welfare weights using structural econometric estimation, primarily inequality moment-matching

Rhode Island Innovative Policy Lab, Brown University, Providence, RI
Graduate Research Assistant, June 2016 – August 2016

- Programmed a generalizable Stata program for performing value-added analysis using empirical Bayes shrinkage, and employed said package to analyze the causal impact of labor training programs in RI
- Constructed and cleaned a dataset of employment outcomes and individual covariates from raw data for performing the aforementioned analysis

Industrial Relations Section, Princeton University, Princeton, NJ
Senior Research Specialist I, June 2014 – May 2015

- Built all analysis figures and tables in Stata for Prof. Dobbie's NBER presentation on NYC Regent's exam score manipulation, estimating said manipulation using the Chetty et al. (2009) tax-bunching approach
- Investigated and cleaned the 9-million-observation dataset for Prof. Dobbie's paper on score manipulation
- Created four housing price indices for California for Prof. Mas' paper on income inequality
- Replicated a study on Progresa using Regression Kink Design for a paper by Prof. Card, Lee, Pei and Weber as well as checked and edited the mathematical proofs
- Wrote 2015's CSMGEP Annual Report on the status of minorities in the economics profession
- Developed a series of data collection scripts in Python

Mathematics Department, Oberlin College, Oberlin, OH
Mathematics Research Assistant, September 2013 – May 2014

- Researched matroid theory and configuration theory for Prof. Raney, working on a paper on the latter field

PROGRAMMING BACKGROUND

Summary :	*Details* :
- Fluent in using statistical packages for econ analysis	- Expert in STATA and good with R, MATLAB, etc.
- Proficient in object-oriented programming	- Completed 5 university CS courses up through Algorithms (equivalent of a CS minor, but spread across multiple institutions) in Java and C++, and taught myself Python for research work at Princeton and Brown
- Proficient with machine learning	- Took a graduate-level machine learning course at Iowa, have used machine learning techniques in my research for Prof. Björkegren as well as my own research, including cross-validated LASSO and neural networks