ALISABETH MARSTELLER

Lead Data Scientist, Violence & Inequality Project, **Princeton School of Public and International Affairs**

CONTACT

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EDUCATION

B.A. in Astrophysical Sciences

Princeton University, 2014 - 2018

Coursework: Applied Social Statistics (Graduate-level), Fundamentals of Machine Learning, Analysis of Big Data, General Computer Science

Accomplishments: Graduated *cum laude*, Olympic Trials Swimming Qualifier, Ivy League Swimming Champion

SKILLS

- **R** – dplyr, sf, tigris, stats
- **Python** – scikit-learn, pandas, numpy, igraph, selenium
- **SQL**
- Statistical inference & modeling
- Designing best practices for project development
- Communication with non-technical audiences
- Version control - Linux & GitHub
- Visualization – ggplot2, Tableau
- Microsoft Office

SUMMARY

Creative and adaptable data scientist with 5+ years of experience in conceptualizing and programming data-driven solutions in multiple industries and fields. Equipped with a diverse toolkit of statistics and machine-learning methodologies and ability to expand these skills for domain-specific needs of each project. Current work includes a state-of-the-art agent-based model that simulates the emergent, time-dependent phenomena of urban gun violence for informing gun violence interventions.

PROFESSIONAL EXPERIENCE

Lead Data Scientist/Statistical Programmer

Princeton University, Princeton, NJ   September 2020 – Present

- Manage the development of an agent-based model (ABM) from scratch that simulates the complex interpersonal dynamics that lead to urban shootings.
  - Identified and cleaned 14 different data sources for empirically informing the model.
  - Conducted validation and sensitivity tests.
  - Scaled model to 1M agents with cluster-computing.
  - Successfully recreated treatment effect from a randomized control trial of a well-known violence intervention in Chicago.
- Communicate methods and findings to collaborators from criminology and epidemiology in emails and bi-weekly meetings.
- Automate and optimize process of web-scraping, cleaning, and validating monthly shootings and murder data for AmericanViolence.org.
- Built R package with re-usable functions for cleaning census data, such as geocoding addresses and imputing monthly and yearly populations.

Data Scientist - Enterprise Pricing and Promotion

84.51°, Cincinnati, OH   January 2019 – December 2020

- Created a novel metric to measure effectiveness of products assigned to various in-store promotions.
- Leveraged Google's Causal Impact to analyze effect of pricing changes on Kroger customers.
- Conducted analysis to help identify out-of-stocks as a cause of churn issues in the pickup subscription model.
- Revamped and delivered Python training content to the organization's data scientists.
- Converted analytical solutions from SQL code into Python using PySpark and Pandas.
- Designed a template for organizing data analysis projects that is still used at the company today.