Jamie Hackney

INTRODUCTION:

Self-motivated and creative data scientist with a passion for using data, statistical methods, and machine learning frameworks to create positive change in public policy development and humanitarian initiatives. Expertise in data research, analysis, and acquisition, visualizations, and applied machine learning. Excellent communicator of complex technical concepts with strengths in team collaboration, critical thinking, and problem solving.

EDUCATION:

Middlebury College, Middlebury, VT **2024**
B.A. in Computer Science, Minor in Spanish

- **GPA:** 3.91
- **Awards:** Summa Cum Laude, Computer Science Department's Highest Honors
- **Relevant Coursework:** Machine Learning, Artificial Intelligence, Statistical Learning, Data Science, Relational Databases, Linear Algebra, Geography of Poverty
- **Activities:** Vice President of the Cycling Club

Machine Learning for Public Policy – Certificate, Maastricht University **2024**

- Certificate awarded for completion of the course *Machine Learning for Public Policy* through Maastricht University, Netherlands.

PROFESSIONAL EXPERIENCE:

United Nations, New York, NY **July 2024 - Present**
Office of the Special Advisor to Africa
Data Scientist – Intern, Strategic Management Unit

- Responsible for the design, development, and deployment of a novel data app to help policy analysts better understand their data by automating much of the extract-transform-load and exploratory data analysis phases of data-based policy making.
    - Write Python scripts to dynamically extract and display data based on user selected filters from API endpoints, CSV files, and DuckDB SQL queries.
    - Automatically clean and merge selected data with existing data using Pandas and generate analytical reports to highlight trends and data reliability issues.
    - Integrate LangChain pipelines to create a natural language data analysis agent.
    - Extract text from PDF and Word documents and store in a DuckDB vector store for use in a retrieval-augmented generation agent.
    - Manage large language model deployment with Microsoft Azure.
    - Create automatic interactive time-series and geographic visualizations using Plotly.
    - Collaboratively manage project development with Git command line tools and GitHub.
- Assist the development of a data dashboard to track sustainable development goal progress.
    - Research different data sources for sustainable development indicators and evaluate their reliability.
    - Write scripts in R and Python to extract, transform, and load data from a diverse set of sources.

- Develop narratives and data dashboards in Tableau to present the story of the data to country finance ministers to inform policy decisions.
- Work cross-functionally with different teams and stakeholders, including policy analysts and the Under-Secretary-General, to ensure the design and functionality of the dashboard satisfies goals.

Fundación Superación de la Pobreza, Chile **March 2023 – July 2023**
Software Development Intern

- While studying and living abroad in Chile, worked with the Fundación Superación de la Pobreza, an NGO focused on sustainable development and overcoming poverty.
- Worked in a team responsible for developing a data-based tool to improve water accessibility for under-privileged populations in the country by increasing availability of information on water sources.
- Collected water source information from various publicly available sources and created a centralized database from them.
- Created a user-friendly and interactive web-app to show water source information from the database.

Middlebury College, Middlebury, VT **June 2022 – January 2023**
Research Assistant to Professor of Behavioral Economics

- Assisted in the design of surveys and behavioral trials used to study the development of political polarization.
- Used Python and Qualtrics to create, deploy, and collect data from online versions of these surveys and trials.
- Used R and Python to analyze the results of the surveys in the context of political polarization.

RESEARCH and PROJECTS:

UNHCR Machine Learning Challenge

- Worked with a team to develop, implement, and evaluate machine learning models to accurately predict refugee population movements in Somalia as part of the United Nations High Commissioner for Refugees' Machine Learning Challeng**e**.
- Built a training dataset by writing a custom web scraper in Python to collect, clean, and merge data describing weather patterns, market prices, and refugee movements.
- Evaluated the efficacy of imputing versus dropping missing data.
- Identified best features through exploratory data analysis and feature selection methods like variance thresholds and univariate statistical tests.
- Trained and evaluated classical machine learning model implementations from scikit-learn, including linear regression, decision tree, and random forest.
- Implemented, trained, and evaluated a custom deep learning model with PyTorch.

Senior Thesis - Election Systems and Political Polarization

- Researched academic literature on election systems and political polarization.

- Designed an agent-based model of plurality and instant runoff ranked choice election systems to study how election systems create political polarization.
- Remotely executed scripts on a high-performance compute cluster using Linux Command Line Tools to simulate close to a million elections and generate data describing the polarization and political state of the simulation.
- Analyzed the generated data using statistical analysis and the Matplotlib and Seaborn data visualizations libraries to quantify the political polarization of the political system.
- Presented research findings in a written report and oral presentation.

Generative Markov Models

- Accessed and cleaned twitter data on several well-known, prolific tweeters.
- Researched and studied academic literature on Markov models, generative text models, and natural language processing techniques.
- Designed three Markov model variations to have generative text capabilities and trained them on the twitter data.
- Evaluated each model's generative capability and risk of bias.

LEADERSHIP, VOLUNTEER, and COMMUNITY ENGAGEMENT:

Pine Street Club – *Dover-Sherborn High School* **2016 - 2019**

- Volunteered to serve breakfast at Pine Street Inn Homeless Shelter in Boston.

MATE – *Dover Youth Group* **2018, 2019**

- Worked on a team to refurbish and rebuild homes in areas of rural poverty in the Northeast.

Eagle Scout – *Troop 1, Dover* **2012 - 2017**

- Served in leadership positions and attained the rank Eagle Scout in 2017.