

A versatile data scientist skilled in implementing and fine-tuning advanced models, with a strong foundation in probability theory and applied statistics. Proficient in developing machine learning models and creating algorithms to manage large datasets while ensuring optimal performance. Adept at simplifying technical concepts for diverse audiences using straightforward explanations, visual tools, and relatable examples.

## Skills

### Programming & Tools

Python | R | MATLAB | JavaScript | HTML | CSS | PostgreSQL | MySQL | SQLite | RSQLite | Jupyter | BeautifulSoup | Numpy | Pandas | Scikit-learn | TensorFlow | PyTorch | Keras | XGBoost | LightGBM | sqlalchemy | ArcGIS | Stata | Git | LaTeX | Markdown | Retrieval-Augmented Generation (RAG) | Local Large Language Models

### Data Processing & Visualization

Feature Engineering | Hyper-parameter Tuning | Cross-validation | Sentiment Analysis | Topic Modeling | Text Classification | Data Cleaning | Data Normalization | Missing Data Imputation | Data Aggregation | Advanced Integration Techniques | NLTK | SpaCy | ggplot2 | plotly | Advanced NLP Techniques

### Statistical & Machine Learning Techniques

Bayesian Model Averaging | Random Forest | Support Vector Machine | Gradient Boosting Machines | k-Nearest Neighbors | Linear Regression | Logistic Regression | Maximum Likelihood Estimation | Causal Inference | Propensity Score Matching | Regression Discontinuity Design | Difference-in-Differences | Reinforcement Learning from Human Feedback | Conjoint Experiment Design | Panel Data Analysis | Robust Regression | Bootstrapping | Genetic Matching | Experimental and Observational Data Integration

## Experience

### Data Science Specialist

April 2023 - present

Scale AI

Remote

- Contributed to a reward model of reinforcement learning from human feedback (RLHF) to align with client-specific needs
- Emphasized improvements in accuracy, conversational fluidity, and user engagement while maintaining strict writing style and structure protocols across various domains
- Incorporated sophisticated AI capabilities, including semantic comprehension and topic adherence to optimize model performance
- Formulated detailed training scripts for a range of data science applications, strengthening the chatbot's proficiency in code interpretation and generation
- Designed learning materials to aid users in learning how to **host large language models locally** using PyTorch and NumPy for the training of a large language model and GPU acceleration

## Computational Scientist

August 2017 — May 2024

Washington University in Saint Louis

Saint Louis, MO

- Developed an automated ETL pipeline for a **Twitter text experiment** using `nlTK`, `numpy`, and `scikit-learn`, populating a SQL database with comments from 30 news outlets to analyze communication trends.
- Conducted a survey to explore the effects of **fake news on political participation** and the effectiveness of fact-checking interventions to identify effective strategies to prevent misperceptions
- Designed and developed informative visualizations with Python packages such as `ggplot2` and `plotly` packages and `ggplot2` to study **user opinions' about political advertisements**
- Developed a **Bayesian model averaging** approach to combine predictions from multiple forecasting models to forecast the 2020 presidential election

## Data Science Instructor

June 2020 — June 2022

Washington University in Saint Louis

Saint Louis, MO

- Created and delivered interactive, user-centered **data science courses** utilizing Python, Git, and JupyterLab, enhancing student engagement and learning outcomes
- Employed visual tools and practical examples in teaching Python and data visualization with `pandas`, `numpy`, `seaborn`, and `matplotlib` to improve comprehension
- Supervised practical projects using GitHub and JupyterLab, emphasizing user-centric design and interactive analysis
- Adapted teaching methods based on ongoing student feedback, demonstrating a commitment to continuous improvement and user experience principles

## Education

Ph.D. in Political science	Washington University in Saint Louis	2024
M.A. in Political Science	Saint Louis University	2017
B.A. Political Science (Cum Laude)	Saint Louis University	2016

## Publications

- Guess, Andrew, Dominique Lockett , Benjamin Lyons, Brendan Nyhan, Jacob M. Montgomery, and Jason Reifler. 2020. "Fake news' may have limited effects beyond increasing beliefs in false claims." The Misinformation Review. [Link to article.](#)
- Edelson, Laura, Dominique Lockett , Jacob Montgomery, Damon McCoy, Tobias Lauinger, Celia Guillard "US Public Opinion Towards Platform Regulation of Political Advertisements: Discontent and Consensus for Reform" (Forthcoming)
- Lockett, Dominique. Cognitive Landscapes: Argument Evaluations, Misinformation Corrections, and Racial Attitudes in Modern Media. [Link to book.](#)

## References

Jacob Montgomery, PhD	Chair of Division of Computational and Data Sciences, WashU	<a href="#">Contact info.</a>
Betsy Sinclair, PhD	Chair of Political Science, WashU	<a href="#">Contact info.</a>