github
website
linkedin

Dominique Lockett, Ph.D

Data Scientist

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A versatile data scientist with expertise in advanced model implementation and optimization. Leveraging a robust foundation in probability theory and applied statistics to develop cutting-edge machine learning solutions. Excels in creating high-performance algorithms for large-scale data management and analysis. Committed to bridging the gap between complex technical concepts and diverse audiences through clear communication, compelling visualizations, and real-world applications. Eager to push the boundaries of AI and contribute to groundbreaking projects in machine learning and software development.

Skills

Programming & Tools	Python | R | JavaScript | SQL (PostgreSQL, MySQL, SQLite) | Git | LaTeX | Jupyter | TensorFlow | PyTorch | Scikit-learn | Pandas | Numpy | XGBoost | LightGBM | ArcGIS | Retrieval-Augmented Generation (RAG) | Local Large Language Models
Data Processing & Visualization	Feature Engineering | Hyper-parameter Tuning | Cross-validation | NLP (NLTK, SpaCy) | Text Classification | Topic Modeling | Data Cleaning & Normalization | Advanced Integration Techniques | ggplot2 | plotly
Statistical & Machine Learning Techniques	Bayesian Model Averaging | Ensemble Methods (Random Forest, Gradient Boosting) | Support Vector Machine | Deep Learning | Causal Inference | Propensity Score Matching | Regression Discontinuity Design | Difference-in-Differences | Reinforcement Learning from Human Feedback | Panel Data Analysis | Experimental and Observational Data Integration

Experience

Data Science Specialist — **April 2023 - present**
Scale AI — Remote

- Engineered custom reward models for reinforcement learning from human feedback (RLHF), significantly enhancing client-specific alignment metrics and optimizing conversational AI models across diverse domains
- Designed complex prompts for AI systems across various data science domains, including machine learning, database management, data visualization, and natural language processing
- Conducted in-depth critiques and evaluations of AI-generated responses, providing actionable feedback to improve model performance in areas such as fulfillment, helpfulness, and presentation
- Leveraged expertise in applied mathematics and statistics to develop sophisticated data analysis techniques and create tailored learning roadmaps for machine learning concepts

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
- Published article in Harvard's Misinformation Review exploring 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 and R packages such as `plotly` 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
- Created tutorial on hosting large language models locally, facilitating community learning in PyTorch and CUDA-based GPU acceleration techniques

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