Pete Pritchard

Last updated in May 2025

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Education

University of Michigan *Aug 2023 – May 2025*
MS in Applied Statistics

University of Tennessee *Aug 2020 – May 2023*
BS in Applied Mathematics, BA in Economics

Technologies

Languages: Python, R, SQL, C++

Tools: Git, Google Cloud Platform, Dataiku, Docker, Looker, Linux/Unix, Dash, LaTeX, Jupyter Notebooks, Emacs

Libraries: Pandas, NumPy, PyTorch, SciPy, Jax, BlackJax, PyMC, Scikit-learn, Matplotlib, Seaborn, Ggplot2, RStan, RCpp

Experience

Student Researcher *Ann Arbor, MI*
NASA *Jan 2025 – Present*

- Enhanced performance of NASA's Sequential Monte Carlo Sampler library by developing new features with JAX and BlackJax, rewriting outdated code, and implementing gradient-accelerated forward kernels suited for high-performance computing clusters, significantly improving computational efficiency
- Improved code maintainability and reliability through robust documentation, benchmarking, and comprehensive unit testing, ensuring seamless deployment on NASA's high-performance computing infrastructure

Data Science Intern *Mountain View, CA*
NASA *June 2024 – Aug 2024*

- Used Python to build real-time data applications of operational and test data to provide comprehensive visualizations, reveal patterns and drive more effective decision-making and business outcomes, emphasizing critical insights such as cost and performance metrics
- Developed real-time analytics dashboard processing 1TB+ of operational data daily
- Engineered automated scheduling system that reduced resource allocation time from 4 hours to 15 minutes, adopted by 20+ engineers across 5 departments

Graduate Student Instructor *Ann Arbor, MI*
University of Michigan *Aug 2023 – May 2025*

- Awarded the Outstanding Graduate Student Instructor Team Award by the Statistics Department
- Lead instructor for 4 lab sections with 100+ total students, maintaining very high average student satisfaction rating
- Promoted to Graduate Student Mentor after one semester, supervised a team of 7 teaching assistants

Data Science Intern *Washington, DC*
NASA *June 2024 – Aug 2024*

- Developed and deployed short-term and long-horizon demand forecast models and dashboard using Python and Dash, enhancing forecasting accuracy and decision-making
- Created API wrapper reducing report generation time by 90%, saving 400+ hours annually across management team
- Optimized database by enacting 50+ SQL queries, reducing average query time by 75% and handling 100+ daily requests
- Contributed to database redesign that improved retrieval efficiency by 60% and reduced storage requirements by 40%

Projects

Scalable Peptide Sequence Clustering Tool *Code*

- R package designed for scalable protein sequence clustering, visualization, and consensus sequence generation
- Implements Needleman-Wunsch alignment and MinHash approximation in C++ for fast similarity matrix computation

Multimodal Transformer Architecture for Skin Cancer Detection *Code*

- Developed a novel multimodal transformer framework combining 3D-TBP imaging with metadata for skin cancer detection, achieving partial AUC of 0.17 and significantly outperforming standard models
- Implemented mutual attention blocks to enhance bidirectional learning between image and metadata features, while addressing class imbalance through synthetic data generation techniques (SMOTE)