Hanyu (Mason) Liu

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Education

Johns Hopkins University — Baltimore, MD
Doctor of Philosophy in Geography and Environmental Health and Engineering — *Aug. 2022 – Present*

Johns Hopkins University — Baltimore, MD
Master of Health Science in Environmental Health and Engineering — *Aug. 2022 – May. 2023*

George Washington University — Washington, D.C.
Bachelor's in Science in Business Analytics, Minor in Communications — *Aug. 2018 – May 2022*

Experience

Research Scientist — May 2022 – Present
Johns Hopkins University — *Baltimore, MD*
- Improved model-data agreement by a 50-point increase in R^2 using a geostatistical inverse model on HPC systems
- Identified a 1-month seasonal timing bias in methane emissions via time-series analysis using Pandas and NumPy
- Reduced matrix computation time by 60% through vectorized and sparse linear algebra operations in MATLAB

Applied Data Scientist — Jan 2022 – May 2022
FI Consulting — *Washington, DC*
- Estimated a 20% increase in odds of institutional closure associated with enrollment decline via logistic regression
- Improved model accuracy by 15% over baseline models using Support Vector Machines for closure risk prediction
- Communicated model insights to technical and non-technical stakeholders through decision-focused visualizations

Medical Research Assistant — Jan 2021 – Aug 2021
Peking Union Medical College Hospital — *Beijing, China*
- Collected and processed clinical datasets with 30+ demographic and biomarker features across 80+ patient records
- Improved data reliability by reducing anomalous values by 40% using z-score normalization to standardize features
- Reduced feature dimensionality by over 80% using PCA while retaining more than 70% of total variance

NCAA Division I Student-Athlete — 2018 – 2025
George Washington University and Johns Hopkins University — *Washington, DC and Baltimore, MD*
- Balanced NCAA Division I athletics with full-time academics through strong time management and resilience
- Nationally ranked top 25 with a perfect 4.0/4.0 GPA and earned the Outstanding Master's Essay Award (2023)
- Selected as an Academic All-American and served as an assistant coach for the men's tennis team

Projects

TennisMigos | *Swift, iOS, Supabase, PostgreSQL, REST APIs* — 2025 – Present
- Built and deployed a native iOS app in Swift integrating Supabase (PostgreSQL + Auth) for backend services
- Implemented asynchronous API calls to support real-time chat, bookings, and user interactions
- Designed relational data models for users, sessions, courts, and coaches
- Delivered a production-ready mobile application using Xcode and cloud-hosted backend infrastructure

Climate Data Science Mentorship Program | *Python, Data Analysis, Mentorship* — Jan 2024 – May 2024
- Evaluated Baltimore's Climate Action Plan by guiding problem formulation and data-driven analysis
- Mentored two students in translating complex datasets into actionable and policy-relevant insights
- Presented analytical findings to non-technical audiences through clear visualizations and structured narratives

Technical Skills

Languages: Python, R, MATLAB, Java, C/C++, SQL (PostgreSQL), JavaScript, HTML/CSS, Swift, Bash/Shell
Machine Learning & AI: Supervised & Unsupervised Learning, CNN, RNN, LSTM, NLP, Computer Vision
Developer Tools & Platforms: Git/GitHub, Supabase, AWS (Basic), Linux/Unix, VS Code, Xcode, LaTeX
Libraries & Frameworks: NumPy, Pandas, SciPy, Matplotlib, Seaborn, Plotly, TensorFlow, PyTorch, scikit-learn

Additional Information

Languages: Chinese (Native), English (Fluent), Spanish (Elementary), French (Elementary)
Work Authorization: U.S. Permanent Resident (no sponsorship required)