Benjamin Nicholson

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Professional Summary

Graduate student in Applied Mathematics & Statistics at Stony Brook University, specializing in Quantitative Finance. Employs extensive background in programming, machine learning, and mathematical rigor to explore financial markets. Seeking quantitative researcher or quantitative trading internship roles for summer 2026.

Education

Masters in Applied Mathematics in Quantitative Finance - Stony Brook University *Long Island, NY, Dec 2026*
Cumulative GPA: 3.5/4.0
Relevant Coursework: Simulation & Modeling, Machine Learning in Quantitative Finance, Financial Derivatives & Stochastic Calculus, Quantitative Risk Management, Foundations of Quantitative Finance

Bachelor of Science in Data Science - Seton Hill University *Greensburg, PA, May 2025*
Cumulative GPA: 3.7/4.0 Department GPA: 3.6/4.0 Dean's List: Spring 2022, Spring 2024, Fall 2024
Honors: Academic Scholarship NCAA DII Soccer Team Athletic Scholarship 2025 Data Science Honors Award
Relevant Coursework: Machine Learning, Applied Statistics & Modeling, Numerical Analysis, Advanced Data Science

Work Experience

Database Engineer - Seton Hill University *May 2025-Aug 2025*
- Designed and deployed a normalized SQL Server database to track 10,000+ student engagement records
- Generated SQL queries using CTEs, multi-level joins, and subqueries to build reusable views and reporting tables for Apache Superset dashboard enabling data-driven decisions
- Created dynamic filters and conditional logic to calculate engagement strength metrics based on student characteristics, empowering term-based comparisons and targeted improvement initiatives

Data Analyst - CMMB *Sep 2024-Mar 2025*
- Developed donor segmentation models using clustering and statistical analysis in Python, increasing targeted marketing efficiency by 20%
- Calculated customer lifetime value (CLV) and retention rates to optimize fundraising strategies
- Conducted data quality audit of 1M+ records, eliminating 50k+ data integrity errors from normalized database

Projects

Agent-Based Discrete Event Simulation of Financial Markets *Sep 2025-Dec 2025*
- Utilized a double sided price-time priority queue with DES to explore liquidity efficiency of different markets
- Generated agents with differing interarrival and price beliefs based on exponential random variates
- Confirmed that non-market-maker markets experience reduced efficiency as buyer-seller ratios move away from 1

EY Data Challenge: Predicting Urban Heat Islands (Python) *Jan 2025-Mar 2025*
- Developed a Random Forest model with Bayesian Optimization, achieving R^2 of 0.9606 and ranking 86th out of 10000+ global participants; partnered with local urban planners for city planning recommendations
- Leveraged Computer Vision through satellite imagery and geospatial data using Earth Science APIs

Enhancing Technical Analysis with Data Science (Python) *Jun 2024–Dec 2024*
- Evaluated success of Technical Analysis investment strategies integrating business cycle regime filtering
- Optimized indicators using ML hyperparameter tuning, improving performance by 2% over traditional methods
- Developed a hybrid RSI-Bollinger Band strategy, outperforming Buy and Hold investments by 10%

University Experience

Captain of Men's Soccer Team *Jan 2024-Dec 2024*
- Assisted with management of the team, while facilitating additional practices and workouts
- Achieved the best team performance since the inception of the program (10-5-4)

Head Resident Assistant *Aug 2023-May 2025*
- Performed progress reviews of Resident Assistants and designed resource management tools for department offices

Statistics/Programming/Data Analytics Tutor *Aug 2024-May 2025*
- Taught probability, statistics, Python/R/MATLAB, and Excel to students in a group sessions and individual meetings
- Emphasized the practical application of abstract concepts to encourage engagement

Skills

Programming Languages: Python (Scikit-Learn, Pandas, NumPy, PyTorch), SQL, R, Excel (Pivot Tables)
Technical Skills: Numerical Methods, Machine Learning, Monte Carlo Simulations, Statistical Analysis