Gabriel Bridger

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Summary

Computer Science with Artificial Intelligence student with a strong interest in applying AI and machine learning into financial markets. Skilled in time series forecasting & currently seeking an internship in Quantitative Research.

Education

University of Nottingham   June 2029
MSci, Computer Science with AI (Integrated Masters)   First Year Grade Average: **78%**
- *Program Includes a year in Industry Placement (2026-2027) and culminates in a Master's Level Qualification*

Relevant Courses:

Functional Programming in Haskell, Fundamentals of Artificial Intelligence, **Developing Trading Algorithms**, Mathematics for Computer Scientists - **Advanced Linear Algebra** and Applications.

Relevant Topics:

RNNs, ANNs, LSTMs, ARIMA models, Time Series Analysis, Large Scale Data Processing, Discrete Dynamical Systems, Stochastic Matrices & Processes, Probability theory.

Work Experience & Projects

XGboost Model for Time Series Forecasting | *Python, Shell, Scikit-Learn, XGBoost*

- Developed an end-to-end **Extreme Gradient Boosting** (XGBoost) model to forecast stock returns based on input feature data
- Engineered a parallelised a **Recursive Feature Elimination** pipeline to optimise the input features used which reduced total training pipeline time by ~40%
- Implemented a hybrid strategy using a **Monte Carlo Simulation** to produce **Conditional Value at Risk** metrics which allows the algorithm to determine stock position based on the level of acceptable risk
- Architected **parallelised backtesting software** which reduced back testing time by **~98%**

Interactive Options Pricing Heatmap | *Python, Matplotlib/Seaborn*

- Built a UI to generate heatmaps of option prices calculated with the **Black-Scholes model**.
- The tool visualizes the value of call and put options, allowing for dynamic user inputs for variables like underlying price, strike price, volatility, risk-free rate, and time to expiration.

JPMorgan Chase & Co. Quantitative Research Virtual Experience Program on Forage - September 2025

- Analyzed a book of loans to estimate a customer's probability of default
- Used dynamic programming to convert FICO scores into categorical data to predict defaults

Skills

- **Languages:** Python, Haskell, SQL, C, Git
- **Libraries/Frameworks:** TensorFlow/PyTorch, Scikit-Learn, Pandas, NumPy, Matplotlib, yfinance, Linux
- **Quantitative Concepts:** Time Series Analysis (LSTMs, RNNs, ANNs), Black-Scholes, Monte Carlo, CVaR, Stochastic Processes