Jesse Freitag

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EDUCATION

The University of Chicago   **Chicago, IL**
Master of Science in Financial Mathematics (GPA: 3.70/4)   **Expected December 2024**
- Portfolio Theory & Risk Management, Fixed Income, Python, Option Pricing, Stochastic Calculus, Time Series, Monte Carlo Simulation, Multivariate Statistical Analysis, Foreign Exchange Markets

Stony Brook University   **Stony Brook, NY**
Bachelor of Science in Applied Mathematics & Statistics (GPA: 3.93/4)   **Graduated December 2022**
Bachelor of Arts in Economics
- Probability Theory, Regression Theory, Data Structures & Algorithms, Differential Equations, Graph Theory

SKILLS

Computing: Python, Java, R, SQL, Jupyter, Bloomberg Query Language (BQL)
Libraries: Pandas, Numpy, Matplotlib, Scikit Learn, Statsmodels, BLPAPI
Knowledge: Monte Carlo Simulation, Fixed Income, Option Pricing, Statistical Modeling, Time Series Analysis

EXPERIENCE

The Options Clearing Corporation   **Chicago, IL**
Quantitative Researcher – University of Chicago Project Lab   **October 2024 – December 2024**
- Implemented an algorithm utilizing machine learning concepts to model implied volatility surfaces in Python

DV Trading LLC   **Chicago, IL**
Quantitative Risk Intern – Strategic Portfolio Allocation and Risk Group   **June 2024 – August 2024**
- Collaborated with research team in developing trading strategies using time series models and academic research
- Developed a hedging-model to inform the risk team on how to improve current hedging techniques using PCA, GARCH, and detecting non-linear risk exposures
- Created a web application to calculate correlation haircut for different equities and energy derivatives based on a regulatory PCA-based model alongside the development team

BlackRock, Inc.   **Chicago, IL**
Quantitative Researcher – University of Chicago Project Lab   **January 2024 – March 2024**
- Analyzed the relationship between Morningstar rating change and change in fund flow for over 80 BlackRock ETFs using time series regressions, event studies for each major asset class, and a fixed-effects model
- Evaluated the asymmetric effects that fund-rating upgrades and downgrades have on asset returns and net fund flow

Neuberger Berman   **Chicago, IL**
Quantitative Researcher – University of Chicago Project Lab   **October 2023 – December 2023**
- Developed and improved the prediction accuracy of existing emerging market sovereign and corporate credit spread models to be used in asset allocation decisions using XG Boost, Vector Autoregression, and ARIMA models
- Generated 1-3-6-12 month forecast of JPM's Emerging Market Debt and JPM's Emerging Corporate Debt Indices

GMAG Wealth Management (Acq. by Wealthspire Advisors)   **Melville, NY**
Research Analyst Intern – Investment Research Group   **June 2021 – May 2023**
- Leveraged financial machine learning research using Hudson & Thames' MLFinLab to identify false investment strategies, enhancing the firm's overall approach
- Designed logistic and linear regression models to forecast Consumer Price Index, Unemployment, and Industrial Production in Python while recognizing statistical properties of time series data

TECHNICAL PROJECTS

The University of Chicago, Department of Statistics   **Chicago, IL**
An Exploration of Variance Reduction Techniques for Pricing European and Asian Options   **May 2024**
- Researched variance reduction techniques to estimate European and Asian Option prices using antithetic variates, importance sampling, and control variates including Delta and Gamma-based control variates
- Validated Anthetic Variates of Delta and Gamma Control Variates resulting in a near 100x relative reduction in standard error compared to Classical Monte Carlo Simulation

INTERESTS: Weather modeling, competitive Geoguessr, New York Mets, bagpipes