Zixuan (Kate) Shi

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Education

The University of Chicago **Chicago, IL**
M.S. in Financial Mathematics GPA: 3.80/4.00 **Expected December 2024**
Courses: Quantitative Trading Strategies, Applied Algorithmic Trading, Option Pricing, Machine Learning, Data Science, Stochastic Processes, Portfolio Theory & Risk Management, Fixed Income, Numerical Methods, Portfolio Credit Risk

New York University **New York, NY**
B.A. in Mathematics and Economics (double major), Minor in Business Studies GPA: 3.71/4.00 **May 2023**
Courses: Stochastic Calculus, Time Series, ODE, PDE, Math Modeling, Econometrics, Data Structure and Algorithms

Skills

Programming: Python, C++, SQL, R, Tableau, MATLAB, Stata, VBA, MS Office
Knowledge: Algorithmic Trading, Option Pricing, Portfolio & Risk Management, Fixed Income, Financial Markets, Data Anlytics, Linear Regression, Time Series, Machine Learning(Logistic, Random Forest, XGboost, SVM, etc.), NLP
Certificate & Award: Pursuing CFA and FRM degree, Scholarship for Full Academic Year

Working Experiences

Bunge Oils, Inc. **St. Louis, MO**
Data Analyst Intern - Global Strategic Pricing **June 2024 - August 2024**

- Engineered and automated data pipelines for the extraction, validation, aggregation, and updates of transaction and market data using Python, SQL, and advanced big data techniques to improve the efficiency of daily operations
- Developed quantitative tools to generate highly visualized reports, and identified over 200+ trading opportunities by analyzing the overall commodity market trends, peer product performance, and customer profiles
- Designed a dynamic pricing strategy by leveraging ARIMA and LSTM models to forecast customer savviness scores and measure future price sensitivity, leading to optimized pricing decisions and increased profitability

Loomis Sayles **Chicago, IL**
Quantitative Analyst Intern, *Project Lab* **January 2024 - March 2024**

- Employed Sample Entropy methodologies to predict VIX Signals and detect significant shifts within VIX series and market regimes. Validated the robustness of factor through experimentation with varying rolling windows and lags
- Leveraged Optuna Techniques for parameter fine-tuning and optimization. Backtesting under various market regimes revealed the effectiveness of utilizing Sample Entropy-based VIX signals in the style rotation strategy
- Expanded Entropy trading signals to diverse asset class ETFs (equity, corporate bond, currency), yielding significant returns during periods of market turmoil, enhancing the approach's versatility across market conditions

China Galaxy Securities (CGS) **Beijing, China**
Quantitative Researcher Intern, *Factor Investing and Asset Allocation* **July 2022 – September 2022**

- Utilized the Black-Scholes model and Bisection Method to derive implied volatility of options, which served as the major risk factors in a volatility-based trading strategy and yielded a 1.7 Sharpe Ratio during back-testing
- Developed a 'Dual-Low' trading strategy based on the convertible bond price, premium rate, and net profits to construct diverse portfolios, and back-tested the trading strategy, yielding a 20.89% annualized return
- Conducted quantitative research on the impact of macroeconomic factors on Fama-French SMB and HML factors in the Chinese market using the Vector Autoregression Model (VAR) and the impulse response function (IRF) analysis
- Performed feature selection using Lasso Regression, optimized VAR order with AIC, and implemented IRF analysis to identify the most impactful macro factors further and provide factor investing asset allocation recommendations

Research Projects

Fund of Funds Quantitative Asset Allocation Model **July 2023 – August 2023**

- Leveraged Python to assess diverse funds, analyze asset allocation, risk, and performance metrics, and developed a multi-factor model to decompose performance by duration, credit spread, and term structure for strategic allocation
- Conducted thorough backtesting under multiple market scenarios, achieving 2% excess returns over benchmarks

Momentum Treasury Futures Trading Strategy **May 2023 – June 2023**

- Conducted thorough research on various momentum factors such as ATR Channel, moving average, MACD, etc., and constructed a trading strategy on treasury futures based on the 20-day moving average factor
- Implemented rule-based entries and a 0.5% trailing stop-loss, ensuring disciplined decision-making and risk mitigation to back-test the strategy, which achieved an annualized return of 2.11% from 2016 to 2021