Zheyu (Eric) Li

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EDUCATION

MIT - Massachusetts Institute of Technology Boston, MA
Master of Finance 2023.08 - 2025.02 (Expected)
Coursework: Advanced Math for Financial Engineering, Corporate Finance, Data Analytics and Machine Learning in Finance, Options and Futures Markets, Fixed Income Securities, Quantitative Investment Management

Rice University Houston, TX
B.S in Statistics, Minor in Data Science & Financial Computation and Modeling 2020.09 - 2023.05
Coursework: Machine Learning, Data Science Tool and Models, Advanced Statistical Methods, Applied Time Series Forecasting, Stochastic Models, Quant Financial Risk Management, Statistical Inference, Microeconomy

SKILLS

Programming: Python (NumPy, Pandas, Scikit-Learn, TensorFlow, Matplotlib), R (zoo, dplyr, ggplot2), SQL
Statistical Modeling: LSTM, XGBoost, Random Forest, SVM, Decision Tree, PCA, GARCH, SARIMA
Certificate: Pursuing CFA & FRM, SOA Exams in Probability, Financial Mathematics, Statistics for Risk Modeling

WORKING EXPERIENCE

Hong Kong Exchanges and Clearing Limited Hong Kong, China
Quant Risk Management Intern 2024.06 - 2024.08

- ***Data Cleansing:*** Explored enhancements for cleansing implied volatility data, fine-tuned bounds and thresholds to optimize outlier detection and volatility surface fitting.
- ***Model Validation:*** Reviewed and replicated modules in HKEX's Derivatives Pricing Library, conducted input checks and stress tests, verified compliance with documentation and regulatory requirements.
- ***Model Improvements:*** Introduced a new method for repo curve calibration using intersections of call and put implied volatility bid-ask spreads, enhancing the pricing model precision.
- ***Performance Optimization:*** Performed non-functional tests on pricing library functions, reducing computation time and increasing efficiency through targeted optimizations.

Kafang Information Technology Co., Ltd, Shanghai, China
Quant Analyst Intern 2022.05 - 2022.08

- ***Data Management:*** Managed internal database by writing SQL queries to support data retrieval, update, batch import, troubleshooting, data aggregation, and generate daily market reports.
- ***Technical Analysis:*** Constructed 150+ technical factors using exchange's intraday quotation data, and evaluated the factor's performance on the Chinese convertible bond market through back-testing.
- ***Machine Learning Modeling:*** Developed LightGBM & LSTM models to enhance factor performance using Python (TensorFlow), with cross validation and parameters tuning to ensure model robustness.
- ***Back Testing:*** Designed a long-only high frequency trading strategy to back-test the signal's performance, yielding a 15% Information Coefficient with a significantly lower volatility.

GF Fund Management Shanghai, China
Quant Analyst Intern 2021.07 - 2021.08

- ***Factor Investing:*** Utilized the multi-factor models (Fama-French 5 factors and Barra 10 factors model) to explain the stock return and analyze the portfolio's risk exposure for optimal factor investing.
- ***Statistical Modeling:*** Built Principal Component Analysis (PCA) to address the multicollinearity issue of the factors and re-group stocks for innovative asset allocation guidance.
- ***NLP Sentiment Analysis:*** Developed NLP model in Python to perform sentiment analysis using 200+ analysts' weekly reports, which provide predictions on the company's popularity and future movement.

RESEARCH EXPERIENCE

Black Litterman Asset Allocation with Machine Learning Regime Identification 2023.11 – 2024.02

- ***Data Preprocessing:*** Collected historical sector returns and macroeconomic data via Bloomberg and Yahoo Finance Python API. Performed data cleaning to ensure data quality for robust model fitting.
- ***Regime Identification:*** Developed unsupervised models including gaussian HMM, k-means clustering, and gaussian mixture models to identify normal (growth) or crash (rapid decline) market states.
- ***Model Validation:*** Analyzed return, volatility, correlation, drawdown of the sectors under each regime to validate model performance and explore the behavior of each sector under various market conditions.
- ***Asset Allocation:*** Built Black-Litterman Asset Allocation Model to incorporate the sector performance views generated from the regime identification models for allocation recommendations.

Quantitative Trading Strategy Research (Carry Trading) 2023.06 - 2023.07

- ***Carry Trading Research:*** Conducted a literature review on carry trading strategies, and built three distinct single-future carry trading strategies on WTI crude oil and Henry Hub natural gas futures.
- ***Asset Allocation:*** Developed portfolio allocation model using carry for weight determination.
- ***Back Testing:*** Achieved a Sharpe Ratio of 0.32 and a Cumulative Excess Return of 0.014 for the strategy.