YUJIANG(TOMMY) FAN

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EDUCATION

The University of Chicago — Chicago, IL
M.S. in Financial Mathematics (GPA: 4.0/4.0) — Aug 2023 - Dec 2024

Nankai University — Tianjin, China
B.Phil. in Logic & B.Econ. in Finance (Financial Engineering Track) (Top 5%, GPA: 3.85/4.0) — Sep 2019 - Jun 2023
Awards: First-class Academic Scholarship; National Innovation and Entrepreneurship Scholarship

EXPERIENCE

Hull Tactical Asset Allocation (HTAA) — Chicago, IL
Quantitative Modeling and Research – Summer Intern — Jun 2024 - Present

- Collected data using SQL and researched VIX, VVIX, skew, volatility term structure, Fama French 5 factors to design VXX return prediction features; performed both correlation analysis and regression test
- Developed VXX return prediction model using Random Forest and Structural Regression; improved model performance by combining base models across different VIX regimes; designed VXX trading strategies based on model signals to support trading risk overlay in ETF (HTUS) portfolio, achieving a Sharpe ratio of 1.20 compared to 1.09 for a pure shorting baseline
- Established feature creation pipelines to derive new SPY return predictors by integrating various time series feature transformers (e.g., EMA, Mode Box, Z-scores) and optimizing out-of-sample correlation with SPY forward returns for feature selection
- Implemented 10+ Machine/Deep Learning models to forecast SPY one-day forward return for trading shares in ETF portfolio; ensembled XGBoost and LSTM models by weighted average, achieving a 9% average increase in out-of-sample rolling R-squared compared to the ElasticNet model in production

Neuberger Berman — Chicago, IL
Quantitative Researcher Intern – University of Chicago Project Lab — Oct 2023 - Dec 2023

- Built Ridge Regression and ARIMA-LS models to forecast 3-, 6-, and 12-month-ahead returns for emerging market bond indices (EMBI GD Total, EMBI GD IG, and CEMBI Total), achieving 0.42, 0.37, and 0.29 out-of-sample R-squared; resampled 48 macro and micro variables to a monthly frequency and applied PCA and LDA to reduce them to 9 principal components
- Conducted feature engineering for predictors using encoding, binning, polynomial, time series, and clustering transformation techniques, extending 48 variables to 183 more effective ones
- Leveraged LightGBM to enhance short-term (3-month-ahead) prediction accuracy of bond indices; optimized LightGBM using Optuna and demonstrated 22% lower out-of-sample R-squared compared to the linear baseline

Fullgoal Fund Management — Shanghai, China
Quantitative Analyst Intern — Jun 2023 - Sep 2023

- Developed market timing indicators for tracking sectors' bottom reversals using time series analysis and cross-sectional momentum (including algorithmic fluctuations, stock dominance ratio, RSI, etc.); backtested from 2010 to 2023 and enhanced model performance through hyperparameter and trading signal studies, achieving a PNL ratio of 1.5
- Implemented Bayesian Online Changepoint Detection (BOCD) to uncover hidden fluctuations in sector indices; applied Garch to determine the dynamic variance and conjugate priors to evaluate prediction accuracy, and integrated momentum factors to enhance index models and mitigate drawdown risks

Nomura Orient International Securities (Nomura Holdings) — Shanghai, China
Quantitative Portfolio and Risk Analytics Intern — Feb 2023 - May 2023

- Analyzed performance of market sentiment factors in sector selection using portfolio sorting and Fama-MacBeth regression; incorporated efficient factors into existing sector rotation models by risk parity, with a 2.7% increase in annual return
- Constructed daily position-tracking panels for FOF portfolios and analyzed return & volatility across equities, fixed incomes, public and private funds, and alternative assets; developed a multi-period Brinson model to decompose the equity portion into sector allocation and stock selection returns, supporting portfolio managers' trading decisions
- Utilized minute-level data to generate and backtest 10+ intraday factors orthogonal to market cap, turnover, and reversal; the "downside volatility ratio" and "realized skewness" achieved above 0.03 factor IC and 1.5 factor IR

SKILLS

Computing: Proficient in Python(Numpy, Pandas, Scikit-learn, Pytorch), R, SQL, VBA, C++, , Tableau, Git, MS Office
Language: English (Fluent), Mandarin (Native)
Knowledge: Econometrics, Time Series, Machine & Deep Learning, Option Pricing, Stochastic Calculus, Fixed Income Analysis