YUNXIAO XIANG

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EDUCATION

New York University, The Courant Institute of Mathematical Sciences New York, NY
M.S. in Mathematics in Finance; GPA: 3.8/4.0 Dec. 2020

- ***Coursework:*** martingales, Monte Carlo, local volatility, SVI, Brownian motion, Black-Scholes, VaR, Greeks, Itô lemma, GARCH, cross-validation, LSA, LDA, random forest, Kalman filter, K-NN, boosting, Gaussian kernel, reinforcement learning, neural network, B-spline, Bayesian inference, SVM, clustering

University of California, San Diego La Jolla, CA
B.S. in Applied Mathematics; B.A. in Economics; GPA: 3.8/4.0 Jun. 2019

- ***Coursework:*** Markowitz model, CAPM, arbitrage pricing theory, factor model, hypothesis test, ODE, bootstrap, MLE, CLT, SVD, PCA, regression, ACF, ARIMA model, backtesting, heat equation, GA

EXPERIENCE

RavenPack New York, NY
Summer Research Project Leader (Mentors: Ricard Matas Navarro, Peter Hafez) Jul. 2020 – Sep. 2020

- Filtered for novel events based on sentiment score; visualized distance between events and analyst ratings
- Leveraged Bayesian approach to compute P (analyst rating change | event X happened in Y days) for each (X, Y, entity); checked event volume, probability distributions and significant ratios for subset selection
- Implemented XGBoost to forecast analyst rating events; tackled imbalanced labels by oversampling
- Constructed signals to build event-driven portfolio; evaluated prediction power and portfolio metrics

Axiomquant Investment Management, LLC HQ: Beijing, CN
Quantitative Research Intern (Remote in New York) Jul. 2020 – Sep. 2020

- Processed 5 years' auction, close, market data to extract 132 intraday, cross-date, cross-stock features
- Leveraged LRU cache to optimize repetitive function call, multiprocessing to parallelize computation
- Built OLS, Ridge, and elastic net to predict future returns; selected significant features by out-of-sample liquidity-weighted correlation, rolling cross-validation, Sharpe and PnL of prediction-based portfolio
- Backtested daily rebalanced portfolio on test set; achieved correlation of 0.087 and excess Sharpe of 1.57

Ubiquant Investment Co., Ltd. HQ: Beijing, CN
Data Analyst Intern (Remote in New York) Apr. 2020 – Jul. 2020

- Implemented Almgren's impact model to estimate implicit cost of trades size up to 10% of market volume
- Processed TAQ data to efficiently generate model inputs – volume time, execution details, volatility, etc.
- Leveraged non-linear Gauss-Newton optimization and regression to fit impact coefficients and exponents
- Incorporated trading impact in backtesting strategy to compute more realistic Sharpe (from 4.38 to 3.53)

PROJECTS

S&P500 Dispersion Trading – NYU Capstone Project in Python (Mentor: Sebastien Bossu)

- Estimated implied dividend of S&P500 component stocks by put-call inequality of American options
- Calibrated SVI volatility surfaces for 15 years to price variance swaps; constructed zero-cost dispersion portfolio and plotted PnL; computed variance-implied correlation and compared with realized correlation

Deal Probability of Russian Commodities – NLP in Python and Multivariate Regression in R

- Leveraged NLP, GPT, and image processing to extract numerical variables from descriptions and images
- Built logistic regression after cross-validation and subset selection to model skewed deal probabilities

Identifying Similar Articles – Latent Sentiment Analysis in Python

- Tokenized Reuters Article data with TF-IDF; applied truncated SVD to reduce dimensionality to 400
- Leveraged K-NN classifier to assign corpus to closest category of documents based on cosine similarity

Path-dependent Options Pricing – Monte Carlo, Numerical PDE, and Analytical PDE in Python

- Priced down-and-out Call by simulating 100,000 GBM paths and Implicit Euler Scheme respectively
- Derived solution to PDE analytically; compared analytical solution with simulated and numerical results

COMPUTER SKILLS/OTHER

Programming Languages: Python (6 years), Java (5 years); R, Excel, MATLAB (2 years); SQL (1 year)
Languages: Mandarin (native), English (fluent), Japanese (basic)