# 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; Current GPA:** 3.8/4.0 Dec. 2020

- ***Coursework:*** martingales, PCA, Monte Carlo, local volatility, SVI, Brownian motion, Black-Scholes, Black-Litterman, Multiprocessing, VaR, GA, Greeks, Itô lemma, GARCH, LRU Cache, cross-validation

**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, SARIMA model, backtesting, heat equation

## EXPERIENCE

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

- Processed 5 years' auction, close, market data to extract 132 intraday, cross-date, cross-stock features
- Leveraged LRU Cache to optimize repetitive cross-date function call, multiprocessing to paralyze process
- Built regression model to predict future returns; selected significant features by evaluating out-of-sample liquidity-weighted correlation, rolling cross-validation, Sharpe and PnL of prediction-based portfolio
- Backtested daily rebalanced portfolio on 2020 test set; achieved correlation of 0.087 and Sharpe of 8.57

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

- 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 XGBoosting to forecast analyst rating events; tackled imbalanced labels by oversampling
- Translated conditional probabilities into long-short portfolio; evaluated out-of-sample Sharpe and PnL

**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 Order Trade data to efficiently generate model inputs – volume time, execution detail, etc.
- Leveraged non-linear Gauss-Newton optimization and regression to fit impact coefficients and exponents
- Incorporated trading impact in backtesting strategy to improve accuracy of Sharpe (from 4.38 to 3.53)

**Black Wing Asset Co., Ltd.** Shanghai, CN
***Summer Investment Analyst Intern*** Aug. 2018 – Sep. 2018

- Discovered 6.3% loss in small-cap market simulation; customized strategy by incorporating implicit cost
- Implemented momentum strategy with MA, MACD indicators, improved clients' portfolio returns by 5%

## 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; computed implied correlation from portfolio and compared with realized correlation

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

- Leveraged NLP to extract numerical variables from descriptions and images; visualized sample attributes
- Built logistic regression after subset selection to model skewed deal probability with over 50% zeroes
- Conducted hypothesis test to find variable significantly influence probability; presented findings in report

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

- Leveraged Implicit Euler Scheme, Monte Carlo, analytical PDE solution to price down-and-out Call

## COMPUTER SKILLS/OTHER

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