

# YUNXIAO XIANG

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## EDUCATION

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- 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

## SKILLS

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**Programming Languages:** Python (6 years), Java (5 years); R, Excel, MATLAB (2 years); SQL (1 year)  
**Tools/Technologies:** AWS Services, LaTeX, Git, Bloomberg, JUnit, OOP, test-driven development (TDD)  
**Operating Systems:** Linux, macOS, Windows **IDEs:** Jupyter, Sublime, Eclipse, PyCharm, RStudio, MySQL

## EXPERIENCE

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- RavenPack** New York, NY  
**Summer Research Project Leader (Mentors: Ricard Matas, 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  $P(\text{analyst rating change} \mid \text{event X happened in Y days})$  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

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- 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
- 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
- Reducing Time Complexity of TSP – Genetic Algorithm and Multithreading in Java**
- Implemented shuffle, crossover, tournament select, mutate; reduced search space by factor of 10,000
  - Coded synchronized multithreading methods to increase speed of fitness computation by 4 times