

## ZIYUAN (ALICE) ZHAO

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### EDUCATION

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#### NEW YORK UNIVERSITY

New York, NY

#### The Courant Institute of Mathematical Sciences

#### M.S. in Mathematics in Finance (expected May 2023)

- **Coursework:** *OOP in Java, test-driven development, Black-Scholes model, stochastic calculus, ARMA & GARCH models, LASSO & ridge regression*

#### UNIVERSITY OF MICHIGAN (Sep 2019-Aug 2021)

Ann Arbor, MI

#### B.S. in Mathematics of Finance and Risk Management, Minor in Computer Science

- **Coursework:** *Probability and statistics, linear algebra, algorithms and data structures (C++, Python), PCA & SVD, LDA & QDA, dynamic programming, numerical analysis*
- **Honors:** *University Honor (2020); Outstanding Achievement in Mathematics Award (2021)*

#### RENMIN UNIVERSITY OF CHINA (Sep 2016-Jun 2019)

Beijing, China

#### Major in Chemistry, Minor in Finance

### EXPERIENCE

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#### MOYI TECH (Fin-tech firm that automates market research and data analysis)

New York, NY

#### *Quantitative Analyst Intern* (full-time, Jul 2020-Aug 2020; part-time, Sept 2020-Aug 2021)

- Established factor pools for stocks based on WorldQuant “101 Formulaic Alphas” paper; developed feature-selection framework using Alphalens Python package
- Simulated performance of stock portfolio built using weighted sum of factor values as asset allocation; analyzed outcome using Pyfolio Python package
- Recognized stock candlestick patterns using TA-Lib Python package to generate trading signals; back-tested strategy based on top five predictive signals selected by Sharpe ratio
- Developed MMAC and mean reversion strategies on Bitcoin, achieving annual Sharpe ratio of 1.95 and max drawdown of 11.3% (using data from 2018 to 2020)
- Constructed AR model on Bitcoin by using ACF/PACF/AIC analyses; applied white noise test and built GARCH model to explain fat tail and volatility clustering
- Designed multifactor model to predict fund return based on Treynor-Mazuy model and max drawdown; wrote research report about constructing fund of funds

#### GALAXY SECURITIES

Beijing, China

#### *Analyst Intern, Commercial Retail Industry* (Dec 2018-Mar 2019)

- Built up DCF and comparable analysis models for company valuations; ranked stocks based on estimated price/market price, P/S, P/E and P/B; selected top and bottom deciles
- Designed market-neutral long/short strategy by longing top decile and shorting bottom decile with monthly rebalancing; obtained annual Sharpe ratio of 1.52
- Modeled shopping center industry life cycle based on historical sales data in mature Japan market; analyzed status of shopping centers and predicted their development in China
- Researched and analyzed development of Amazon’s services; compared its online shopping platform to those of online retailers in China

### PROJECT

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#### *Handwritten Digit Recognition* (Apr 2020) (Python)

- Built neural network model to project 2-dimensional image samples onto hidden 3-dimensional layers; classified with 2-dimensional softmax output classifier, achieving 96% accuracy

### COMPUTATIONAL SKILLS

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**Programming Languages:** *Python, C++, Java, SQL, R, VBA*

**GitHub Work:** <https://github.com/alicezhzy/Top-companies-in-11-industry-sectors.git>