

SHANGBIN ZHU

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EDUCATION

NEW YORK UNIVERSITY New York, NY

The Courant Institute of Mathematical Sciences

MS in Mathematics in Finance (expected – December 2020)

- **Coursework:** Black-Scholes, Monte Carlo simulation, portfolio optimization, risk management, stochastic calculus, scientific computing, market microstructure, interest rate models

UNIVERSITY OF OXFORD Oxford, UK

MSc in Statistical Science (2018 – 2019)

- Machine Learning: linear/logistic regression, LDA/QDA, SVM, random forest, AdaBoost
- Statistical Methods: ANOVA, hypothesis testing, Bayesian inference, Markov chain Monte Carlo

UNIVERSITY OF NOTTINGHAM Nottingham, UK

BSc in Mathematics with Applied Mathematics (2014 – 2018)

- Awards: Best Student of The Year Scholarship & President Scholarship (top 1%)

EXPERIENCE

TIANHONG ASSET MANAGEMENT Shanghai, China

Quantitative Analyst Summer Intern (July 2020 – September 2020)

- Implemented PCA on the covariance matrix of the daily stock price changes in China
- Simulated the daily stock price changes up to 10 years using the first few principal components
- Bootstrapped yield curves using data of interbank debt market with tension spline interpolation

UNIVERSITY OF OXFORD Oxford, UK

Machine Learning Research Assistant (June 2019 – August 2019)

Thesis: Active Spectral Clustering Algorithm for Phylogenetic Tree Construction

- Researched properties of a novel active clustering framework for hierarchical clustering
- Utilized active spectral clustering algorithm to recover random ultrametric binary trees using only $O(n \log^2 n)$ entries of the matrix for the purpose of reducing measurement and computational cost
- Wrote Python code using active spectral clustering algorithm to construct phylogenetic trees based on phylogenetic distance matrices of real genetic data and achieved an accuracy of more than 91%

NOTTINGHAM UNIVERSITY BUSINESS SCHOOL Ningbo, China

Quantitative Research Intern (June 2017 – August 2017)

- Utilized a web crawler to collect data of financial status of 7358 construction companies in China
- Wrote Matlab programs using PCA and k-means clustering algorithm to build and visualize a credit risk model that divides the construction companies in China into 5 ranks

PROJECTS

NEW YORK UNIVERSITY New York, NY

Risk & Portfolio Management (Python)

- Estimated volatility, VaR and CVaR by using historical simulation and Monte Carlo simulation
- Replicated Fama-French Five-Factor model and constructed maximum Sharpe ratio portfolio
- Built Black-Litterman portfolio with views calibrated from the factor model

Lee-Ready Algorithm for Trade Classification (Python)

- Implemented quote test and tick test to tag trades as sell or buy on a large daily TAQ dataset

UNIVERSITY OF OXFORD Oxford, UK

Machine Learning: Predicting the Labels of Populations with Human Genetic Data (R)

- Utilized PCA to reduce dimension of features from 200,000 variables to 10,000 variables
- Predicted labels of populations using SVM, Naive Bayes, KNN, Random Forests, XGBoost and achieved the best accuracy of 89.7% with XGBoost algorithm

COMPUTER SKILLS/OTHER

Programming Languages: Python, Java, R, MATLAB, SQL, VBA, LaTeX

Languages: Chinese (native), English (fluent)