XIAOTIAN LI

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EDUCATION

The University of Chicago, Department of Statistics **Chicago, U.S.**
M.S. in Computational and Applied Mathematics Sep 2021 - Expected Mar 2023

- GPA: 3.64/4.0
- Core Coursework: Time-Series Analysis for Forecasting and Model Building, Computing for Finance in Python, Option Pricing, Stochastic Calculus, Regression Analysis and Quantitative Trading Strategies, Financial Statistics: High Frequency Data, Portfolio and Risk Management, Machine Learning

Shenzhen University, College of Mathematics and Statistics **Shenzhen, China**
B.Sc. in Mathematics and Applied Mathematics, B.Econ. in Finance Sep 2017 - Jun 2021

- GPA: 3.84/4.5 (Top 10%); Major GPA: 4.16/4.5 (Math-related Courses)
- Related Coursework: Probability Theory and Mathematical Statistics, Stochastic Process, Financial Engineering

PROFESSIONAL EXPERIENCE

UChicago Data Science Institution & DRW Holdings **Chicago, U.S.**
Project Leader Apr 2022 - Jun 2022

- Built a daily volume predictor based on statistical autoregressive methods ARIMA; designed a mechanism of outliers' regularization to enhance the robustness of model and improve prediction (significant given by Wilcoxon signed-rank test)
- Examined TARCH and EGARCH model for modeling time varying asymmetric volatility, with assumption of student-t errors for modeling fat tails
- Finished 80% coding work: systematized the codebase, wrote well documented functions of data preprocessing module and model validation; utilized multiprocessing technique to greatly reduced model training time
- Illustrated model evaluation with statistics and visualization to client on weekly basis presentation

Regression Analysis and Quantitative Trading Strategies **Chicago, U.S.**
Financial Mathematics Course Jan 2022 - Mar 2022

- Implemented and analyzed basic quantitative trading strategies, including futures spreads trading, quantile trading, and carry trade
- Had a fundamental understanding of high frequency trading: utilized mid quote price and Lee-Ready Algorithm to mark trades by seller/buyer initiated and construct trade flow, then regress it with returns for return predictions and further strategies
- Implemented basic portfolio theory, including mean-variance optimization and CAPM model

Spectrum Investments **Shenzhen, China**
Investment Assistant Intern (full time) Oct 2020 - Jan 2021

- Constructed a CTA trading strategy, which is based on the quantile of three created features
- Implemented and back tested the CTA trading strategy using Python (numpy, pandas), evaluated the strategy by Sharpe ratio, VaR, cumulative return, and three months' rolling drawdown on Chinese future market
- Optimized parameters by incorporating the mechanism of block coordinate descent to improve strategy's performance by 50%
- Tested strategy's stability by performing a stress scenario analysis and sensitivity analysis of parameters
- Introduced and built the pipeline of systematically generating daily products for sale and internal research, used openxlsx (R package) and LaTeX to customize future and option spreadsheet

Interest Rate Forecasting with Machine Learning Technique **Shenzhen, China**
Project Leader Sep 2019 - May 2020

- Led a team to build regression-based models (e.g., Lasso Regression) to perform interpretable fitting analysis, trained and tested a set of forecasting model's performance (e.g., Support Vector Machine) with benchmark algorithms
- Performed statistical modeling and analysis, including time series manipulation (e.g., detrend) and corresponsive hypothesis tests (e.g., stationary test)
- Identified and deployed work allocation, led group meetings and weekly presentation

PUBLICATIONS

[1] **Xiaotian Li**, Linju Cai, Jingchao Li, Carisa Kwok Wai Yu, Yaohua Hu, A Survey of Clustering Methods via Optimization Methodology [J], Journal of Applied and Numerical Optimization, Vol. 3, Issue 1, 2021.

[2] Xiaowen Huang, Senbao Shi, **Xiaotian Li**, Zihao Guo, Li Li, Xianghua Chu, An Improved Random Forest Model Combined with Bootstrap and Under sampling for Urban Management Case Classification, 2020 IEEE International Symposium on Product Compliance Engineering-Asia, 2021.

ADDITIONAL INFORMATION

Computer Skills: Python, R, MATLAB, LaTeX, SQL, Markdown, C, Excel

Meritorious Winner Prize (Top 8%), COMAP Mathematical Contest in Modeling Mar 2020

First Prize in Guangdong Province (top 9%), China Undergraduate Mathematical Contest Sep 2019