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 Dec 2022

- GPA: 3.64/4.0
- Core Coursework: Mathematical Foundations of Option Pricing, Stochastic Calculus, Scientific Computing with Python, Regression Analysis and Quantitative Trading Strategies, Financial Statistics: High Frequency Data, Numerical Linear Algebra, Nonlinear Optimization, 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

Trading Volume Prediction, DRW Holdings **The University of Chicago**
Data Science Project Apr 2022 - Jun 2022

- Built a daily volume predictor based on statistical autoregressive methods (e.g., ARIMA), designed a mechanism of outliers' regularization to enhance the robustness of model and improve prediction (significant given by Wilcoxon signed-rank test)
- Finished 80% coding work: systematized the codebase, including writing 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

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, 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 University**
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.

- Major writer, reviewed previous journals of clustering methods from the perspective of optimization, including center-based clustering (e.g., k-means), convex clustering, subspace clustering, spectral clustering, and optimal transport-based clustering
- Led weekly group meeting for 4 months, on which responsible for explaining reviewed paper's methodology and algorithms

[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.

- Proposed an improved random forest model, which combined bootstrap and under sampling to train the classification and regression trees (CART), trained and applied the model on urban management cases in digital urban management system
- Conducted numerical experiments, compared our model with other basic machine learning models by evaluating on modified Receiver Operating Curve (ROC), which is designed to be suitable for multiclass classification

ADDITIONAL INFORMATION

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

President, Financial Investment Club, Shenzhen University, Shenzhen, China Sep 2019 - Jun 2020

Senior Student Mentor of Math and Finance Class, Shenzhen University, Shenzhen, China Sep 2019 - Present