Guangqi Li

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EDUCATION BACKGROUND

Southwestern University of Finance and Economics *Chengdu, China*

- Bachelor of Economics in *Financial Mathematics (Financial Services and Quantitative Analysis)* *2021.09-2025.06 (Expected)*
- GPA: 4.3/5.0; Rank: 2/55
- Sino-Foreign Dual-Degree Program in collaboration with the University of Delaware

University of Delaware

- Bachelor of Science in *Finance (Financial Mathematics)*, Minor in *Business Analytics* *2021.09-2025.06 (Expected)*
- GPA: 4.0/4.0; Rank 1/55

INTERNSHIP EXPERIENCES

Guotai Junan Securities *Shanghai, China*
Financial Engineering Group Intern *2024.01-2024.04*

- Engineered and deployed a Smart Beta strategy, selecting factors such as dividend yield and momentum for comparative analysis against the CSI Total Index, outperforming the market benchmark by 5% through data cleaning and factor optimization techniques
- Refined a stock selection strategy for CITIC Pharmaceutical using Fama-Macbeth regression, constructing a multi-factor model with key financial and macroeconomic indicators, enhancing model performance with an information ratio of 1.87 and a Sharpe ratio of 1.39
- Formulated a polynomial-based multi-factor Alpha strategy, improving stock return predictions through nonlinear transformations, achieving internal and external information ratios of 2.0 and 1.56 respectively

Cinda Securities *Shanghai, China*
Financial Engineering Group Intern *2023.07-2023.11*

- Developed a risk budget-based asset allocation backtesting framework, employing Pandas, NumPy, and SciPy, which secured an annualized return of 5.92% and a Sharpe ratio of 1.19, while maintaining a maximum drawdown at 5.80%
- Established a single-factor testing framework using Pandas, NumPy and integrated real-time data from Juyuan and Wind databases via cx_Oracle and WindPy API. Improved factor analysis through outlier removal, standardization, and market value neutralization, assessing performance indicators such as Sharpe ratio and IC
- Implemented a multi-factor model with rolling training and backtesting, generating factors using operators such as MA and STD. Synthesized these factors into a comprehensive model for strategic testing, augmenting strategy analysis with performance metrics and data visualization techniques, and factored in trading costs and market capitalization adjustments.

Huachuang Securities Research Institute *Shanghai, China*
IT Industry Research Group Intern *2023.04-2023.07*

- Wrote financial briefs for listed companies in the computer industry, analyzing their financial performance and business progress to support adjustments to the stock pool and investment recommendations
- Conducted statistical analysis and visualization of iFlytek's procurement order data using Tableau, creating trend charts and regional heat maps to reveal market dynamics and product sales trends. Successfully identified the Eastern coastal regions as key growth areas, providing a basis for precisely targeted marketing activities and resource allocation

The People's Bank of China *Chengdu, China*
Monetary and Foreign Exchange Department Intern *2022.02-2022.12*

- Monitored and compiled key report summaries on digital currency policies from global central banks and financial institutions to provide accurate and timely information support for internal policy analysis
- Analyzed digital currency strategies of major central banks and wrote periodic analysis reports to introduce global digital currency trends and developments

RESEARCH EXPERIENCES

***Collaborator*, Integrating Climate Risk into Credit Scoring Using Satellite Imagery Data: A Spatial Analysis of Consumer Loans**
Guided by Prof. Zhiyong Li from Southwestern University of Finance and Economics *2024.07-present*

- Leveraged U.S. P2P Lending Club data, employing ArcGIS Pro and spatial analysis techniques to extract indicators such as nighttime light, temperature, and precipitation at the 3-digit ZIP code level to support improvement on default risk prediction accuracy
- Developed indices for extreme climate conditions, augmenting credit scoring models with new spatial insights
- Conducted evaluations of the impact of spatial information on credit models across various machine learning frameworks (XGBoost, CatBoost, LightGBM). Synergized spatial and macroeconomic variables to explore their cumulative effects over time on model effectiveness
- Results indicated that spatial factors cumulatively enhanced model robustness, with a more significant impact on predicting credit risk than macroeconomic variables, confirming the positive contributions of spatial factors accumulate over time, affirming their crucial value in credit risk assessment models

***Collaborator*, Research on Multiclass Customer Behavior Prediction Model Based on Focal Loss and SHAP Analysis**
Guided by Prof. Feng Shen from Southwestern University of Finance and Economics *2024.05-present*

- Conducted a multiclass prediction task on customer repurchase intentions using enhanced LightGBM model on the 2023 Sichuan College Students Fintech Modeling Competition dataset, incorporating Cohen's Kappa as a key metric for accuracy assessment in multiclass settings
- Enhanced prediction accuracy on imbalanced data by integrating a multiclass focal loss function and Particle Swarm Optimization (PSO) for hyperparameter tuning
- Applied SHAP analysis and feature importance evaluation to derive new, economically significant features, improving model interpretability and predictive power
- Results demonstrated that the optimized LightGBM model outperformed traditional approaches in identifying customer repurchase patterns, with impactful features (e.g., recent transaction frequency) offering valuable insights for commercial banks targeting active customers

***First Author*, Research on Enhancing Portfolio Performances through LSTM and Covariance Shrinkage**
Guided by Prof. Miquel Noguer Alonso from New York University *2023.01-2023.04*

- Implemented LSTM to predict stock returns and applied covariance shrinkage techniques to reduce noise and instability in covariance matrix
- Integrated stock price predictions and shrinkage techniques within a Mean-Variance Optimization (MVO) framework, dynamically optimizing portfolio weights through Monte Carlo simulation, leading to improved risk-adjusted returns

- Backtested on actual return data revealed that the enhanced portfolio achieved higher cumulative returns and a better Sharpe ratio, and lower maximum drawdown compared to the S&P 500 index and equal-weight strategies, validating the effectiveness of the improved Mean-Variance model with LSTM and covariance shrinkage in optimizing stock market portfolios

TEACHING ASSISTANT, LEADERSHIP AND COMPETITION EXPERIENCES

***Teaching Assistant*, 24F MISY331 - Machine Learning for Business** *2024.09-2024.11*

- Conducted weekly office hours, providing guidance on data processing and visualization tools such as NumPy, Pandas, and Matplotlib, and supported students in understanding and implementing supervised learning algorithms, including regression, classification, and ensemble learning. Offered in-depth explanations on machine learning concepts and Python programming, enabling students to tackle complex course material and programming challenges
- Organized and led interactive coding sessions, teaching students to leverage GitHub for version control and project management in real-world projects. Instructed on the development and deployment of data-driven web applications using Streamlit, facilitating an end-to-end workflow from data analysis to visualization

***Team Member*, Home Credit-Credit Risk Model Stability Competition (Rank 16/3856)** *2024.02-2024.05*

- Enhanced large-scale data processing using Polars and Pandas to improve data loading speeds and efficiency. Implemented custom feature transformations to eliminate features with high missing values or low informational content. Developed date conversion and time feature extraction strategies, bolstering the model's capability in time series analysis.
- Trained predictive models using CatBoost and LightGBM, exploiting their strengths in handling diverse data types and features, ensuring prediction stability. Designed and implemented an ensemble voting model that synthesized outputs from multiple models, thereby increasing the overall robustness and accuracy

***Team Leader*, Optiver - Closing Price Prediction Competition (Rank 152/4436)** *2023.09-2023.12*

- Conducted feature engineering on the dataset, extracting meaningful economic indicators such as VWAP, price momentum, liquidity imbalance, and bid-ask spread. Utilized sliding window techniques for rolling statistical features to capture market volatility trends, enhancing feature generation speed and memory management using Numba and Polars
- Used LightGBM as the core model for regression tasks, incorporating custom cross-validation strategies to prevent data leakage and ensure robustness in time series prediction. Introduced a MLP model to explore complex nonlinear relationships and enhance model adaptation to complex data, which included batch normalization, ReLU activation, and Dropout regularization to boost model robustness

***Team Leader*, China Undergraduate Mathematical Contest in Modeling - First Prize in Sichuan Province** *2023.09*

- Developed and implemented a geometric and optimization model for multibeam and seabed topography measurement, calculating coverage and width accurately using Taylor expansion along with single and multi-objective optimization techniques.
- Programmed and solved the model using Python, MATLAB, and Lingo with Gurobi optimizer, optimizing seabed slope and survey line layouts to minimize total survey line length.

***President*, SWUFE Financial Modeling Association** *2021.10-2024.06*

- Led the association of over 200 members, fostering collaborations with various clubs and corporations both inside and outside the university. Spearheaded partnerships such as with XWBank to co-host three annual Sichuan Province University Student Fintech Modeling Competitions, attracting 1,215 participants from over 190 universities nationwide
- Hosted the Python programming training sessions within the association, focusing on advanced data manipulation and feature engineering using NumPy and Pandas, as well as instructing on machine learning models using scikit-learn. These sessions improved members' programming expertise, theoretical knowledge, and practical application skills in machine learning

***Team Leader*, Virror, College Psychological Service System Empowered by Virtual Reality** *2021.09-2023.06*

- Led an interdisciplinary project team in the Guanghua Entrepreneurship Competition to develop a virtual reality-based psychological service system for college students. The system aimed to provide psychological assessments, counseling, and treatment to address the growing mental health needs of students, especially under the increased stress from external factors like the pandemic
- Designed and implemented immersive VR scenarios for anxiety and obsessive-compulsive disorder, integrating realistic, interactive environments for safe and effective psychological exploration and treatment

ADDITIONAL INFORMATION

- Language: Mandarin (Native), English (TOEFL 110)
- Quantitative Skills: Python, R, SQL, Gurobi, Lingo, Excel, Wind Financial Terminal, RiceQuant Software Development Kit
- Interests: Music, Photography

SCHOLARSHIPS AND AWARDS

- 2024 Distinguished SWUFE-UD Joint Educational Institute Student, University of Delaware (Sep 2024)
- First-Class Undergraduate Academic Scholarship, Southwestern University of Finance and Economics (Second Semester, 2023-2024)
- Gold Medal, Home Credit - Credit Risk Model Stability Competition (May 2024)
- Silver Medal, Optiver - Closing Price Prediction Competition (Mar 2024)
- Awarded Four-Star Club Distinction, President of Financial Modeling Association, SWUFE (Nov 2023)
- First Prize, Sichuan Province, National College Students Mathematical Modeling Contest (September 2023)
- Third Prize, Guanghua Entrepreneurship Competition, Southwestern University of Finance and Economics (June 2023)
- Second-Class Undergraduate Academic Scholarship, Southwestern University of Finance and Economics (Second Semester, 2022-2023)
- Innovation and Entrepreneurship Scholarship, Southwestern University of Finance and Economics (Second Semester, 2022-2023)
- Research and Innovation Scholarship, Southwestern University of Finance and Economics (Second Semester, 2022-2023)
- Second-Class Undergraduate Academic Scholarship, Southwestern University of Finance and Economics (First Semester, 2022-2023)
- Meritorious Student, Southwestern University of Finance and Economics (2022-2023 Academic Year)
- Future Elite Scholarship, SWUFE-UD Institute of Data Science at SWUFE (2021-2022 Academic Year)
- SWUFE Innovation Talent Scholarship, SWUFE-UD Institute of Data Science at SWUFE (2021-2022 Academic Year)
- Third Prize, Guanghua Entrepreneurship Competition, Southwestern University of Finance and Economics (June 2022)
- Innovation and Entrepreneurship Scholarship, Southwestern University of Finance and Economics (Second Semester, 2021-2022)
- Second-Class Undergraduate Academic Scholarship, Southwestern University of Finance and Economics (Second Semester, 2021-2022)
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