

# Benchen Liu

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## EDUCATION

### The University of Chicago

Chicago, IL

#### Master of Science in Financial Mathematics

Expected December 2025

- Option Pricing, Full-stack Quantitative Finance, Computing for Finance in C++, Probability & Stochastic Processes, Fixed Income Derivatives, Advanced Computing for Finance

### Xiamen University

Xiamen City, Fujian Province

#### Bachelor of Science in Artificial Intelligence (3.79/4.00)

June 2024

- Courses: Programming Language (C / C++ / Python), Linear Algebra, Calculus, Data Structure, Discrete Mathematics, The Design of Algorithms, Operating System, Machine Learning, etc.
- Award: Outstanding Student Award

## SKILLS

**Computing:** C/C++, Python, Jupyter Notebook, R, MATLAB, Unix/Linux, MS Office, Pandas & Numpy, LaTeX

**Knowledge:** Machine Learning, Data Analytics, Statistical Modeling, Web Crawler, Selenium, JS Reverse

## EXPERIENCE

### Fujian Pingtan Tanglong Asset Management

Fuzhou City, China

#### Quantitative Research Intern

January 2024 - February 2024

- Focused on convertible bonds, generated strategies based on factors and papers. Optimized parameters with Optuna and Bayesian optimization algorithm
- Captured the correlation between stock and convertible bonds; gained better return and max drawdown compare with Chinese convertible bonds index

### Fujian Pingtan Tanglong Asset Management

Fuzhou City, China

#### Intern at the Trading and Investment Department

September 2023 - November 2023

- Established an automatic after-hours clearing system can fulfill data cleaning, merging and docking of multiple tables; generated daily position details and summaries
- Created an auxiliary trading program employs PyAutoGUI to simulate mouse clicks and assesses and process tick data from exchanges based on socket service to fulfill intraday monitoring as an importance indicator for trading
- Designed automatic convertible bond arbitrage strategies implemented task queues, monitored tape/orderbook, capture changes, self-adjust transaction speed

### Xiamen Xiaring Intelligent Information Technology Co., Ltd.

Xiamen City, China

#### Algorithm Engineer Intern

June 2023 - August 2023

- Improved oil-diesel cross hedge ratio by using Kalman filter, ARIMA and other algorithms; improved previous hedge efficiency from 0.67 to 0.77
- Applied machine learning to quantitative trading; modeled company traders' behaviors and regularly predicted probability of trader's profitability; developed a trading strategy and increased capital investment in light of strategy

## RESEARCH

### Xiamen University

Xiamen City, China

#### Research on Stock Shape Image Recognition Based on Deep Learning

June 2022 - June 2023

- Applied CNN model to learn characteristics of long-term K-line image of stocks and explored potential profitability of long-term image morphology of stocks based on two footholds of K-line image and CNN
- Constructed rise and fall recognition model with stock yield as classification label; constructed shape recognition model with six common technical forms of long-term K-line chart as classification label
- Converted qualitative tag probability indicators output by the model into quantitative scoring indicators by weighting; explored the correlation between the scoring indicators and rate of return; found the positive relationship

## ADDITIONAL INFORMATION

- Language: Chinese (Native)
- Interests: Cook, Reading, Texas Hold'em poker and other card game
- Clubs: A member in WISECLUB concentrated on quantitative trading