Ruilong (Waylon) Guo

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EDUCATION

The University of Chicago **Chicago, IL**
Master of Science in Financial Mathematics (GPA: 4.0/4.0) Expected Dec 2024

- Courses: Stochastic Calculus, Portfolio & Risk Management, Option Pricing, Python, C++, Data Science for Finance, Fixed Income Derivatives, Numerical Methods, Credit Markets, Portfolio Credit Risk, Foreign Exchange

Central University of Finance and Economics **Beijing, China**
Bachelor of Science in Financial Technology (GPA: 3.83/4.0) Jun 2022

- Courses: Calculus, Advanced Linear Algebra, Probability and Statistics, Data Structures and Algorithms, Machine Learning Models, Big Data, Derivatives Pricing, Fixed-Income Securities, Financial Risk Management
- Awards: Academic Research and Innovation Excellence Scholarship (Top 1% in the school)

SKILLS

Computing: Python, C++, Java, STATA, SPSS, SQL, Microsoft Office, Bloomberg Terminal, Numerix
Knowledge: Financial Markets, Machine Learning, Statistical Modeling, Data Analytics, Time Series, Econometrics
Trading Products: Convertible Bonds, Futures, Fixed Income, Fixed Income Derivatives, Equities, Options, FX

EXPERIENCE

KPMG LLP US **New York, NY**
Complex Securities Valuation Intern Jun 2024 – Aug 2024

- Assisted with valuing a wide range of complex financial instruments and OTC derivatives for financial reporting, tax and transaction advisory purposes using Bloomberg and Excel
- Performed model validation using Numerix, including Black-Scholes, Monte Carlo, HW1F, and Bachelier models
- Calibrated hazard rates from company CDS spread curves to calculate probability of default and CVA using Python

Quantitative Hedge Investment Management Co. Ltd **Xiamen, China**
Quantitative Research Intern Sep 2022 – Jan 2023

- Engineered automated data cleaning pipelines to ensure data quality and consistency; standardized various individual excess returns as labels by filtering CSI 500 index, industry classification, or concept factors
- Formulated stock trading strategies utilizing Deep Learning models such as MLP, GRU, and LSTM with PyTorch
- Analyzed and optimized the prediction performance with cross-validation, ROC curve (AUC: 0.731), and confusion matrices; visualized PnL results in Jupyter notebooks

Zhongtai Securities Co. Ltd **Shanghai, China**
Quantitative Analyst Intern Jun 2022 – Aug 2022

- Developed a stock factor mining model based on Genetic Programming; added custom functions and revised the gplearn library in Python to process time-series data which increased the convergence rate by 80%
- Evaluated the validity of generated factors via linear regressions, Spearman Rank Information Coefficient, and hierarchical backtesting; managed and updated the factor database on daily basis
- Leveraged XGBoost and other Machine Learning models to combine diverse factors and forecast the stock price trends across various market scenarios with an average out-of-sample accuracy of 65.7%

Shanghai Luoshu Investment Co. Ltd **Shanghai, China**
Quantitative Research Intern Feb 2022 – May 2022

- Priced convertible bonds and determined Greek values via BS formula, Monte Carlo method, and LSM model
- Formulated a convertible bond trading strategy in Python and constructed a rotational portfolio based on gamma scalping with an annualized return of 33.26%, max drawdown of 7.8%, and Sharpe Ratio of 1.8
- Implemented the mean reversion theory to build convertible bond portfolios with statistical models such as EWMA

RESEARCH

Mizuho Bank **Chicago, IL**
Quantitative Researcher - University of Chicago Project Lab March 2024 – May 2024

- Applied deep distributional reinforcement learning to manage gamma and vega exposures for a portfolio of options
- Assessed the performance of the RL-based hedging strategies against delta, delta-gamma, and delta-vaga hedging methods under various transaction costs and stochastic processes for the underlying asset