SHENGBO LANG

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EDUCATION

NEW YORK UNIVERSITY- The Courant Institute of Mathematical Sciences New York, NY
MS in Mathematics in Finance Sep 2021 – Dec 2022

- ***Coursework:*** options pricing, volatility models, Black-Scholes formula and Greeks, stochastic calculus, risk and portfolio management, market microstructure

UNIVERSITY OF NOTTINGHAM Nottingham, UK
BSc in Mathematics with Applied Mathematics (Honors) Sep 2017 – Jun 2021

- ***Coursework:*** probability, stochastic processes, time series analysis, numerical analysis, statistical inference
- ***Awards***: School Achievement Prize (top 1% in class)

WORK EXPERIENCE

PUBLIC INVESTMENT FUND New York, NY
Macro Quantitative Research Consultant (May 2022 – Oct 2022)

- Built Dynamic Factor Model that forecasted US recession probability with factors constructed based on economic activities and financial-market indicators (Pseudo R-squared 0.85 in 30-year backtest)
- Conducted macroeconomic and asset data exploratory analysis to identify 14 significant predictors for GDP and CPI forecasting (lead correlation > 0.5)
- Developed multiple regression models using these predictors; backtested models on various windows to ensure test robustness (actual vs. predicted correlation 0.55, MSE <0.0001)

GUOEN CAPITAL Shenzhen, China
Quantitative Analyst Intern (Mar 2022 – June 2022)

- Constructed value and momentum factors for China A-share market, based on cross-sectional rank
- Developed and deployed backtesting infrastructure for portfolio's trading strategy using Python; implemented strategy's execution and risk management

RESEARCH PROJECTS

NEW YORK UNIVERSITY New York, NY
Portfolio Construction Using Graph Sampling (Python)

- Applied PCA to stock features and constructed graphs based on outcomes; used graph sampling methods for stock selection; backtested (results: 2% tracking error with S&P 500 from 2017-2022)

Energy Trading Strategies (Python)

- Developed carry and momentum strategies for crude oil and petroleum futures
- Backtested rolling $1M futures cumulative returns with equity line (results: 0.7 Sharpe ratio and 26% annualized returns from 1993-2020)

Option Pricing with Monte-Carlo Simulation (Python)

- Designed Monte-Carlo framework to price Asian and European options; improved results using variance reduction techniques
- Implemented least squares Monte Carlo for American option pricing with optimal exercise boundary

TECHNICAL SKILLS

Programming Languages: Python, Tableau, SQL, R, MATLAB, Java