SHUPENG (WAYNE) GUAN

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EDUCATION

Expected 12/24 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance

- ***Expected coursework:*** object-oriented programming, machine learning and computational statistics, stochastic calculus, time-series and statistical arbitrage, data science and data-driven modelling, financial securities and markets, risk and portfolio management, algorithmic trading, Monte Carlo simulation, convex optimization

09/21 - 06/23 **UNIVERSITY OF BIRMINGHAM** Birmingham, UK
B.S. in Mathematics With Honours (First Class)

- ***Coursework:*** applied statistics (machine learning), probability, statistics in economics, integer programming, numerical methods and programming, differential equations, real and complex analysis, multivariable calculus, linear algebra, mathematical finance (options pricing)

09/19 - 06/21 **HUAZHONG UNIVERSITY OF SCIENCE AND TECHNOLOGY** Wuhan, China
B.S. in Finance

- ***Coursework:*** Python programming, econometrics, microeconomics, macroeconomics, accounting, game theory, money and banking, public finance
- ***Award:*** Freshman Award scholarship (50% tuition)

EXPERIENCE

08/22 - 09/22 **CHINA SECURITIES** Shanghai, China
(Major Investment Bank in China)
Wealth Management Analyst Intern

- Implemented data processing, analysis, and visualization, and drafted reports in equity research
- Adjusted institutional clients' portfolios based on Sharpe models; attained significant Sharpe ratio increases (35%+ average); developed dynamic delta hedging for OTC derivatives
- Collaborated on promoting volatile derivative products to potential trust fund investors; specialized in consulting on specific structured derivatives products (e.g., auto-callables)
- Customized PB trading systems for custody, clearing, automated trading, leveraged financing, and risk management for institutional clients

PROJECTS

02/22 - 05/22 **UNIVERSITY OF BIRMINGHAM** Birmingham, UK
Research on Potential Function of Bitcoin in Portfolio Management (Excel, Python)

- Developed multiple portfolios comprising cryptos, gold, S&P 500 index, and bonds
- Constructed 3 Sharpe optimized portfolios; backtested their performance using Excel and Python
- Analyzed different features of bitcoin in portfolios under distinct market conditions; detected that bitcoin has consistently low correlation with stocks and bonds, but higher volatility

02/22 - 02/22 **MATHEMATICAL CONTEST IN MODELLING (MCM) 2022** Online
Trade-Off Between Return and Risk (Python, MATLAB)

- Constructed short-term forecasting model based on ARIMA to capture gold price trend
- Applied MPT and VaR to adjust for profit maximization and volatility dynamically
- Introduced sensitivity analysis with cross-validation on transaction fees and spot rates data to determine optimal trading frequencies and margin trading strategy size accordingly
- Backtested various strategies using Python; best-performing strategy yielded annualized returns of 20%+ and maximum drawdown of -16.24% in and out of sample

COMPUTATIONAL SKILLS

Programming Languages & Software: Python (numpy, pandas, scikit-learn), R, MATLAB, LaTex, SQL