

BOYI LI

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EDUCATION

NEW YORK UNIVERSITY

New York, NY

The Courant Institute of Mathematical Sciences

MS in Mathematics in Finance (expected – Dec. 2020)

- **Current Coursework:** Quantitative portfolio theory, interest rate derivatives, Monte Carlo and finite difference methods, fixed income and currency derivatives, stochastic calculus, OOP, option pricing
- **Future Coursework:** Portfolio management, continuous time finance, algorithmic trading, market microstructure, scientific computing, advanced econometrics, data science in quantitative finance

UNIVERSITY OF TORONTO

Toronto, Canada

BASc in Engineering Science major in Mathematics, Statistics and Finance with Honor (2014 – 2019)

- **Coursework:** Financial optimization, stochastic processes, linear regression, stochastic methods in finance, statistical learning, deep learning, Monte Carlo methods, data structures and algorithms

EXPERIENCE

UNIVERSAL PORTFOLIO

Toronto, Canada

Quantitative Research Intern (June 2018 – Nov. 2018)

- Set up and managed database and web-scraped financial data of 100+ cryptocurrencies per minute
- Compared financial data from Huobi and Gate.io per second to search for arbitrage opportunities
- Conducted research on price movements of cryptocurrencies with respect to financial factors
- Created Volatility-Timing portfolio using cryptocurrencies and evaluated the performance in Python

KING MONGKUT'S UNIVERSITY OF TECHNOLOGY THONBURI

Bangkok, Thailand

Research Intern (May 2017 – August 2017)

- Proposed and implemented disturbed labels in Python to add regularization to loss layer of deep neural network to alleviate the overfitting problem when small size facial expression dataset is used
- Recommended a tool to visualize stock price by parallel coordinates and data envelopment analysis
- Published two papers at IES 2017 and VINCI 2017 of above topics at the end of the internship

PROJECTS

UNIVERSITY OF TORONTO

Toronto, Canada

Statistical Arbitrage Strategy

- Formulated a mathematical model to derive high-frequency statistical arbitrage strategy when short-term drift of asset is observed and used stochastic control approach to address the problem
- Applied finite difference method to numerically solve nonlinear PDEs to obtain the optimal strategy
- Simulated 1000+ paths of trading strategy and evaluated the right-skewed distribution of the profit

Robo-Advisor for Personal Financial Management

- Designed a decision support system in the form of web application by creating an optimal portfolio that consisted of 8 assets under uncertainty that meets the liabilities and financial goals of users
- Implemented stochastic programming, goal programming model to generate optimal investment portfolio in Python. The portfolio overperforms S&P 500 when market shock happens

Exploration of Markov Chain Monte Carlo Algorithms – Undergraduate Thesis

- Systematically reviewed and comprehended theories of MCMC and adaptive MCMC
- Explored applications of MCMC, including Metropolis-Hastings algorithm, Gibbs sampler, Adaptive MCMC, Tempered MCMC, Transdimensional MCMC and simulated annealing

Reaching Bequest Goal under Ambiguity Aversion – Undergraduate Thesis

- Determined robust optimal investment strategy for an individual, who invested in a Black-Scholes market, to reach a bequest goal under hazard rate ambiguity and asset drift ambiguity
- Used stochastic control approach to solve the model and numerically solved non-linear ODEs in MATLAB, analyzed investment behaviors based on strength of ambiguity aversion

COMPUTER SKILLS/OTHER

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

Other Software: Mathematica, Latex

Languages: Mandarin (native), English (fluent)