Tianyue (Zach) Yao

ty325@cornell.edu   112 Valentine Pl, Ithaca, NY 14850   cell: +1 217-926-3675

EDUCATION

Cornell University, College of Engineering, Ithaca, NY
Master of Engineering in Financial Engineering, **GPA: 3.692**   **Expected December 2023**

University of Illinois at Urbana-Champaign, Champaign, IL
Bachelor of Science in Mathematics, minor in Statistics, **GPA: 3.91**   **Aug. 2018 to May 2022**

Selected Coursework: Optimization in Finance, Stochastic Calculus, Machine Learning, Monte Carlo Simulation, Big Data Analysis & Technology, Investment & Portfolio Management, Fixed Income Securities & Interest Rate Options, Behavioral Finance, Macro & Micro Economics, Numerical Methods, Statistics & Probability, Stochastic Process

SKILLS

Technical: Python (Advanced), Excel (Advanced), R, Java, MATLAB, C++

EXPERIENCE

FinTech & Quantitative Investment Intern, *Caida Securities Co., Ltd.,* Beijing, China   **May to Aug. 2021**
- Performed analysis of the yield curve of credit bonds and built a model for bond issuer's credit estimation
- Summarized credit bond data and conducted data cleaning to eliminate objects with large fluctuation of yield
- Used K-means Clustering technique to classify yield of credit bonds and rank the credits of bond's issuers; drew yield curve for each level of credit bond according to the average return rate
- Performed model back-testing with new daily data over a month and finished the model optimization
- Developed an automatic credit report generation program based on Python
- Reduced the time needed to make credit analysis weekly reports/slides from 4 hours to several seconds
- Built a k-NN model to classify financial service potential in different provinces in China; analyzed and visualized data from Wind Database

Accounting Intern, *Orient Securities Co., Ltd.,* Beijing, China   **July to Aug. 2019**
- Calculated daily expenses, reviewed customer data, and collated data with Excel for preliminary classification

PROJECTS

The New England Healthcare (NEH) Portfolio Optimization, *Cornell University*   **Jan. to March 2023**
- Analyzed NEH's liability structure, the current asset allocation, and the future risks of the three existing investment pools; decided whether the difference of liability structure justified a need of distinct asset allocations
- Constructed a growth-oriented investment portfolio using the Markowitz portfolio model with Monte Carlo simulation, built a liability-hedging investment portfolio based on the debt structure and investment requirements of the three investment pools, and finally explored the investment proportions of the two types of portfolios

Financial Engineering - Portfolio Optimization and American Option Pricing, *UIUC*   **Feb. 2021 to Jan. 2022**
- Researched portfolio optimization for U.S. stocks: calculated the minimum variance of selected portfolios; and drew the efficient frontier using optimization tools such as R, Python, and Excel
- Identified redundant calculations in existing methodology; implemented extrapolation, Black-Scholes formula, and Intelligent Lattice Search method to improve accuracy in BBSR and trinomial methods; accelerated runtime from 1.17s to 0.05s for a 5000-step tree and reduced 99% of error of the pricing algorithm of American options
- Improved use of the IBM CPLEX Optimizer, selecting reliable optimization software/languages for future research

LEADERSHIP EXPERIENCE

Team Member of Basketball League, *UIUC*, Champaign, IL   **Aug. 2018 to Dec. 2019**

ACTIVITIES/INTERESTS

Bodybuilding; Basketball; Swimming; Collecting Sneakers; Photography; Jogging