Xiaoyuan (Melissa) Mao

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EDUCATION

Cornell University, College of Engineering, Ithaca, NY
Master of Engineering in Financial Engineering, **GPA: 3.84** **Expected December 2022**

University of Toronto, Toronto, Canada
Honours Bachelor of Science in Mathematical Application in Economics and Finance**, GPA: 3.84** **June 2021**
Minor in Computer Science and Statistics
Awards: Dean's List (2017-2020); New College Council In-Course Scholarship; University of Toronto Scholar & In-Course Scholarship

Selected Coursework: Derivatives Securities, Financial Engineering with Stochastic Calculus, Learning with Big Messy Data, Monte Carlo Simulation, Python for Finance, Optimization Modeling in Finance, Big Data Technologies, Statistical Data Mining

SKILLS

Technical: Python, R, Java, SQL, Tableau

EXPERIENCE

Research Assistant, *Chinese University of Hong Kong*, Hong Kong **July to Nov. 2020**

- Examined the diffusion of identification techniques in empirical operations management based on articles published in leading journals and the academic life of those authors.
- Cleaned and summarized data with Pandas. Identified the specific techniques adopted in each article using Python and eliminated false positives.
- Fitted diffusion pattern with the logistic model for each technique to determine the speed and date of adoption.

Debt Financing Intern, *Guotai Junan Securities*, Shanghai, China **July to Dec. 2019**

- Analyzed issuers' financial statements over the past three years. Calculated various financial statistics including debt-to-equity (D/E) ratio and liquidity ratio in debt issuance prospectuses using Excel.
- Conducted comprehensive research on a machinery manufacturing company and its guarantor (including their credit status, rating reports, and equity structure) to support bond issuance deals.
- Tracked outstanding documentation for issuers. Created meeting minutes.

Bank Mortgage Intern, *Bank of Communication*, Nanjing, China **July to Aug. 2018**

- Performed due diligence on clients for KYC (know-your-customer) requirements.
- Analyzed mortgaged properties and client assets, liabilities, and credit scores using Excel to create initial assessment reports. Calculated mortgage amount to be granted and amortization.
- Contacted ~50 clients for past-due payments.

PROJECTS

COVID Impact on the US Stock Market (team of 3), *Cornell University*, Ithaca, NY **Oct. to Dec. 2021**

- Collected data on the US stock market and COVID to analyze the impact of COVID's factors on each of the 11 main S&P sectors. Conducted feature engineering and feature generation.
- Implemented and trained multiple linear models including Ridge and Lasso and tree-based models including Random Forest with moving average in Python to identify the most important features for each sector. Selected Random Forest for future prediction.

Students' Correctness Prediction (team of 3), *University of Toronto*, Toronto, Canada **Nov. to Dec. 2020**

- Predicted the correctness of students' answers to as-yet-unseen diagnostic questions to estimate the student's ability level in a personalized education platform.
- Implemented models in Python using KNN, IRT, and NN algorithms. Evaluated model performance among the algorithms used, and selected NN as the base model. Applied ensemble and regularization terms to improve model accuracy and efficiency.

LEADERSHIP EXPERIENCE/INTERESTS

Teaching Assistant at the University of Toronto and the Cornell University for various math courses; Sponsorship Executive of ACE2020 Career Fair Committee. Fishing; hiking; rock climbing; yoga.