# Litong Liu

ll936@cornell.edu                113 Valentine Pl, Ithaca, NY 14850                cell: +1 (607)3199625

## EDUCATION

**Cornell University,** College of Engineering, Ithaca, NY
Master of Engineering in Financial Engineering, **GPA: 4.15/4.3**                **Expected December 2023**

**The Chinese University of Hong Kong, Shenzhen,** China
Bachelor of Science in Mathematics, **Dean's List (2019-2022), GPA: 3.67/4.0, Major GPA: 3.76/4.0**                **May 2022**

*Selected Coursework:* Real Analysis, Complex Variable Functions, Advanced Linear Algebra, Abstract Algebra, Differential Geometry, Graph Theory, Numerical Analysis, Optimization (I & II), Ordinary Differential Equations, Partial Differential Equations, Discrete Mathematics, Data Structures, Probability Theory, Stochastic Process, Machine Learning, Monte Carlo Simulation.
*Scholarships & Grants*: Master List of Shaw College of 2019-2022, Academic Performance (AP) scholarship-Class C in academic year of 2019-2022, Dean's list (2019-2022)

## SKILLS

Technical: Python, R, SAS, Stata, MATLAB, Java, LaTeX, Excel

## EXPERIENCE

**Research Assistant,** Cornell, Ithaca, USA   (Mentor: *Prof.* Shane Henderson)
**Oct.2022 to now**
- Use Python programming to build library for simulation optimization models
- Responsible for formulating the problem of vaccination distribution policy decision for COVID (or potential other diseases) for specific groups of people, especially for university students and faculties
- Use simulation to estimate the total number of symptomatic infected individuals in a given period, which can be used to decide the number of isolation room required for the period
- Developed algorithm of simulation to optimization the vaccination distribution policy and implemented by Python

**Research Assistant,** UIUC, USA  (Mentor: *Prof.* Zhiyu Quan)
**Sep.2022 to now**
- Do literature review on Algorithm Bias, Interpretable Machine Learning, and Explainable Artificial Intelligence
- Give weekly presentation on the selected topic and report corresponding results
- Make latex summary of current progress and models from papers about interpretable models

**Research Assistant**, *Shenzhen Research Institute of Big Data*, Shenzhen, CN  (Mentor: *Prof*. Dong Wang)
**Nov. 2020 to now**
- Leveraged MATLAB programming to develop an information-driven unsupervised image segmentation model
- Converted image segmenting problem into concave function optimization over a convex set by the characteristic function
- Developed algorithm to conduct image segmentation based on initial knowledge and data of image objects, which can now be used in medical imaging model and target detection

**Research Assistant,** *CUHK*, Shenzhen, CN  (Mentor: *Prof*. Shenghao Yang)
**Sep. 2020 to Dec. 2021**
- Participated in discrete scheduling research in information theory, and was responsible for the proof of continuous propagation delay model in the rate region of wireless line network scheduling
- Studied the communication model with only a limited number of 5 links, inferred the general rules, and verified the convex rate region through design algorithm by python
- Further assumed the existence of propagation delay in the original discrete model and searched for the rate region

**Research Assistant,** *CUHK*, Shenzhen, CN  (Mentor: Prof. Shuai Ye)
**March to Dec. 2020**
- Used SAS programming and innovated analytical framework to quantitatively analyze the main reasons and the proportion of different factors for the low yield of individual investors in the stock market
- Analyzed the influence of "overconfidence" on investors among the five causes of behavioral deviation; constructed a virtual portfolio to determine the influence of various factors on the loss degree of investors
- Studied the causal relationship between individual investors' behavioral deviation and stock market trends, and provided the empirical basis for constructing risk prediction indicators

**Group project — Model Research and Analysis of Credit Decisions of Small and Medium-sized Enterprises**
**Sep. 2020**

- Used Python and Matlab quantitatively analyze the credit data of 123 companies and establish a quantitative model of credit risk and corporate credit strategy model
- For 302 companies with no credit history, establish a credit risk quantitative analysis model & credit strategy model, conduct corporate ratings and obtain reputation risk parameters
- Establish a credit strategy adjustment model under the influence of emergencies, comprehensively consider the credit risks of various enterprises, and obtain the best credit strategy

## PUBLICATIONS

- **Patent**: Zheng, Q., Liu, S., Wang, Q., Liu, L., & Shi, X. (2021). An Intelligent License Plate Recognition Device based on Image Processing (ZL 2020 2 1671861.X). China Intellectual Property Office.
- **Paper**: Zhang, S., Liu, S., Li, B., Liu, L., & Zheng, Q. (2021). A New Corner Detection Method Based on Regularized Covariance Matrix. Mathematics Practice and Cognition.
- Liu, L & Wang, D. An information-driven unsupervised image segmentation model with prior information of shape & connected rows (IP)

## LEADERSHIP

**Campus Ambassador,** *Chinese University of Hong Kong*, Shenzhen, CN                    **Nov. 2018 to Aug. 2019**

- Organized 50 alumnus return visit and campus talk& served as a campus orientation guide
- Participated organization of the meeting of 80 high school principals from different provinces of China (participated in awards ceremony& scheduled interviews& Organized meetings between principals and students)
- Worked as an admissions assistant by providing hotline consultations and answering student/parent questions

## ACTIVITIES/INTERESTS & CERTIFICATES

Piano; painting; horseback riding; archery
Computer Software Copyright Registration Certificate issued by National Copyright Administration of China (July 2020)