



PRINCETON UNIVERSITY  
BENDHEIM CENTER  
FOR FINANCE

MASTER IN FINANCE

CLASS OF 2023

RESUME BOOK

# ALEX ARONOVICH

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## EDUCATION

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**Princeton University**, Bendheim Center for Finance, Princeton, NJ *Sep 2021 – May 2023 (expected)*

- Master in Finance
- Anticipated Coursework: Asset Pricing I and II, Statistical Analysis of Financial Data, Financial Econometrics, Quantitative Data Analysis in Finance, Fixed Income Models and Applications, Corporate Finance

**The Wharton School, University of Pennsylvania**, Philadelphia, PA *Sep 2012 – May 2016*

- Bachelor of Science in Economics, *Cumulative GPA: 3.90/4.00*
- *Honors: Summa Cum Laude, Beta Gamma Sigma (top 10% of class); Study Abroad: FGV, São Paulo, Brazil*

**Other Coursework in Mathematics and Statistics**, *Cumulative GPA: 4.00/4.00*

- **George Washington University**, Washington, DC *Aug 2019 – May 2020*
- **University of Minnesota**, Minneapolis, MN *Jan 2019 – May 2019*

## PROFESSIONAL EXPERIENCE

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**Federal Reserve Board**, Monetary & Financial Market Analysis section, Washington, DC *Jul 2019 – Jul 2021*

*Senior Research Assistant*

- Supported analysis of U.S. fixed income and derivatives markets, including yield curve modeling and estimation
- Produced original research using quantitative methods on large financial data sets; senior policymakers used results as an input to monetary policy decisions. Example projects included:
  - Developed nonlinear regression model of the natural rate of interest ( $r$ -star) and inflation expectations that enhances computational efficiency and metric frequency by >1000x compared to existing models
  - Devised improved metrics to monitor Treasury market liquidity in the presence of high-frequency trading
  - Built an algorithm to automatically detect Treasury market stress events using high-frequency order book data
  - Created a novel data set of per-minute Treasury yields by benchmarking sources and constructing a data pipeline
- Led analysis and visualization of Treasury markets and monetary policy expectations for FOMC materials/briefings
- Improved data ETL, model estimation, and visualization scripts in Python, R, SQL, MATLAB, and Linux/Bash
- Selected to serve as fact-checker/editor of red-black draft of December 2020 FOMC statement

**Fulbright Program, U.S. Department of State**, Caxias do Sul, Brazil *Feb 2018 – Nov 2018*

*Fellow*

- Served as a U.S. cultural ambassador in Brazil, leading presentations/workshops for 6 college-level English classes

**Censeo Consulting Group**, Washington, DC *Aug 2016 – Feb 2018*

*Business Analyst*

- Performed data analysis and led presentations for 5+ client advisory projects including 200+ stakeholders
- Assisted a data governance initiative at the SEC to develop a Commission-wide financial data set catalog
- Presented \$20M+ of cost savings recommendations for two federal agencies based on spending data analysis

**Wharton Small Business Development Center**, Philadelphia, PA *Sep 2013 – May 2016*

*Practice Leader, Undergraduate Consultant*

- Led advisory projects with 9 firms by supervising analysis and client presentations for 6 MBA/undergraduate teams
- Analyzed country remittance data to recommend 20 target emerging markets for a \$2M+ money transfer firm
- Built a predictive financial model in Excel evaluating optimal investments for a \$13M+ toy company

## RESEARCH PUBLICATIONS

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“[High-Frequency Estimates of the Natural Real Rate and Inflation Expectations](#)”, 2021, *Finance and Economics Discussion Series*, with A. Meldrum.

“[The Treasury Market Flash Event of February 25, 2021](#)”, 2021, *FEDS Notes*, with D. Dobrev and A. Meldrum.

“[New Financial Market Measures of the Neutral Real Rate and Inflation Expectations](#)”, 2020, *FEDS Notes*, with A. Meldrum.

“Just-in-Time Intermediation in Fast-Paced Electronic Markets: The Case of Treasury Market Liquidity During Episodes of Market Stress”, with D. Dobrev and A. Meldrum (forthcoming).

“TIPS Inflation Compensation and Treasury Supply”, with K. Joergensen (work in progress).

## TECHNICAL SKILLS AND INTERESTS

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**Technical Skills:** Python, R, SQL, Linux/Bash, Git, MATLAB, Bloomberg Terminal

**Languages:** Portuguese (fluent), Russian (fluent), Spanish (proficient)

**Interests:** Languages, Literature, Cinema, Music/Radio DJing, Classical/Brazilian Guitar, History, Pickleball

# Poorva Arora

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## EDUCATION

### **Princeton University**

*Masters in Finance*

Princeton, NJ

August 2021 – May 2023

Anticipated Coursework: Asset Pricing, Statistical Analysis of Financial Data, Financial Econometrics, Forecasting and Time Series Analysis, Corporate Finance and Financial Accounting, Portfolio Theory and Asset Management

### **Vanderbilt University**

*Bachelor of Engineering in Chemical Engineering, Summa Cum Laude*

Nashville, TN

August 2013 – May 2017

Minors: Engineering Management, Mathematics, Chemistry

Cumulative GPA: 3.95/4.00 | Cornelius Vanderbilt Scholarship Recipient: 4-year full tuition and summer program stipend

## WORK EXPERIENCE

### **Goldman Sachs**

New York, NY | London, UK

*Associate – Strategic and Quantitative Asset Allocation, Investment Strategy Group (ISG)*

July 2019 – July 2021

- Developed customized asset allocation solutions for Private Wealth Management's (PWM) clients, including High-Net-Worth individuals and small to mid-size institutions.
- Analyzed and optimized client portfolios using ISG's quantitative multi-factor optimization model in Python, incorporating relevant parameters such as risk tolerance (volatility), performance targets, return uncertainties, and tax considerations.
- Simulated the downside risks, including market and liquidity risks, and expected long-term performance of portfolios to help clients quantify their ability to meet their wealth objectives, net of inflation, spending, and other liabilities.
- Collaborated with Private Wealth Advisors (PWAs) to present strategic portfolio research and asset allocation guidance at meetings with current and prospective clients.
- Contributed to research initiatives on strategic portfolios via statistical methods such as: regression analysis, performance and benchmarking analysis, drawdown analysis, and Monte Carlo simulations.

### **Goldman Sachs**

New York, NY

*Senior Analyst – Credit Trading, Market Risk Management and Analytics*

May – August 2016; July 2017 – June 2019

- Analyzed market risk metrics in the Global Credit Trading business to identify and escalate significant exposures, risk concentrations, and emerging risks to the trading desks and senior risk leadership.
- Performed stress test analysis on multi-asset portfolios to identify and quantify vulnerabilities in adverse market scenarios and lead discussions with the businesses on their risk profile and management.
- Monitored macro and micro financial events and proactively quantified their potential impacts on profit and loss in the Credit Trading business.
- Allocated risk capacity, enforced limits, and conducted hedge effectiveness analysis for Volcker compliance, per the firm's risk appetite and the business' market making opportunities.
- Developed automated risk analysis tools via Slang (proprietary coding language) to comprehensively monitor risk factors and relevant market signals for the business' exposures across credit products.

## RESEARCH EXPERIENCE

### **Vanderbilt University**

Nashville, TN

*Research Assistant, Bardhan Nanophotonic Materials Research Laboratory*

January 2014 – April 2016

- **Publications:** Plasmon Enhanced Water Splitting Mediated by Hybrid Bimetallic Au-Ag Core-Shell Nanostructures (Nanoscale 2014); Enhancement in Organic Photovoltaics Controlled by Interplay between Charge Transfer Excitons and Surface Plasmons (American Chemical Society Omega 2016)

### **National University Singapore**

Singapore

*Summer Engineering Research Internship for US Students (SERIUS), Environmental Research Institute*

May – July 2015

- Project: Anaerobic Digestion of Food Waste. Researched, designed, and built systems to convert food waste into biogas, a renewable form of energy, via biological processes.

## LEADERSHIP & COMMUNITY SERVICE

### **Vanderbilt Student Volunteers for Science (VSVS)**

Nashville, TN

*Community Outreach Chair*

September 2013 – December 2016

- Spearheaded a 5 member committee in planning and executing 15 annual Outreach events aimed at inspiring STEM careers for middle school students in the Nashville community via demonstrative science experiments.

### **Vandy Karma (Hindu Culture Organization)**

Nashville, TN

*President*

January 2014 – April 2017

- Represented Karma at Multicultural Leadership and Interfaith Councils, and Vanderbilt Religious Affairs Committee; interacted with and served spiritual needs of the Hindu population on campus.

## SKILLS & INTERESTS

**Technical Skills:** Working knowledge of Python and Slang; Microsoft Office

**Languages:** Hindi | **Interests:** Bollywood Dance, Writing (Fiction, Poetry), Travelling, Cooking

# Luis Bento

Bendheim Center for Finance | Princeton, NJ | luis.bento@princeton.edu | +55 19 98129-4535

## EDUCATION

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### Princeton University

*Master in Finance*

Princeton, NJ

Aug 2021 – May 2023

- Anticipated Coursework: Asset Pricing, Statistical Analysis of Financial Data, Corporate Finance and Financial Accounting, Financial Econometrics.

### Inspere – Instituto de Ensino e Pesquisa

*Bachelor of Economics with Certificate in Data Science*

São Paulo, BR

Jan 2015 – Dec 2018

- Cumulative GPA: 9.13/10.00 (Ranking 1/95)
- Coursework: Statistical Learning, Data Science, Asset Pricing, Optimization, Time Series Analysis, Macroeconomics, Game Theory, and Microeconometrics

### Columbia University in the City of New York

*International Exchange Student*

New York, NY

Jan 2018 – May 2018

- Coursework: Linear Algebra, Statistical Computing and Intro to Data Science, Behavior Finance, and Intro to Psychology

## WORK EXPERIENCE

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### C6 Bank

*Investment Specialist*

São Paulo, BR

Aug 2020–Aug 2021

- Designed and implemented a portfolio optimization algorithm for a customized automatic portfolio construction product using the Black-Litterman model. This product is available for over 7 million clients and is projected to have an AuM close to R\$ 850 million by the end of the year.
- Wrote the proprietary Python libraries of financial mathematics, risk measurement, and backtesting of C6's Quant Team.
- Researched the effects of market regimes, rebalancing rules, and asset selection in the historical performance of rule-based asset class portfolios.
- Developed systemic risk reports and analyzed global asset correlations evolution for the bank's investment committee.

### Rio Bravo Investimentos

*Quantitative Analyst*

São Paulo, BR

Dec 2019 – Aug 2020

- Developed several factor strategies in Python and gave a subsequent presentation to the investment committee on Size, betting against beta, net operating assets (NOA), and time series momentum (TSM). NOA and TSM were included as strategies in the fund and TSM is still being used, having had a realized Sharpe ratio of 1.42 in its first 12 months.
- Enhanced the risk parity algorithm in order to reduce the effects of momentum crashes.
- Responsible for a factor investing literature follow-up. Read articles from academic journals and company white papers (AQR, GS, JPM) and prepared discussions to report findings with the portfolio manager and the director of liquid assets.

### Economic Research Analyst

Jun 2018 – Dec 2019

- Automated the database for the main economic indicators in Brazil, extracting the online data directly from statistical agencies using R. Additionally, I automated internal email reporting using RMarkdown and R.
- Developed econometric models for the main indicators of the Brazilian economy. Our projections of the 1<sup>st</sup> quarter of 2020 were awarded 3<sup>rd</sup> place in the Broadcast (Estadão) Ranking of Projections (out of 51 institutions).
- Gave expert testimony to the largest media outlets in Brazil regarding economic outlook (Estadão, Valor Econômico, Reuters, O Globo).
- Wrote a white paper about the structural dynamics of the Brazilian economy, discussing growth perspectives for the next 10 years.

## AWARDS AND EXTRACURRICULARS

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- 2018 1<sup>st</sup> place undergraduate thesis – *The relations between Politics and Public Credit* – Inspere
- 2017 3<sup>rd</sup> place in the 2017 Brazilian Econometric Games (Olympiad)
- 2017 Research assistant of Marco Bonomo – BNDES
- 2017 White paper: *A Herança do Futuro (The Heritage from the Future)* – Bento, Bonomo, Ribeiro
- 2020 White paper: *A Terceira Década Perdida (The Third Lost Decade)* – Rio Bravo Fronteiras
- 2016 London School of Economics Summer Course – Intermediate Macroeconomics
- 2016 President of Consilium Inspere (Public Policy Student Organization)
- 2013 CISV Iceland – Cultural exchange program

## SKILLS AND INTERESTS

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**Languages:** Portuguese (Native); TOEFL (116/120)

**Technical Skills:** R, Python, Microsoft Office, Bloomberg, Google Cloud Platform (Storage, BigQuery), Git

**Interests:** Triathlon, cinema, traveling and hiking

# Yuezhou (Margaret) Cai

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## EDUCATION

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### Princeton University

Princeton, NJ

*Master in Finance, Bendheim Center for Finance*

Expected Jun 2023

- Anticipated Coursework: Asset Pricing, Financial Econometrics, Cases in Financial Risk Management, Fixed Income Models & Applications, Statistical Analysis of Financial Data, etc.

### New York University Shanghai

Shanghai, China

*Bachelor of Science in Business and Finance (Hons), Double Minor in Mathematics and Data Science*

Jun 2021

Cumulative GPA: 3.88/4.0, *Magna cum laude* | **Study Abroad: NYU New York, Stern School of Business**, GPA: 3.9/4.0

Honors: Dean's List for 2017-2021 academic years; 2019-2020 Recognition Award; 2019 NYUSH Jiahua Global Talent Scholarship

- Coursework: Machine Learning, Mathematics of Finance, Probability and Statistics, Data Structures and Algorithms, Ordinary Differential Equations, Debt Instruments and Markets, Econometrics, Portfolio Management, etc.

## PROFESSIONAL EXPERIENCE

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### FC Capital

Shanghai, China

*Analyst Intern*

Apr 2021 – Aug 2021

- Wrote 20+ initial reviews for entrepreneurial firms by presenting key information such as current pipelines, ownership structure, financial condition from firms' business proposals, and researching the healthcare industry, market size and competition structure
- Completed a 77-page deck that includes summary of the project's investment logic, analysis of potential risks, business valuation and return dynamics for the investment committee (IC) meeting
- Completed a 41-page research report on the global orphan drug market to assist team's investment decisions on a biopharma company focused on rare disease market
- Completed 5+ case studies and presentation decks on topics including gene therapy, digital Elisa technology, microsphere preparation, and prepared 10+ question lists for management interviews

### GF securities

Shanghai, China

*Equity Strategy Research Intern*

Mar 2021 – Apr 2021

- Completed daily, weekly and monthly research reports regarding equity strategies in China's A-share market by collecting industry news and financial ratios from the Wind database, and analyzing market trends

### Prophet

Shanghai, China

*Summer Intern*

Apr 2019 – Aug 2019

- Designed brand story board for top 50 firms in Prophet 2019 Brand Relevance Index by doing desktop research, especially reading company's annual reports; Used Excel to analyze the data from over 8000 consumers
- Edited and proofread 50+ whitepapers and case studies regarding business transformation and brand consulting

## RESEARCH EXPERIENCE

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### NYU Shanghai, Business and Finance Department

Shanghai, China

*Summer Dean's Undergraduate Research Funding (DURF) scholarship*

Feb 2020 – Aug 2020

- Used Python and created a CHS4 model (a 4-factor asset pricing model) that can better capture the return variation of China's small stocks than many other factor pricing models such as the CAPM, FF5 the CH3 models
- Applied the CHS4 model to explore the potential anomaly SOE (state ownership proportion), as well as stock performance after debt issuance, seasoned equity offerings (SEOs) and private placements. The model fully explains these anomalies

### NYU Shanghai, Business and Finance Department

Shanghai, China

*Finance Honor thesis project in Asset Pricing in China's Stock Market*

Sep 2020 – May 2021

- Supervised by *Prof. Carpenter* of NYU Stern, collaborated with *Prof. Whitelaw* of NYU Stern
- Examined characteristics of China A-shares by applying my CHS4 model to explain nine anomalies such as reversal, momentum, profitability, volatility, turnover, illiquidity, etc.
- Used Python and Principal Component Analysis (PCA) to approach the puzzle of high information ratio among small stocks

## LEADERSHIP EXPERIENCE

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### NYU Shanghai, Learning Assistant Program

Shanghai, China

*Tutor for Foundations of Finance, Microeconomics and Econometrics*

Sep 2019 – May 2021

- Provided office hours and weekly review sessions for 8 hours/week, received *Most Tutoring Appointments Award*

## SKILLS AND INTERESTS

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Computer: Microsoft Office, Python (Numpy & Pandas), Stata, Capital IQ, Wind database, Minitab, R

Interests: Volleyball, Swimming, Debate, Creative Writing

# JAI KRISHNA CHAPARALA

+91 81700 51443 | [jaikrishna.chaparala@princeton.edu](mailto:jaikrishna.chaparala@princeton.edu) | [LinkedIn:// jaikrishna-chaparala](https://www.linkedin.com/in/jaikrishna-chaparala)

## EDUCATION

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<b>Princeton University</b> <i>Master in Finance, Bendheim Center for Finance</i> Anticipated Coursework: Asset Pricing, Statistical Analysis of Financial Data, Financial Econometrics, Machine Learning	<b>Princeton, NJ</b> <i>Sept 2021 - Jun 2023</i>
<b>Indian Institute of Technology Kharagpur</b> <i>B.Tech. (Honours), Computer Science, CGPA: 8.93/10.0</i> <i>Senior Thesis: Chatbots for Ecommerce, Grade: 10.0/10.0</i>	<b>Kharagpur, India</b> <i>Jul 2014 - May 2018</i>

## EXPERIENCE

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<b>Goldman Sachs</b> <i>Associate, Market Risk Strats</i> <ul style="list-style-type: none"><li>Developed a PnL approximation algorithm to significantly speed-up Monte Carlo simulation-based VaR calculation.</li><li>Developed regression models, dimensionality reduction and error metrics to approximate daily VaR with &lt; 2% error.</li><li>Saved \$12MM/year in recurring costs by reducing ~1MM peak CPU hours usage per day by cutting down the number of scenarios priced daily for VaR from 16bn to 4bn, and 30k AWS cores were returned as a result.</li><li>Optimized IR risk factor VaR, stress test models using market data APIs, resulting in cost reduction of ~\$5MM/year.</li><li>Developed the IMA pricing, risk calculation framework, and capital calculation models under FRTB regulations.</li><li>Developed IR and Inflation risk models, NII models and conducted quantitative impact studies for capital estimation.</li><li>Awarded the highest performance rating conferred on top-quartile performers globally and promoted to Associate.</li></ul>	<b>Bengaluru, India</b> <i>Jul 2018 - Jul 2021</i>
<b>D.E. Shaw</b> <i>Quant Developer Intern, Long-Short Equity</i> <ul style="list-style-type: none"><li>Developed a model leveraging Natural Language Processing and Fuzzy Searching to extract geolocation and retail store identifier info using the description field of a huge proprietary American credit card dataset with &gt; 4bn transactions.</li><li>Achieved 60% better identification of geotagging than the data vendor and &gt; 95% extraction rate of store-id information.</li><li>Received an offer to join the Long-Short Equity Alternative Data team as a full-time quantitative developer.</li></ul>	<b>Hyderabad, India</b> <i>May 2017 - Jul 2017</i>
<b>BigClozet</b> <i>Machine Learning Internship</i> <ul style="list-style-type: none"><li>Developed color segmentation and pattern recognition modules using open-cv and sklearn for apparel.</li><li>Used transfer learning on pre-trained GoogleNet architecture-based deep CNNs to classify footwear into sub-categories.</li></ul>	<b>Bengaluru, India</b> <i>May 2016 - Jul 2016</i>

## RESEARCH AND PUBLICATIONS

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<b>Indian Institute of Technology - Department of Computer Science</b> <i>Chatbots for Ecommerce: Senior thesis in collaboration with Capillary Technologies</i> <ul style="list-style-type: none"><li>Developed statistical and deep learning models to reduce user-interaction time with chatbots for optimal order placement.</li><li>Automated Q/A, search, review summarization, and feature specific sentiment analysis for Amazon's electronics dataset.</li></ul>	<b>Kharagpur, India</b> <i>Aug 2017 - May 2018</i>
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**Publication:** Srivastava Avikalp, Madhav Datt, **Jaikrishna Chaparala**, Shubham Mangla, and Priyadarshi Patnaik. "Social Media Advertisement Outreach: Learning the Role of Aesthetics." Proceedings of the 40th annual international **ACM SIGIR** Conference on Research and Development in Information Retrieval. ACM, 2017.

## AWARDS & HONOURS

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- 2017 Amazon Code Wizard Challenge: Winner in the 3-stage countrywide Machine Learning hackathon by Amazon.
  - 2017 Capillary Data Science Challenge: Winner in the 2-week ML competition held by Capillary Technologies.
  - 2017 Microsoft Artificial Intelligence Hackathon: Runner-up (2nd place) among 200 participant teams.
  - 2014 JEE Mains: Secured 13th place in India among 1.5 million participants with a score of 340/360.
  - International Olympiads: Qualified to India finals(Stage 3) in Astronomy(Top 20-India) and Junior Science(Top 40-India)
  - South Indian Mathematics Olympiad: Ranked 6th/~60,000 in the 2-stage national mathematics competition.
  - Scholarships: NTSE(Top 0.2% in India, Govt. of India), KVPY(Govt. of India).

## ADDITIONAL INFORMATION

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**Languages:** English, Hindi, Telugu, Malayalam.

**Programming Experience:** C++, Python, Java, SQL, NLTK, Sklearn, Scipy, Pandas, Statsmodels, etc.

**Interests:** Poker, Cricket(NSO-IIT Kharagpur), Cryptocurrencies, Reading, Piano, Chess.

**Others:** Provided technical and career mentorship to students and early professionals across India through Scaler Academy.

# CHASITY (QIAN) CHEN

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## EDUCATION

**Princeton University**  
*Master in Finance*

Princeton, NJ  
Anticipated Sept 2021-June 2023

**New York University**  
*Bachelor of Arts in Economics and Bachelor of Arts in Computer Science*

New York, NY  
Sept 2017-May 2021

- GPA: 3.91/4.00; GRE: 334 + 4.5; Phi Beta Kappa, Dean's List

## WORK EXPERIENCE

**Huatai Securities Co., Ltd**  
*Asset Management Intern, Asset Management Division*

Shanghai, China  
June 2021-present

- Designed and selected option strategies for asset management products based on analysis of the current market.
- Assisted in the preparation and operation of asset management products series before, during, and after asset management periods.

**Donghai Securities**  
*Quantitative Research Intern, Financial Engineering Group of Research Department*

Shanghai, China  
Apr 2021-June 2021

- Participated in the publication of the weekly derivatives report, and independently wrote the first version.
- Designed the workflow of an automatic data processing system for the weekly derivatives report and implemented the system using Python. The system automatically retrieves data, cleans data, computes required indicators and generates 10 tables and 31 graphs.
- Assisted in the research on building machine learning models with technical factors for stock selection. Collected, cleaned, and visualized data to analyze the characteristics of datasets and conduct outlier analysis.

**China International Capital Corporation Limited (CICC)**  
*Quantitative Investment Intern, Equity Sales Department*

Beijing, China  
Oct 2020-Nov 2020

- Assisted in the research on the selection of factors in a multi-factor model for stock selection in Chinese A share stock market. Used Python to conduct back-testing to test the validity of 2 factors (PE ratio and monthly sales growth), created industry-neutral portfolios based on the value of the factor being tested and tracked the annualized returns using historical data.
- Maintained trading data and generated daily reports on the strategy performance (Annualized Return Rate, Maximum Drawdown, Sharpe Ratio) using Python.

**PwC Management Consulting (Shanghai) Limited**  
*Management Consulting PTA*

Shanghai, China  
Sept 2020-Oct 2020

- Participated in the digital transformation project for a well-known Chinese medicine retailer, researched the online medicine retailing industry in China, derived and summarized the consumption scenario of medicine in B2C and O2O e-commerce models.
- Conducted case studies on omni-channel retailing, including strategies, operations, and the back-end supply chain of leading firms.
- Participated in the design of pricing and marketing strategies for a fintech company, collected and analyzed the fintech strategies of 15 commercial banks, and summarized the overall transformation trend and potential demands for fintech products.
- Conducted research on the applications of machine learning in the Chinese banking industry (including anti-fraud, risk management, Robo-advisor, and AI marketing) and contributed to a published research report.

## PROJECT & RESEARCH EXPERIENCE

**New York University, Computer Science Department**

New York, NY

*Natural Language Processing Project: AH-SAR – Ad Hoc Sentiment Analysis on RateMyProfessors.com*

Mar 2021-May 2021

- Designed, implemented, and tested multiple solutions for the sentiment analysis on student comments from RateMyProfessors.com using different machine learning models; ended up with an easy-to-implement, fast-to-train system that outperforms mainstream models in NLP in terms of both sentiment recognition accuracy and system training and running speed.
- Launched an RMP-sentiment-analysis application and published the project paper on Github.

## LEADERSHIP EXPERIENCE

**Echo Tide**  
*Co-Founder, Project Leader*

Kunming, China  
Dec 2016-Dec 2018

- Coordinated the initiation and promotion of long-term weekend volunteer programs in cooperation with local NGOs
- Organized the preparation and sale of self-made handicrafts to raise funds for local child welfare institutes.

## SKILLS & INTERESTS

- **Computer:** Python, Java, SQL, Microsoft Word, Excel (Solver, Data Analysis tools), PowerPoint
- **Language:** Chinese (native); English (advanced); Spanish (basic)
- **Interests:** Scuba Diving, Tennis, Fruit Tea, Hotpot

# Yuyang (Eric) Chen

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## EDUCATION

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### Princeton University

Princeton, NJ

Master in Finance, Bendheim Center for Finance

Sep 2021 – May 2023

- **Anticipated Coursework:** Asset Pricing, Statistical Analysis of Financial Data, Financial Econometrics, Statistical Theory and Methods, Machine Learning

### Peking University, Guanghua School of Management

Beijing, China

Bachelor of Economics in Finance

Sep 2017 – June 2021

- **GPA & Honors:** 3.94/4.00 (1/160); National Scholarship (Top 1%), May 4th Scholarship (Top 1%), Arawana Scholarship (Top 1%), Freshman Scholarship (Top 5%), Merit Student of Peking University (Top 1%)
- **Relevant Coursework:** Mathematical Methods in Finance, Stochastic Analysis, Time Series Analysis, Asymptotic Statistics, Data Structure & Algorithm, Fixed Income Securities, Financial Econometrics, Regression Analysis

### The University of Chicago

Chicago, IL

Exchange student Program, Selected by Peking University

Sep 2019 – Dec 2019

- **GPA:** 4.0/4.0; **Coursework:** Financial Instruments (A+), Option Pricing, Multivariate Data Analysis, Econometrics

## PROFESSIONAL EXPERIENCE

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### Goldman Sachs

Hong Kong, China

Strats Summer Analyst, EQ Securitized Derivatives Strats, Global Markets Division

July 2020 – Aug 2020

- Developed programs in Python and Slang to automatically extract, organize, enrich and visualize the data of structured derivatives trading and created a dashboard to display the newly created dataset
- Applied regression methods using Python to identify patterns in structured derivatives demand and gross credit, and explored their relationship with various variables including interest rates and market returns to provide insights for raising profits

### Trexquant

Stamford, CT (Remote)

Remote Intern, Global Alpha Researcher

Jan 2020 – Apr 2020

- Investigated recent academic research, and applied statistical techniques to develop market-neutral, medium-frequency Alphas from revenue, price target and EPS forecast data in sell-side databases (I/B/E/S)
- Identified useful variables using US weather data for predicting policy losses of insurance companies, wrote downloading scripts for the data in Python, created data visualization, and conducted Alpha research based on them

### Wizard Quant

Zhuhai, China

Summer Analyst, Quantitative Research

Jun 2019 – Aug 2019

- Performed statistical analysis on financial statement data and identified signals for Chinese stocks with R and Python
- Developed algorithms in Python for Alpha back-testing and performed in-depth study to improve the alpha performances

## PROJECTS & RESEARCH EXPERIENCE

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### Peking University, Guanghua School of Management

Beijing, China

Research Assistant, Marginal Maximum Likelihood Estimates for Stochastic Volatility Models

Mar 2019 – Apr 2021

- Applied Ito-Taylor and Stratonovich-Taylor expansion on the Fisher information for the MMLE of SV model, developed programs in Mathematica and Python for its symbolic implementation, and derived its asymptotic properties

### UBS Global Markets Hackathon 2019: 2<sup>nd</sup> place

Oct 2019 – Nov 2019

- Constructed hedging strategies on a portfolio of bond assets, reducing the out-sample maximum drawdown by over 70%
- Applied statistical and machine learning methods including PCA to optimize the performance of the hedged portfolio

### MCM/ICM Mathematical Contest in Modeling 2019: Meritorious Winner

Jan 2019

- Constructed a model of the energy consumption of a fictional dragon and the ecosystem using ODE and PDE by MATLAB to estimate the ecological requirements and growing process of the dragon and conducted sensitivity analysis on it

### Bain Cup Competition 2018: Led a team of 4 to conduct consulting case analysis, Top 4 of China

May 2018

## LEADERSHIP

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### Peking University Hedge Fund Association

Beijing, China

Quantitative Department President

Sep 2020 - Present

- Organized experience-sharing sessions and seminars on quantitative research and trading

## SKILLS & INTERESTS

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- **Language:** Chinese Mandarin (native), Chinese Shanghainese (fluent)
- **Technical:** C/C++, Python, MATLAB, R, Mathematica | Microsoft Office | LaTeX
- **Interests:** Football, tennis, movies, calligraphy (received 10+ awards above the municipal level)



# Haoting (David) DAI

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## EDUCATION

**Princeton University** **Princeton, NJ**

*Master in Finance, Quantitative Asset Management and Macroeconomic Forecasting Track* Aug. 2021 – May 2023

*Certificate in Machine Learning*

- Anticipated Coursework: Asset Pricing, Financial Econometrics, Statistical Analysis of Financial Data, Machine Learning, Economic Dynamics, Chinese Financial and Monetary Systems

**Renmin University of China**

**Beijing, China**

*Bachelor of Economics in Finance*

Sept. 2016 – June 2020

*Bachelor of Science in Mathematics (Double Major)*

- GPA: 3.92/4.00
- Relevant Coursework: Corporate Finance, Intermediate Macro/Microeconomics, Mathematical Analysis, Statistics and Probability, Optimization, Money and Banking, ODE, International Finance, Financial Time Series
- Honors: Scholarship of Academic Excellence (1%), Overseas Visiting Student Fellowship (0.1%)

**Columbia University**

**New York, NY**

*Visiting Student with Fellowship*

Sept. 2018 – May 2019

- GPA: 4.00/4.00
- Relevant Coursework: Quantitative Risk Management, Numerical Methods in Finance, Stochastic Processes and Applications, Behavioral Finance, Capital Markets and Investments, Advanced Econometrics, PDE

## PROFESSIONAL EXPERIENCE

**Huatai Securities**

**Shenzhen, China**

*Financial Engineering/Quant Research Intern, Research Division*

Sept. 2020 – Mar. 2021

- Designed target-date fund glide-paths for various buy-side clients, responsible for the entire workflow including asset allocation model construction, asset parameters modelling, and back-testing
- Designed a target-risk fund with volatility, downside deviation and VaR limiting based on the risk parity strategy, and improved its Sharpe ratio by 34% by estimating the covariance matrix with EWMA and shrinkage methods
- Conducted performance attribution analysis on 1,400+ fixed income mutual funds over the past 14 quarters using the Campisi model, analyzed attribution results statistically, and composed a research report summarizing findings
- Researched a multi-asset market timing strategy using macro factors based on factor IC's, Granger causality tests, etc., achieved annual return of 20.2% and Sharpe ratio of 0.73 on CSI 300 index over 14 years

**Tencent Financial Technology**

**Shenzhen, China**

*Off-Cycle Intern, Wealth Management Division*

June 2020 – Aug. 2020

- Conducted KYC and KYP research using panel regression, fractional probit and logit model, and Kaplan-Meier survival analysis on daily transactional data of 600+ mutual funds spanning over three years, including raw data preprocessing and econometrical research on subscription, redemption, conversion rate and holding duration
- Issued approval suggestions on funds pending biweekly review according to Brinson and Henriksson-Merton model analysis
- Developed a money market fund investment strategy based on non-trading day returns, which enhanced annual return by about 40 bps compared to the market average

**Hong Kong Exchanges and Clearing Limited**

**Hong Kong SAR**

*Summer Intern, Markets Division*

July 2019 – Sept. 2019

- Promoted HKEX's inline warrants and weekly HSI and HSCEI options, supplied training sessions to brokers highlighting contract specifications and suitable Greeks related trading strategies
- Created three Excel macro spreadsheets using VBA for analyzing turnover statistics of HKEX's exchange participants for different securities and derivatives

## LEADERSHIP & EXTRACURRICULAR ACTIVITIES

**UBC-Sauder International Real Estate Case Competition**

**Vancouver, BC**

*Team Leader, group runner-up in the preliminary round*

Nov. 2019

- Led a team of six to analyze a condominium development project and make investment recommendation
- Managed quantitative modelling components (leases, mortgage, valuation, promote, etc.) of the case based on market analysis given by other team members, built a DCF sensitivity analysis toolkit using VBA

**Renmin University of China, Investment Banking & Consulting Association**

**Beijing, China**

*Vice President (Internal)*

Sept. 2017 – Dec. 2019

- Responsible for organizing weekly lectures and activities of the association, serving 100+ members

## ADDITIONAL INFORMATION

**Technical Skills:** Python, R, Stata, VBA, EViews, Office, Wind, Bloomberg

**Languages:** Mandarin (native) and Cantonese (native)

**Certificates:** CFA Level I (passed)

# Aditya Divekar

Bendheim Center for Finance, 20 Washington Road, Princeton, NJ

[adivekar@princeton.edu](mailto:adivekar@princeton.edu)

## EDUCATION

### Princeton University

*Masters in Finance*

Princeton, NJ

Aug 2021 - May 2023

Anticipated Coursework: Fixed Income, Asset Pricing, Financial Econometrics, Options Futures and Derivatives, Behavioural Finance, Asian Capital Markets, Machine Learning and Pattern Recognition

### Indian Institute of Technology Guwahati

*Bachelor of Technology, Mathematics and Computing, GPA: 9.18/10*

Guwahati, IN

June 2014 - May 2018

Coursework: Modern Algebra, Monte Carlo Simulation, Financial Engineering, Probability theory and Random Processes, Stochastic Calculus, Matrix Computations

## WORK EXPERIENCE

### Fusion Research Capital

*Quantitative Researcher/Developer*

Pune, IN

Mar 2021 - Aug 2021

- Designed and built a momentum trading strategy for index options at NSE based on order book and index future signals
- Monitored live trading and performed comparative analysis of trades with backtests to improve profitability and reproducibility
- Developed understanding of market microstructure and design techniques for low latency systematic trading

### Goldman Sachs

*Associate, Equities One Delta Strategies - Americas*

Bengaluru, IN

Jun 2018 - Mar 2021

- Worked on Smart Order Routing algorithms for options and equities. Developed spread option pricing constraints and trading dual-currency listings on Canadian exchanges that increased business flow by over multi-million dollars YoY
- Involved in building Atlas, a low latency trading infrastructure. Included design and implementation of execution algorithms and venue connectivity with emphasis on zero-garbage and low latency
- Independently calibrated and maintained venue rankings for passive routing across exchanges and dark pools
- Promoted to Associate in December 2020

### Goldman Sachs

*Summer Analyst, Equities One Delta Strategies - Americas*

Bengaluru, IN

May 2017 - Jul 2017

- Analysed historical executions of trading algorithms and developed performance metrics
- Implemented improvements for warm-up of algorithms reducing their startup time by 20% resulting in lower implementation shortfall

### Google Summer of Code

*Student Developer*

Remote

May 2016 - Aug 2016

- Designed and developed the implementation of the Authenticated Received Chain protocol for email authentication and security in GNU Mailman
- Participated in onsite development with the GNU Mailman team at the Portland Pycon, 2016 on invitation for collaboration

## PROJECTS & RESEARCH

### IIT Guwahati Department of Mathematics

Guwahati, IN

#### Corporate Credit Rating using Machine Learning Techniques: Thesis

Jul 2017 - May 2018

- Designed predictive AI models to assign credit ratings based on financial fundamentals and performed comparative analysis with classification techniques
- Identified 12 key factors influencing credit ratings for US companies using S&P data for 400 companies spanning 6 years
- Achieved a benchmark accuracy of 92.13% with a novel approach of kNC compared to existing literature

#### Slice Sampling with Adaptive Multivariate Steps

Mar 2016 - Apr 2016

- Studied and implemented the Shrinking Rank method for sampling from multivariate distributions
- Achieved improvement of 8% in accuracy over Slice Sampling for generating random variates from multivariate Gamma distribution

## SCHOLASTIC ACHIEVEMENTS

**Quant Market Volatility Modeling Challenge:** Ranked 3rd in the Quant challenge for the pricing of Barrier options in Quantify 2017, conducted by Goldman Sachs

**INSPIRE scholarship:** Awarded by the Department of Science and Technology, Govt. of India in 2014 for graduating within 1% of science students across high schools in India

## SKILLS & INTERESTS

**Programming:** Java, C++, Python, R, MATLAB

**Interests:** Motorsports, Poker, Weight training

# Andrew Elzayn

Email: [aelzayn@princeton.edu](mailto:aelzayn@princeton.edu) | Phone: (310) 923-4407

## EDUCATION

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### Princeton University

#### *Master in Finance*

- Anticipated coursework: Asset Pricing I, Statistical Analysis of Financial Data, Corporate Finance and Financial Accounting, Asset Pricing II, and Financial Econometrics

Princeton, NJ

Expected

Aug. 2021 – May 2023

### Columbia University

#### *B.A. in Computer Science - Mathematics, Concentration in Economics, GPA: 4.13/4.00*

- Summa cum Laude, Junior Phi Beta Kappa, Computer Science Scholarship Award, Dean's List
- Relevant coursework: Advanced Econometrics, Analysis of Algorithms I, Introduction to Probability and Statistics, Analysis and Optimization, Economics of Uncertainty and Information, Artificial Intelligence, Intermediate Microeconomics, Intermediate Macroeconomics, Modern Algebra I

New York, NY

Sept. 2017 – Feb. 2021

## RESEARCH & WORK EXPERIENCE

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### Columbia University

#### *Research Assistant, Economics Department*

- Wrote code in R to forecast industrial production and other macroeconomic variables during recessions using various machine learning and classical forecasting models
- Compared random forest, factor-augmented regression, and LASSO models to baseline AR(4)
- Developed tools to visualize inter-model differences for improved interpretability

New York, NY

Feb. 2021 – July 2021

### Aetna

#### *Data Science Intern*

- Spearheaded the push for personalized content by creating a repository of user segments
- Worked with the product team to identify four different personalization features
- Utilized unsupervised clustering algorithms such as K-Means and Agglomerative Clustering
- Worked with the data engineering team to productionize models for use across the entire team
- Used supervised learning models to expand functionality of clusters and eliminate the need to re-fit with models that lack ability to predict (supervised learning models achieved F1 scores > 0.98)
- Optimized model pipeline using a distributed parallel processing engine for machine learning to reduce runtime from minutes to seconds

New York, NY

June 2020 – Aug. 2020

### Jam City

#### *Data Science Intern*

- Developed random forest and XGBoost models using player data in order to predict whether a player will make a purchase from the in-game store
- Used segmentation techniques to segment players for more directed advertising and in-game offers
- Developed and modified reinforcement learning models in order to find optimal level difficulties

Los Angeles, CA

June 2019 – Aug. 2019

### Avata Intelligence

#### *Software Engineering Intern*

- Created programs using the Apache POI API to read documents and spreadsheets and input the data into JSON format to be used by the company's proprietary NLP algorithms
- Created a MySQL database and local server to process, store, and analyze the data
- Utilized Python, Amazon Web Services, and AWS Lambda Functions to create a chat bot framework with Slack integration for the company's future use

Los Angeles, CA

June 2018 – July 2018

## LEADERSHIP & SERVICE

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### Columbia University, Turath – Arab Students Association

#### *Treasurer (2018-2019, 2019-2020) and Organizing Committee Member (2017-2018)*

New York, NY

Sept. 2017 – May 2020

## SKILLS

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### Programming – R, Python, SQL, Java, C

- Extensive experience programming in R, Python, SQL, and Java
- Experience with C, C++, Apache Hive, and MySQL

# Qingyang (Young) Gao

+86 159-6296-0721 | [qg4580@princeton.edu](mailto:qg4580@princeton.edu)

## EDUCATION

### Princeton University

*Master's Degree in Financial Mathematics*

Princeton, NJ

Aug 2021–May 2023 (Expected)

- **Anticipated Coursework:** Asset Pricing, Statistical Analysis of Financial Data, Energy and Commodities Markets
- Pursuing Certificate in Machine Learning: Linear and Nonlinear Optimization, Statistical Foundations of Data Science

### Fudan University, School of Economics, School of Computer Science and Technology

*Bachelor's Degree in Finance, with a Minor in Data Science*

Shanghai, CN

Sep 2017–Jun 2021

- **Major GPA:** 3.94/4.00; **Rank:** 2/80
- **Math Coursework:** ODE, Stochastic Process, Stochastic Calculus in Finance, Time Series Analysis, Advanced Econometrics
- **Computer Science and Data Science Coursework:** Python Programming, Application of Quantitative Analysis Software, Linux Operating System, Data Structure and Algorithm Analysis, Database Systems, Data Mining, Machine Learning
- **Finance Coursework:** Financial Economics, Behavioral Finance, Financial Derivatives, Fixed Income Securities, Accounting

### University of Pennsylvania

*International Guest Student*

Philadelphia, PA

Aug 2019–Dec 2019

- **GPA:** 4.00/4.00. **Relevant Coursework:** Statistical Inference (A+), Mathematical Statistics (Graduate Level, A+), Calculus IV (Applied Partial Differential Equations) (A+), Computer Methods I (Numerical Analysis) (A+)

## WORK EXPERIENCE

### Ping An Technology

*Algorithm Engineer Intern, Knowledge Graph Team*

Shanghai, CN

Oct 2020–Nov 2020

- Built a pool of selective stocks based on analyst recommendations and rankings from 2015 to 2019; combined fundamental and technical factors to create a strategy achieving 26.5% annual return and 12.5% maximum drawdown
- Authored model documentation for 30+ firm indicators, patterns, and signals for investments
- Provided the firm with an established and systematic backtesting library using OOP in C++ to save over 95% of time

### Kaifeng Investment Management

*Quantitative Research Intern, Quantitative Trading Department*

Shenzhen, CN

Apr 2020–Aug 2020

- Created models based on hedging behavior of stock index futures and applied basis adjusted price-volume features to trading stock index futures using regression analysis, achieving an information coefficient (IC) of over 0.08
- Analyzed and interpreted high-frequency data from the SSE Science and Technology Innovation Board (STAR) using Principal component analysis (PCA); discovered the significant intraday reversal effect of STAR market stocks
- Developed and submitted 15+ market-neutral alphas with excellent performance; the alphas traded on the live market and achieved top 10% performance within the whole alpha pool

### Shanghai Luoshu Investment

*Quantitative Research Intern, Division of Investment and Research*

Shanghai, CN

Jan 2020–Mar 2020

- Identified statistically significant alphas in index futures overnight trading; spearheaded a team of interns to construct a factor model to obtain stronger alphas on index futures using Python
- Applied machine learning techniques, including LASSO regression, ridge regression, decision tree, logistic regression, neural networks, and other models to predict overnight returns and evaluated factor performance
- Implemented backtesting programs to calculate the Sharpe ratio, profit over turnover and other indicators; developed daily adjustment strategies with a Sharpe ratio above 3 and profit margin above 6.5 bps

## RESEARCH EXPERIENCE

### An Empirical Analysis of the Barillas-Shanken Six-Factor Asset Pricing Model in Chinese A-Share Market

*Research Assistant, Advisor: Professor Hongfei Zhu, Fudan University*

Shanghai, CN

Apr 2021–Present

- Studied the efficiency of Barillas-Shanken asset pricing factors including SMB, HML, and ROE using the Fama–MacBeth regression in R, compared the explaining effect of the cross-sectional return difference in stocks with other asset pricing models
- Enhanced factor performance based on research of economic and financial interpretations in Fama and French (2016) etc.

### SSE 50ETF Option Implied Volatility Surface: Analysis of Stochastic Local Volatility Model

*Research Assistant, Advisor: Professor Xianglin Jiang, Fudan University*

Shanghai, CN

Oct 2020–May 2021

- Calibrated a stochastic local volatility model (SLV) to price the SSE 50 ETF option using the finite difference method and Monte Carlo simulation; predicted implied volatility of the SSE 50 ETF option
- Built SSE 50 ETF option hedging strategy using SLV-projected delta; reduced hedging error by over 30% compared to the Heston stochastic volatility model in regard to Root Mean Square Error

## ADDITIONAL INFORMATION

**Computer skills:** C++ (STL, Boost), Java, Python (pandas, scikit-learn, TensorFlow, PyTorch), R, MATLAB, SQL, LaTeX, Linux

• *Certificate with Distinction of C++ Programming for Financial Engineering from QuantNet*

Nov 2019

**Languages:** Mandarin (native)

**Interests:** Piano (Grade Examination of Piano Level 10 for Nonprofessionals), Fitness

# Arjun Goyal

Princeton, NJ | Tel: +852-9140-6745 | E-mail: ag8178@princeton.edu | linkedin.com/in/arjun-goyal/

## EDUCATION

### PRINCETON UNIVERSITY

#### *Master of Finance*

Princeton, NJ

May 2023 (expected)

- Anticipated Coursework: Asset Pricing I & II, Statistical Analysis of Financial Data, Fixed Income: Models and Applications

### NEW YORK UNIVERSITY, Leonard N. Stern School of Business

#### *Bachelor of Science in Business concentrating in Statistics, Finance, with a minor in Mathematics*

New York, NY

May 2020

- **GPA:** 3.936 / 4.0
- **Dean's List:** 2016-2020; **Beta Gamma Sigma** honors society member, for sustained academic excellence
- **Award for Academic Excellence in Finance** for Class of 2020

## PROFESSIONAL EXPERIENCE

### MORGAN STANLEY

#### *Analyst, Fixed Income Capital Markets*

Hong Kong SAR

July 2020 – Present

- Formulated and modeled numerous FX, interest rate and commodity risk management solutions to compile pitches for corporate clients and sponsors in the Asia-Pacific region
- Contributed to sourcing and executing multiple FX hedging transactions around liability issuances, particularly for Indian renewable energy companies
- Assisted in internal risk assessment, execution and settlement of a deal contingent FX hedge surrounding an M&A transaction in a restricted currency market
- Facilitated sourcing and execution of cross-border debt private placements for Asian clients, with a focus on EM currency denominated debt

#### *Summer Analyst, Fixed Income Capital Markets*

June 2019 – August 2019

- Compiled more than 15 pitchbooks and discussion materials for potential debt issuances options for prospective clients
- Created in-depth analysis of the US-China trade war's effect on the shipping industry for a client engaged in a leveraged finance transaction; analysis helped form internal risk assessment decisions
- Modeled and created discussion materials for fixed income derivative strategies for clients using instruments like swaps, options, commodity derivatives and cross-asset solutions

### MACQUARIE GROUP

#### *Intern, Commodities and Global Markets*

Singapore

July 2018 – August 2018

- Created multiple INR currency valuation model using macroeconomic inputs for fixed income trading team
- Formulated an indicator to measure liquidity levels of inter-bank lending market in India and correlated it to corporate bond yields over time to research new debt trading strategies
- Compiled world marine port database, with over 12,000+ ports, as part of a vessel tracking software that would be used by Commodities Structured Finance team; wrote Visual Basic code for prototype of this software for the quantitative strategy team

## RESEARCH EXPERIENCE

### **Hot Racquet or not? An Exploration of Momentum in Grand Slam Tennis Matches**

July 2019 – July 2020

- Collaborated with Professor Jeffrey Simonoff at NYU Stern to identify and analyze momentum trends in Grand Slam tennis matches; submission as part of senior honors thesis program
- Applied Generalized Linear Mixed Effects models using R on set, game and point levels of match data since 2016
- Formulated data scraping code on Python to compile and clean match data for analysis

### **Stern Program for Undergraduate Research**

January 2018 – May 2018

- Assisted Professor Sabrina Howell at NYU Stern and compiled quantitative ICO data for over 30 different cryptocurrencies, including funds raised and pricing strategy used during ICO process, to examine factors that lead to successful cryptocurrency launches

## LEADERSHIP, SOCIAL IMPACT & EXTRACURRICULAR ACTIVITIES

- Executive Vice President of Internal Affairs and Leadership Director at NYU's Net Impact Club, a student group focused on the intersection of business and social impact
- Volunteering: Intern at Outreach and communications department of Yuva Parivartan in Mumbai (June - July, 2015); Intern at Safe Water Network India Trust (June 2018)
- Editor and Writer at the Economics Review Publication at NYU
- Languages: English (native), Hindi (native)
- Software: Excel/VBA (Intermediate), R (Intermediate), Python (Intermediate, Web Scraping)
- Interests: Drummer and music lover, travelling, photography, running, Bayern Munich, Chipotle bowls

## Lina Huang, CFA

360 E. 89th Street, New York, NY • [lina.huang@princeton.edu](mailto:lina.huang@princeton.edu) • (630) 770-5101

### EDUCATION EXPERIENCE

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#### Princeton University (Bendheim Center for Finance)

*Master in Finance*

Princeton, NJ

Expected May 2023

#### Columbia University (School of Engineering and Applied Science)

*Bachelor's Degree in Operations Research*

New York, NY

Sep. 2014 – May 2017

GPA: 3.81 Honors: Magna Cum Laude, Tau Beta Pi Engineering Honor Society, Dean's Lists

### WORK EXPERIENCE

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#### AllianceBernstein Holding L.P.

New York, NY

##### *Quantitative Researcher*

Sep. 2020 – Jul. 2021

- Developed an Emerging Market Risk Indicator using machine learning classification algorithms; back-tested 1000+ different combinations of parameters for a risk timing strategy against the Emerging Markets (EM) index. Constructed a trading strategy using a basket of liquid market EM Credit Default Swaps and CDX.
- Created an EM Slope cross-sectional factor model using a combination of macroeconomic and technical factors, and risk indicators; backtested a trading strategy using the interest rate swaps of 13 liquid EM countries.
- Revamped the global rates model to reduce portfolio turnover with transaction cost included in the optimization process; conducted research on 20+ potential new rate factors to be incorporated into the model.
- Served on the leadership board of AB Asians, an employee resource group, to promote diversity since 2017.

##### *Currency Strategy Rotational Associate/Currency Strategist*

Jul. 2018 – Aug. 2020

- Devised quantitative investment strategy for currency overlays of \$30 billion Global Fixed Income portfolios, which derive 30-50% of total risk from FX, and \$300 million currency-only unconstrained portfolios.
- Lead the quantitative research team on developing new systematic FX strategies for all-country and G10-only universes by researching model factors and construction methods, followed by backtesting trading strategies.
- Revamped the previous mean-variance portfolio optimization process using Python; increasing the capacity from optimizing one portfolio at a time to doing 80+ simultaneously.
- Conducted analysis on optimal FX hedging strategy and ratios using Monte Carlo Simulation for Asian clients.

##### *Rates Trading Rotational Associate*

Jan. 2018 – Jun. 2018

- Traded U.S. Treasuries, TIPS, G10 Interest Rate Swaps.
- Developed short-term trading signals using market positioning data (CFTC futures, major bond funds betas).
- Conducted research on the optimal time for duration month-end rebalancing and intraday trade opportunities

##### *Quantitative Research Rotational Associate*

Jun. 2017 – Dec. 2017

- Created an Orthogonal Exponential Spline model to fit the U.S. Treasury yield curve and calculate the spread to splines of the treasury bonds. The model was used as a prototype to fit global government bond yield curves.
- Developed a Treasury Relative Value Tool using the spline model to provide color for the Rates Trading team on market mispricing and for the portfolio managers to screen the cheapest/richest bonds within their portfolios; the tool is currently used as the primary tool for treasury bond selections.
- Managed 3 paper portfolios for U.S. IG Credit that isolate and track the performance of quant signals; developed automated monthly rebalancing and performance tracking processes for the portfolios using R.
- The paper portfolios served as a prototype of the Systematic U.S. IG Strategy that AB developed in 2019.

##### *Fixed Income Summer Rotational Intern*

Jun. 2016 – Aug. 2016

*Quantitative Research Rotation:* developed a Credit Default Swap Index trading strategy

*Securitized Product Rotation:* conducted industry level analyses in Commercial Real Estate and CMBS

### SKILLS AND INTERESTS

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**Skills:** Python, R, SQL, Mandarin Chinese, Microsoft Office, Bloomberg Terminal

**Interests:** traveling and experiencing different cultures, drawing since the age of 6, snowboarding, golfing

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## EDUCATION

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- Princeton University** **Princeton, NJ**  
08/2021-05/2023
- *Master in Finance*
  - Anticipated Coursework: Asset Pricing, Statistical Analysis of Financial Data, Corporate Finance and Financial Accounting, Financial Econometrics
- Brandeis University** **Waltham, MA**  
08/2017-05/2021
- Bachelor of Science in Economics, Applied Mathematics, Minor in International and Global Studies*
- Major GPA: 4.0/4.0; Cumulative GPA: 3.9/4.0; (Phi Beta Kappa, Magna Cum Laude, Dean's List)
  - Relevant Coursework: Applied Linear Algebra, Multivariable Calculus, Fourier Series and PDEs, Probability, Statistics and Data Analysis, Real Analysis, Optimization, Advanced Programming in Java, Data Structures, Financial Economics, Advanced Econometrics, Game Theory, Option and Derivatives
- University of Oxford** **Oxford, England**  
10/2019-06/2020
- Study Abroad Program*
- Cumulative GPA: 3.9/4.0

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## PROFESSIONAL EXPERIENCE

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- Guotai Junan Securities** **Beijing, CN**  
11/2020-03/2021
- Equity Research Analyst*
- Analyzed the fundamentals and financial data of automotive electronics product suppliers in China, interpret industry trends using Excel and VBA, and write equity research report using relative and absolute valuation method
  - Compared the advantages of Huawei Harmony 2.0, Google Fuchsia and TencentOS tiny, and quantify the impact of the launch of the operating systems on the market position of Windows in the PC market
- AAN Advisor** **Beijing, CN**  
05/2020-07/2020
- Analyst*
- Completed consumer stock selection, individual company research reports, and a market emergencies coping strategy report according to data obtained from various channels (including WIND, annual reports, third-party research reports, and official information websites, etc.)
  - Compiled monthly reports on private equity funds in Chinese and English based on fund manager interviews and asset performance data analysis
  - Established the rudiment of a risk management model through VBA
- Delian Capital** **Beijing, CN**  
08/2019-09/2019
- Analyst*
- Analyzed the product values and advantages of small to medium sized American companies in the gene therapy industry, completed industry analysis reports, and built mathematical models to predict future M&A price trends in the industry
  - Researched the trend of the internet multicloud management industry, analyzed the technology and marketing patterns of FIT2CLOUD, and participated in writing project introductions and due diligence reports
- Beijing Sihai Management Consulting Ltd.** **Beijing, CN**  
05/2018-08/2018
- Analyst*
- Analyzed whether or not a technology company should enter the Middle East market, including the analysis of the corresponding industry development trends, industry competition, and enterprise positioning, and conducted a feasibility report based on the analysis

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## RESEARCH EXPERIENCE

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- Brandeis University,**  
**Optimization of Task Assignment Model Based on Satisfaction Maximization** **Boston, MA**  
10/2020-12/2020
- Project Member*
- Developed a model using Python that maximizes workers' happiness index on the basis of meeting various skill requirements, and solved the original problem and the dual problem at the same time to measure the impact of different constraints on the results and determine the optimality of the solution
- Research on Markowitz's Portfolio Selection (1952)** **Boston, MA**  
02/2019-04/2019
- Project Leader*
- Adopted Python to optimize the graphical interpretation of covariance when  $n=3$ , and analyzed prices of 53 different assets in 2,520 trading days from 2006 to 2016 to find an optimal allocation of assets

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## LEADERSHIP EXPERIENCE

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- Brandeis University, Archon Yearbook** **Boston, MA**  
09/2017-05/2021
- Co-editor*
- Responsible for the yearbook's operation, including finance management, communications with relevant companies and school officers, photo collection from other clubs, etc.
- Oxfordshire County Council** **Oxford, UK**  
01/2020-05/2020
- Student Consultant*
- Presented a feasibility report on carbon sequestration for the County Council based on the analysis of the distribution of land ownership and the carbon interception on different surfaces

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## SKILLS

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- **Programming Languages:** C++ (1 year), Java (2 years), Python (2 years), Bloomberg (1 year)
- **Language:** Native in Mandarin, advanced in English (TOEFL 115)

# Farouk Khlifi

☎ +33 6-66-08-69-34 • ✉ fk5093@princeton.edu • in LinkedIn 🐙 GitHub

## EDUCATION

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### Princeton University

*MFin Bendheim Center for Finance*

**Princeton, New Jersey**

*September 2021– May 2022*

Anticipated Coursework: Statistics Theory and Methods, Econometrics, High Frequency Trading and Financial microstructure, Theoretical Machine Learning.

### Ecole Polytechnique

*Applied Mathematics, Major GPA – 3.9*

**Palaiseau, France**

*August 2018– August 2021*

Relevant courses : Algorithmics, Operations Research, Statistics and Machine Learning, Stochastics, Microeconomics.

### Lycée Henri Poincaré

*Theoretical Mathematics and Physics Major, Computer Science minor, GPA: 4.0/4.0 Rank 1/80+*

**Nancy, France**

*August 2016– August 2018*

Relevant Courses : Linear Algebra, Real Analysis, Physics, Computer Science, Chemistry, Philosophy

## WORK EXPERIENCE

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### Eisler Capital

*Quantitative Research Intern*

**London, UK**

*April 2021– August 2021*

- Used innovative integer and fractional programming techniques with sparsity restraints to compress books of IR swaps; achieved 85% notional reduction and implemented the solution in C++
- Calibrated different stochastic vanilla models (SABR, Heston) from swaptions and caps and compared them with historical values to uncover trading opportunities.

### BBG

*Data Analyst*

**Berlin, Germany**

*June 2020 – August 2020*

- Generated sales forecasts with Reinforcement Learning.
- Built an innovative model for stock management to reduce Out-of-Stock and maximize cash availability.

## RESEARCH EXPERIENCE

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### Ecole Polytechnique

*Research project in Operations Research and Optimization*

**Palaiseau, France**

*September 2020– December 2020*

*Advisor: Stephane Gaubert*

- Proved that an innovative algorithm does not solve linear programming in a strongly polynomial time (an open question in computational optimization known as Smale's 9th problem asks whether such algorithm exists)
- Used tropical geometry, Lagrange multipliers, simulations in Julia

### Napoleon-Capital

*Research project in Economics*

**Paris, France**

*September 2019 – March 2020*

- Used Hidden Markov Models and other Machine Learning models to cluster the financial markets into different segments, and evaluated the effect of this segmentation on predictions of returns
- Used Scikit-learn, Pytorch & hmmlearn libraries in Python with dimensionality reduction techniques.

## HONORS AND ACHIEVEMENTS

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- **2019** : Honorable mention in SWERC (Europe's biggest competitive programming team challenge) for having solved one of the hardest problems in the competition
- **2019** : Best Economics group project at Ecole Polytechnique.
- **2018** : France Excellence and OCP Scholarships
- **2016** : Second Prize in the Moroccan Physics Olympiad (1000+ participants)

## MISCELLANEOUS

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**Programming languages** : Python (PyTorch, Tensorflow), C++(Intermediate), Java , Julia, OCaml (functional programming)

**Interests** : Geopolitics and international relations (podcast animator), Electro music (composing), Philosophy, Rap music

**Sport** : Rowing (Ecole Polytechnique team), Tennis

**Languages** French :(Native), Arabic :(Native), Spanish :(Intermediate Proficiency)



# Jingyi (Joy) LI

PKU Street Yanyuan, Haidian District, Beijing, China, 100871 | (86) 180-1971-1040 | j13308@princeton.edu

## EDUCATION

### Princeton University

Master in Finance

Princeton, NJ

Expected May 2023

- Anticipated Coursework: *Machine Learning, Statistical Analysis of Financial Data, Computational Finance in C++, Statistical Theory and Methods, Financial Econometrics, Asset Pricing*

### Peking University

Bachelor's in Finance, School of Economics

Beijing, China

Sept. 2017-July 2021

- Cumulative GPA: 3.81/4.00 | Ranking: 5/152
- Awards: 2018 Leo KoGuan Scholarship (Top 5%), The Merit Student of PKU (Top 5%)
- Coursework: *Econometrics, Financial Accounting, Fixed-Income Securities, Financial Economics, Stochastic Analysis, Data Analysis, Data Structure and Algorithm, Time Series Analysis, Numerical Methods, Python, Machine Learning (Coursera), Deep Learning (Coursera)*

### University of California, Los Angeles

Exchange Student, Economics, Dean's List

Los Angeles, CA, US

Sept. 2019-Dec. 2019

- Coursework: *C++ Programming, Stochastic Process, Ordinary Differential Equation (A+), Mathematics Finance*

## EXPERIENCE

### Probquant

Intern, HFT Quantitative Research

Shanghai, China

Jan. 2021-June 2021

- Built and maintained intraday and cross-day alpha library using tick-level stock depth data, trade data, and order data
- Conducted research about parameter influence on backtesting stability and validity, concluded and unified backtesting parameters
- Backtested and refined reversal factors by comparing different industry classification methods, including KNN
- Improved factor performance by alpha filtering using accessory factors and factor cutting using trade, volatility, time information
- Trained rolling linear and XGB Models on a one-year minute level dataset of 1500 stocks to generate prediction signals of different periods. Combined signals and achieved an average excess return rate of 0.16% in each daily trade on China's A-share market
- Applied feature selection on 258 features by weight, gain and cover on a rolling basis to reduce overfitting

### Goldman Sachs (Singapore) PTE LTD

Commodity Strats (Quant) Summer Analyst, Global Markets

Singapore

July 2020-Aug. 2020

- Desk Strats: Performed backtests on delta-neutral hedging strategies on DCE and offshore iron ore market, examined Gabillon model in offshore iron ore market by comparing realized vol and implied vol surfaces, researched the differences between DCE margining and equity/futures style margining
- Sales Strats: Conducted market research about the SGP power market, examined correlations between tradable commodity prices and USEP, listed potential clients, and proposed hedging strategies
- Datathon: Discovered overdraft patterns in accounts' cash flow data using std of amount or a significant drop in amount value

### Shanghai iFund Asset Management Company

Summer Intern, Quantitative Research

Shanghai, China

June 2019-Sept. 2019

- Developed alpha strategies on China's A-share market using theories and models from mathematics, economics, and physics, including cross-price elasticity, Fourier transform, and Adaptive Expectations Model
- Employed factor rotation and dynamic factor timing methods to improve performance

## RESEARCH

### Stochastic Foreign Exchange Factor Modelling

Advisor: Chenxu Li, Associate Prof. of Guanghua School of Management, Peking University

Beijing, China

July 2020- Nov. 2020

- Derived closed-form formula for foreign exchange options of 3/4 factor models using affine structure and change of Numeraire
- Calibrated Heston, CEV, Jump, and 3/4 factor models using Bloomberg data, plotted model fitness and local minimum using MATLAB
- Conducted empirical tests on correlations between short-term yields, 5 countries' exchange rates and their realized vol using Python
- Presented results to China Bond Pricing Center

## ACTIVITIES

### National Mathematical Modeling Competition for College Students

Placed Second Nationally, Higher Education Press, Group Leader

Beijing, China

Oct. 2019

- Led team members to complete thesis on Pressure Control of High-Pressure Oil Pipe using methods of numerical simulation

### 2018 International Monetary Forum

Guest Speaker, School of Government Finance Renmin University

Beijing, China

Sept. 2019

- Spoke on pros and cons of Sino-US trade war to an audience of alums from Harvard, Yale and other schools

## SKILLS AND INTERESTS

- Languages: Mandarin (native), Shanghainese (basic)
- Technical Skills: C++, Python, MATLAB, Stata; Wind, Bloomberg, Mathematica, Office, LaTeX, SPSS; CFA level I Candidate
- Interests: Texas Hold'em Poker, Traveling, Photography, Badminton, Electric Piano (15 years)

# Mengyuan Li

4322 Queens St., Apt. 305, Long Island City, NY 11101 | 917-575-2053 | ml0761@princeton.edu

## EDUCATION

### Princeton University, Bendheim Center for Finance

Princeton, NJ

*Candidate for Master in Finance*

May 2023 (Expected)

- Anticipated Coursework: Asset Pricing, Statistical Analysis of Financial Data, Computational Finance in C++, Fixed Income Models and Applications, Fintech

### Cornell University, College of Agriculture and Life Sciences

Ithaca, NY

*B.S. in Biometry and Statistics, Business Minor; Operations Research & Management Science Minor*

May 2019

- Cumulative GPA: **4.19/4.33**
- Honors: SUMMA CUM LAUDE, CALS Class of 2019 Banner Bearer

## WORK & RESEARCH EXPERIENCE

### PriceWaterhouseCoopers Advisory

New York, NY

*Associate, Forensic Technology Solutions*

Aug 2019 – May 2021

- Developed a web application via SQL, stored procedures to provide a 13-week forecast of cash flows under dynamically generated scenarios and real-time visibility on cash flows to help clients manage liquidity, resulting in revenues of \$7 million
- Investigated Payment Protection Program Loan Forgiveness (660K+records) to detect fraudulent behavior by resampling imbalanced data with SMOTE, implementing LightGBM in Python, tuning hyperparameters with grid search cross-validation, evaluating model performance on test data, and interpreting models via SHAP values, decreasing the model's false-positive rate from 0.2% to 0.001%
- Closed a \$21 billion deal by employing Alteryx, SQL, VBScript, Excel and Tableau to prepare a quarterly and yearly refresh on "Management View" Trial Balance Reports and "Carve-Out" Financial Statements with reference to 10-K/10-Q
- Built a marketing platform and an upscaled digital marketing campaign strategy based on big data on user behavior

### Cornell University, SC Johnson College of Business

Ithaca, NY

*Data Science Research Assistant*

Feb 2017 – May 2019

- Created a research-level panel dataset, constructed social network metrics, and predicted the likelihood of a class reunion event attendance by performing feature selection and regression diagnostics on panel data for 965 alumni to reveal the network effect and peer impact on alumni decision-making process
- Established benchmark models for patent generality prediction on a dataset of 157K samples by running regression models, conducting model selection and prediction research by building ROC curves to visualize model performance in R

## PROJECT EXPERIENCE

### Options Delta Hedging Simulation

Online

*Financial Markets Bootcamp*

March 2020

- Tracked equity index ETF options with various expiration dates and calculated relevant Greeks using Black-Scholes model
- Delta hedged the options after market close, summarized the PnL, and explained the PnL components using the relationship between Gamma-Theta PnL and the implied-realized volatility spread

### Variance Swap Portfolio Construction

Online

*Financial Markets Bootcamp*

April 2020

- Constructed a portfolio consisting of SPY call and put options, calculated the Delta, Gamma, and cumulative PnL of a Delta-Hedged portfolio as the underlying price changes over time

## LEADERSHIP EXPERIENCE

### Cornell Statistics Club

Ithaca, NY

*Founder*

Aug 2018 – May 2019

### Alpha Phi Omega

Ithaca, NY

*Project Chair*

Feb 2016 – May 2019

## SKILLS AND INTERESTS

**Languages:** English (advanced), Mandarin Chinese (native)

**Skills:** SQL, Python, R, Java, Alteryx, Tableau, VBScript, Excel, PowerPoint, G-suite

**Interests:** Calligraphy, Yoga, Escape Room

# Xuechen Li

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## EDUCATION

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**Princeton University** Princeton, NJ  
Candidate for Master in Finance Expected July 2023

**Tsinghua University, School of Material Science and Engineering** Beijing, China  
Bachelor of Engineering, Major in Material Science and Engineering, GPA: **3.93/4.00** | Ranking: **1/117** Aug 2017 – June 2021

- Relevant Courses: Applied Stochastic Process, Convex Optimization, Numerical Analysis, Data Structures, C++ Programming, Machine Learning, Introduction to AI.
- Awards: Scholarship of Comprehensive Excellence of Tsinghua University (3 times), Second Prize in 11<sup>th</sup> National Mathematics Competition of Undergraduates, Third Prize in 5<sup>th</sup> THU iCenter Quantitative Strategy Tournament

**Tsinghua University, School of Economics and Management** Beijing, China  
Bachelor of Economics, Major in Economics (Finance), GPA: **4.00/4.00** Jun 2018 – June 2021

- Relevant Courses: Econometrics, Fixed Income Securities Analysis, Investment, Corporate Finance

## PROFESSIONAL EXPERIENCE

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**Ubiquant Investment** Beijing, China  
Intern Data Analyst, IT Group Jun 2020 - Sept 2020

- Completed several risk indicators and constructed stock concept portfolio control module for intraday trading risk control
- Performed refactoring of the risk control system to meet the requirements of a data-computation splitting framework

**China Securities** Beijing, China  
Intern Analyst, Derivatives Trading Department Jan 2020 - Feb 2020

- Executed different numerical methods in Python to price barrier options accelerating price path simulation
- Conducted research to beta-hedge long positions with ZZ500 stock index futures

**China Galaxy Securities Co., LTD.** Beijing, China  
Intern Analyst, Sales and Trading Department Jun 2019 - Sept 2019

- Improved script quality: applied Numba module to optimize Python scripts for pricing and designed test suites for them

## RESEARCH EXPERIENCE

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**Tsinghua University, CSE Department** Beijing, China  
**Application of Deep Learning Models in Computer Vision Tasks** Sept 2020 - Nov 2020

- Combined classical computer vision models for the Tiny Image Dataset and ranked 5<sup>th</sup> in TinyImageNet Kaggle competition
- Proposed a network based on UNet and ResNet to fit Steel Defect Dataset and got top 5% performance in Kaggle competition

**Tsinghua University, AI Lab** Beijing, China  
**iCenter Quantitative Strategy Tournament** Jan 2020 - Jun 2020

- Designed a timing strategy based on selected technical and morphological factors to train an XgBoost Decision Tree, which achieved good performance in Chinese market in the 5-year back test

**Stanford University (Online RA)** Online  
**Research Assistant, Application of Artificial Intelligence and Big Data in Quantitative Trading** Sept 2018 - Jan 2019

- Applied machine learning algorithms with Python to complete a multi-factor strategy including data processing, factor construction and selection, prediction, and back tests on more than 5 years of stock data in the China A-shares Market

## LEADERSHIP EXPERIENCE

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**Tsinghua University, School of Material Science and Engineering, Student Union** Beijing, China  
**Group Leader, Social Practice Management Group** Sept 2018 – Sept 2019

- Organized more than 15 social practice teams and connected them with companies and governments
- Led a social practice team and won first prize among more than 50 teams in the social practice program of Tsinghua University

## SKILLS

- 
- Programming:** Python, C/C++, MATLAB, SQL, Latex/Markdown
  - Python Modules:** SciPy, NumPy, Pandas, scikit-learn, PyTorch
  - Language:** Chinese (Native)

# Zhuomin (Judy) Mao

609-933-7887    judy.mao@princeton.edu    linkedin.com/in/judymao    Princeton, NJ

## Education

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### Princeton University

Princeton, NJ

Master of Finance, Machine Learning Certificate

Sep 2021 – May 2023 (Expected)

**Anticipated Coursework:** Asset Pricing, Statistical Analysis of Financial Data, Quantitative Data Analysis in Finance, Financial Econometrics, Financial Modeling, Fixed Income Models

### University of Toronto

Toronto, ON

Bachelor of Applied Science in Engineering Science with Specialization in Mathematics, Statistics and Finance, Minor in Artificial Intelligence, GPA: 3.95/4.00

Sep 2016 – May 2021

**Relevant Coursework:** Financial Optimization Models, Probability and Statistics, Multivariable Calculus, Differential Equations, Linear Algebra, Stochastic Processes, Computer Algorithms and Data Structures

## Business Experience

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### Royal Bank of Canada

Toronto, ON

Business Data Analyst, Co-op

Sep 2019 – Aug 2020

- Drove production of a new acquisition model for predicting bankruptcy using regression and machine learning techniques, leveraging R, SQL and SAS.
- Developed an efficiency-enhancing data cleaning and interpretation package using Python.
- Redesigned Credit Limit Decrease program strategy by introducing new risk measures such as payment-based capacity, identifying over \$1 million in exposed credit risk.

### Deloitte LLP

Toronto, ON

Summer Analyst

May 2019 – Aug 2019

- Created a fuzzy matching algorithm to identify over \$500M in potential merger synergies leveraging Python.
- Designed a custom database using data engineering to facilitate customer analytics.
- Implemented a Microsoft Access UI tool as a key component of an on-going managed service.

## Research Experience

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### University of Toronto, Department of Statistical Sciences

Toronto, ON

Research Assistant

May 2021 – Present

- Investigated reverse sensitivity analysis techniques in Python using the Wasserstein distance.
- Developed reverse sensitivity analysis functions for R SWIM package.

### University of Toronto, Rotman School of Management

Toronto, ON

Thesis Student

Sep 2020 – Apr 2021

- Investigated contribution of optimism measures to any seasonality evidenced by NYSE bid-ask spreads.
- Conducted seemingly unrelated regressions analysis leveraging Python.

## Leadership / Extracurricular Experience

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### University of Toronto, Women in Science and Engineering

Toronto, ON

President

May 2019 – Apr 2020

- Led a team of over 50 students to succeed in various initiatives, including the two-day National Conference which boasted attendance of over 350 delegates from across the globe.

### University of Toronto, Institute of Electrical and Electronics Engineers

Toronto, ON

Marketing Chair

May 2018 – Apr 2019

- Organized marketing team to successfully promote various national events, including multiple hackathons.

## Skills

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**Programming Languages:** Python, R, C, SQL, MATLAB, SAS, Latex, HTML/CSS

**Languages:** English (fluent), French (reading knowledge), Mandarin (conversational)

## Interests

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Jigsaw puzzles, archery, art.

# SNEHA MOHAN

[sneham@princeton.edu](mailto:sneham@princeton.edu) | +91 9940122735

## EDUCATION

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### Princeton University

Master in Finance ( Machine Learning Track )

Princeton, NJ  
Expected 2021 - 2023

- Expected Coursework : Asset Pricing, Statistical Analysis of Financial Data, Time Series Models, Computational Finance in C++, Financial Modelling, Financial Risk Management, Financial Econometrics, Fixed Income Models

### Indian Institute of Technology, Madras

B.Tech in Mechanical Engineering; **CGPA**: 8.49/10

Chennai, India  
2015-2019

- Relevant Courses: Linear Algebra for Data Analysis, Probability, Differential Equations, Machine Learning, Deep Learning for Imaging, Natural Language Processing, Data Structures and Algorithms

## WORK EXPERIENCE

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### JP Morgan Chase

Analyst Quantitative Research, Credit Electronic Market Making team

Mumbai, India  
July 2019 - May 2021

- Analyzed large scale time series data to automatically extract insights for trading.
- Developed computational frameworks to generate meaningful data.
- Worked on the effort to automate trading.

### Citi Corp. Services India Pvt.Ltd

Summer Analyst, Kafka Browser and Spark Batching Service

Pune, India  
May- July 2018

- Developed a web dashboard hosted in a Kafka server to interact with payment data of the Russian Region.
- Implemented features to create/delete messages, filter based on date and keywords and entitlements to segregate different category of users.

## PROJECTS AND RESEARCH EXPERIENCE

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### Indian Institute of Technology, Madras

Solving Partial Differential Equations using Deep Networks

Chennai, India  
January - May 2019

Prof. Balaji Srinivasan

- Developed a deep learning system to solve 1D and 2D partial differential equations. We achieved significant speed up in solving the equation with no loss in accuracy when compared to the traditional finite element methods.

### Indian Institute of Technology, Madras

Representation Learning for articles using Neural Networks

Chennai, India  
January - May 2019

Prof. Sutanu Chakraborty

- A neural network similar to the CBOW word2vec model was trained to learn document embeddings.
- Compared the results of different architectures on synthetic data sets and analysed the word and document vectors obtained using this method.

### Indian Institute of Science, Bangalore

3D Reconstruction using Structured Light Patterns

Bangalore, India  
November 2016 - August 2017

Prof. Ramsharan Rangarajan

- Developed a 3D Reconstruction algorithm using images captured by projecting structured light patterns.
- Images taken from multiple poses were combined to get the reconstruction of the complete object.

## SCHOLASTIC ACHIEVEMENTS

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- 2017 - Awarded Summer Research Fellowship by Indian Academy of Sciences.
- 2015 - Awarded KVPY scholarship funded by the Department of Science and Technology, Government of India.
- 2015 - All India Rank 41 in the admission merit list of Indian Institute of Space, Science and Technology.

## SKILLS AND INTERESTS

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**Programming:** Python, C++, OpenCV/C++, PyTorch

**Peer Advising:** Academic Buddy and Mentor at IIT Madras - Directly mentored 6 first year students on their academic coursework.

**Interests:** Running, Cooking, Cycling

## Sinan Ozbay

51 White Pine Lane, Princeton, NJ 08540  
609-213-3955 | sozbay@princeton.edu

### EDUCATION

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#### Princeton University

Princeton, NJ

*Candidate for Masters in Finance*

May 2023

- Anticipated Coursework: Asset Pricing: Pricing Models and Derivatives, Statistical Analysis of Financial Data, Corporate and Financial Accounting, Stochastic Calculus, Financial Econometrics.

#### Rutgers University, Johns Hopkins University, NYU

Princeton, NJ

*Post-Baccalaureate Studies*

Sept. 2020 – May 2021

- Relevant Coursework: Mathematical Theory of Probability, Linear Algebra and Applications, Differential Equations and Applications, Scientific Computing in Finance.
- Extensive use of Python programming language. Portfolio optimization using Monte Carlo simulation, Fourier Series, SVD, PCA, linear programming, convex programming, and ODEs and PDEs.

#### Princeton University

Princeton, NJ

*Bachelor of Arts in Philosophy*

May 2019

- GPA: 3.76 / 4.00, Major GPA: 3.95 / 4.00, GRE: 169 Q/168 V/5.5 A
- Honors: Magna cum laude
- Relevant Coursework: Real Analysis, Financial Investments, Mathematical Theory of Microeconomics, Radical Markets, Multivariable Calculus.

### WORK EXPERIENCE

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#### Bridgewater Associates

Westport, CT

Investment Associate, Fixed Income Desk

Sept. 2019 – June 2020

- Took rigorous nine-month Investment Associate Class in macroeconomics and global macro investing across asset classes, including fixed income and credit, equities, and currencies. Tested trading ideas using fundamental macro strategies.
- Formed directional and contrarian bets on developed and emerging market government securities. Analyzed supply and demand trends to identify value in government bonds and inform the fixed income investment process.
- Co-authored client memos on corporate balance sheet health, real estate markets and leverage, currency markets, inflation, and government policy in response to COVID-19 on Bridgewater Daily Observations team.

#### Bridgewater Associates

Westport, CT

Investment Associate Intern, Fixed Income Desk

June 2018 – August 2018

- Investigated emerging market government bonds and modeled market participant buying.
- Researched emerging market currencies, produced report presented to senior investment associates.

### LEADERSHIP EXPERIENCE

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#### Princeton University, Princeton Debate Panel

Princeton, NJ

President

April 2017 – April 2018

- Oversaw finances, logistics, and operation of an 80+ member organization and \$60,000 budget.
- Ran two of the largest debate tournaments in the country at a record profit.

### SELECTED AWARDS

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- 2018 World Universities Debating Championship: Runner-up. Came in 2nd place out of 315 teams at the world's largest, most competitive collegiate debating competition.
- 2016 American Parliamentary Debate Association: National Champion. Youngest National Champion in American university history.

### SKILLS & INTERESTS

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**Technical Skills:** Python, Excel, PowerPoint, Word.

**Other Activities:** President of the Senate, Whig-Cliosophic Society; Writer, Nassau Weekly.

# Zelong Qiu

217-417-3233 | zelong430@gmail.com | www.linkedin.com/in/zelongq

## PROFESSIONAL EXPERIENCE

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### Citadel Americas LLC

New York City, NY

Platform Engineering Team

Apr 2019 - Present

- Design and build the **Citadel Task Service** as a distributed, cloud native, asynchronous queue system that enables Commodity, Credit and Global Fixed Income quant research teams to train QR models at scale. Replace legacy task queues such as the MDL and the Orc Queue. Achieve significant cost saving and performance gain.
- Implement all components for CTS such as controller, high-throughput data pipeline, failure detection, task status view server, auto re-queue etc. using Python, Kafka, Memcached, Datadog, Splunk, Nginx and MySQL.
- Design and build the **Citadel Kafka Service** as the centralized messaging infrastructure for all post trade management, trading monitoring, risk control etc. across Citadel Asset Management and Citadel Security. Replace Citadel's usage of third-party legacy data pipelines such as AMPS, Tibco, IBM MQ. Achieve significant cost saving and performance gain.
- Automate the deployment and upgrade processes for Kafka clusters using Ansible Playbooks.
- Build RestAPI, Service Manager UI, and command line tool for user to manage their CTS/CKS resources.
- Build the monitoring and alerting system on key metrics and customized condition for CTS and CKS systems using Telegraf, Splunk and DataDog. Provide users with auto generated monitoring and alerting suits.
- Act as primary owner of both CKS and CTS and first responder for daily operational tasks and occasional production issues. Supervise two junior engineers in the team as tech lead.

### Microsoft

Redmond, WA

Software Engineer

Mar 2017 – Mar 2019

- Designed and built **Microsoft Machine Learning Server** to enable users productionize customed ML models as micro-service with pre-defined APIs in Kubernetes system using RestAPI, Docker, .Net Framework, Python and R.
- Designed and built server-side and client-side SDK features including:
  - **Real-time Scoring**: offered extremely low request-response latency and high concurrent throughput for large dataset. Achieved 10 to 100X performance gain.
  - **Dedicated Service Pool**: provided dedicated resources, initiated Python/R interpreter and pre-loaded dependencies for user selected ML models. Dramatic improved overall performance for large models.
  - **Asynchronous Batch Execution**: complemented the original Request-Response prediction paradigm with parallel row execution, asynchronous consumption and partial results. Greatly speeded up scoring time for large dataset with long running services.
- Provided presentations and technical support to external and internal customers regarding new releases.
- Conducted exploratory greenfield Proof of Concept projects including IoT edge device image recognition and large-scale natural language process with ML Server.

Software Engineer Intern

Jun 2016 – Aug 2016

- Built a martingale-based time series anomaly detection module for **Azure Machine Learning Studio**.
- Implemented algorithms for level changes detection, trend changes detection and seasonality identification.
- Technical blog at <https://msdn.microsoft.com/library/azure/96b98cc0-50df-46ff-bc18-c0665d69f3e3>.

## EDUCATION

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### Princeton University

Aug 2021 – May 2023(Expected)

Princeton, NJ

Master of Finance

### Harvard University

Aug 2015 - Mar 2017

Cambridge, MA

GPA 3.71/4.0

M.S in Computational Science and Engineering

### University of Illinois Urbana Champaign

Aug 2010 - May 2015

Urbana, IL

GPA 3.66/4.0

B.S in Applied Mathematics [High Distinction]

B.S in Industrial Engineering [Honor]

# Ryan Slattery

122 East Indiana Ave, Beach Haven Terrace, NJ 08008 | (908) 239-4246 | ryanps@princeton.edu

## EDUCATION

### PRINCETON UNIVERSITY

Princeton, NJ

*Master in Finance Candidate, pursuing Graduate Certificate in Machine Learning*

September 2021 – May 2023

- Anticipated Coursework: Statistical Analysis of Financial Data, Financial Econometrics, Machine Learning and Pattern Recognition, Statistical Theory and Methods, Linear & Nonlinear Optimization, Statistical Foundations of Data Science

### PRINCETON UNIVERSITY

Princeton, NJ

*Bachelor of Science in Engineering, Major in Operations Research & Financial Engineering (ORFE)*

September 2012 – May 2016

*Certificates (Minors) in Computer Science & Finance*

- Cumulative GPA: 3.9/4.0, Summa Cum Laude, ORFE Department's Highest Honors
- Honor Societies: Phi Beta Kappa (National Academic Honor Society), Tau Beta Pi (National Engineering Honor Society), Sigma Xi (Scientific Research Honor Society)
- ORFE Coursework: Regression and Applied Time Series, Operations and Information Engineering, Financial Mathematics, Risk Analysis, Probability and Stochastic Systems, Queuing Theory, Optimization, Statistics
- Computer Science Coursework: Algorithms and Data Structures, Computing and Optimization, Programming Systems
- Math Coursework: Multivariable Calculus, Linear Algebra, Ordinary Differential Equations, Partial Differential Equations

## PROFESSIONAL EXPERIENCE

### GOLDMAN SACHS

New York City, NY

*Strats (Quant) Associate, Equity Derivatives & Convertible Debt, Investment Banking*

March 2018 – April 2021

- Responsible for modeling, pricing, and analyzing risks associated with a range of exotic equity derivatives deployed in GS's proprietary securities database; products included share repurchase and share sale programs, convertible debt, and equity hedging instruments for corporate clients
- Developed production models for bespoke derivatives for real-time risk calculations, utilizing backwards induction and Monte Carlo methodologies as well as various volatility models
- Optimized and deployed execution strategies through the implementation of heuristics and gradient descent techniques for the buyback desk
- Implemented machine learning algorithms that employed dimensionality reduction and gradient boosting methods as well as regression analysis to proactively identify candidates for derivative products; models utilized disparate datasets across trading characteristics, corporate fundamentals, and shareholder data

*Strats (Quant) Analyst, M&A and Corporate Finance, Investment Banking* June 2015 – August 2015, July 2016 – February 2018

- Quantified the impact of various strategic and financial decisions made by corporates on shareholder and enterprise value through the application of classical econometrics and time series analysis as well as modern machine learning and big data techniques; replicated research from relevant academic papers to answer questions posed by corporate institutions
- Developed statistical analyses to measure the impact of changes in business profitability metrics on valuation, predict the likelihood of activist campaigns based on corporate fundamentals, and understand post-M&A announcement performance
- Analyzed shareholder flows to measure and predict investor demand, reaction, and sentiment to corporate actions, especially in the context of transformative M&A transactions or major shifts in capital return policy; deployed internal applications to provide teams with real-time access to analytics
- Optimized corporate capital structure and capital allocation plans through Monte Carlo simulations of relevant business factors that impact revenue and costs to understand leverage and cashflow risks

## RESEARCH EXPERIENCE

### PRINCETON UNIVERSITY

Princeton, NJ

*Senior Thesis, "A Statistical Analysis of Delinquency and Prepayment Risk in Subprime MBSs"*

September 2015 – April 2016

- Provided a statistical framework to quantify default and prepayment risks of mortgage-backed securities using monthly data on millions of loans from the early 2000s to assess the appropriateness of agency ratings in the wake of the 2008 Financial Crisis
- Winner of the *S.S. Wilks Memorial Prize* for the best thesis on "statistics and its applications to solving societal problems"

## SKILLS & INTERESTS

- Computer Languages: Python, R, SQL, Java, C, Tableau
- Interests: Surfing, Sudoku, Long Distance Biking, Pickleball



# JING WEN

88 College Road West, Princeton, NJ, 609-216-5105, jw4698@princeton.edu

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## EDUCATION

### Princeton University

Princeton, NJ

*Master in Finance: Quantitative Asset Management & Macroeconomic Forecasting Track*

*Expected May 2023*

- **Anticipated Coursework:** Asset Pricing, Statistical Analysis of Financial Data, Financial Econometrics, Fixed Income Models and Applications, Corporate Finance and Financial Accounting, Quantitative Data Analysis in Finance, Portfolio Theory and Asset Management

### University of California, Berkeley

Berkeley, CA

*Bachelor of Arts, Majors: Economics, Applied Mathematics, Data Science*

*May 2021*

- **Overall GPA:** 3.97/4.00    **Major GPA:** 4.00/4.00
  - **Relevant Courses:** Econometrics, Financial Economics, Stochastic Processes, Behavioral Finance, Linear Algebra, Multivariable Calculus, Numerical Analysis, Probability Theory, Mathematical Economics, Game Theory
  - **Teaching Assistantship:** Tutored drop-in undergraduate students at the Student Learning Center; mainly responsible for linear algebra and probability theory related courses (Spring 2018 – Spring 2020)
- 

## PROFESSIONAL EXPERIENCES

### CITIC Securities

Beijing, China

*Intern, Alternative Investment Management Group*

*July 2020 – September 2020*

- Catalogued all the U.S. treasury bond futures contracts provided by CME group, specifying contract unit, price quotation, settlement method of each product; compared and contrasted U.S. products with Chinese treasury bond futures contracts listed at the CFFE
- Presented the econometric model of limit order execution times developed by Andrew Lo; emphasized the feasibility of sophisticated dynamic order submission strategies; explained the survival analysis that led to the conclusion
- Studied several risk premia identified in commodity markets; presented how strategies based on carry, momentum, trend, curve, etc., can add value in live portfolios along with their performance in normal and equity market stress periods
- Researched the main transaction models for Chinese treasury bond futures to inform trading decisions in this market

### First Capital Investment Management

Beijing, China

*Summer Intern*

*May 2019 - August 2019*

- Researched the hydrogen economy, "pork cycle" and other targeted industries; generated industry analysis and forecasting that influenced First Capital's investments; demonstrated results such as huge governmental support and resulting overcapacity in the hydrogen energy market; created trend prediction and investment advice based on my market analysis
- Illustrated the main mechanisms involved in the corporate reconstruction process, emphasizing the balance of interests between shareholders, creditors, and reorganizing party during negotiations and within cases of court rulings; gathered historical liquidation ratios of listed firms for data analysis purposes
- Researched and reported how the government funds public projects, demonstrated the heavy use of the public-private partnership method by local governments to fund infrastructure; summarized the scale of government-owned fund management companies in major cities

### AVIC Securities

Beijing, China

*Summer Intern*

*May 2018 - July 2018*

- Monitored and created daily reports for pledge-style repo, bonds outright repo, fund matching, and lending transactions, learning the main mechanism behind such trading activities
  - Attended weekly meetings that reported and summarized market trends and activities
  - Archived transaction records and collected signatures from managers
- 

## Research Experience

### Haas Business School

Berkeley, CA

*Research Assistant*

*January 2019 - May 2019*

- Recovered the effect of stress shocks from the 2008 financial crisis on CEO's aging with the use of differences-in-differences analysis, including the experience of the financial crisis as a dummy variable to control for individual differences and retrieve the impact of stress shocks
  - Suggested the use of panel data to isolate the influence of time-invariant variables as confounding variables and implemented them with a longitudinal data set; avoided the potential covariation between effort invested in visual image and experienced stress by controlling for time-invariant factors for each data point
  - Generated preliminary regression and estimated an exact amount of aging induced by stress shocks after collecting and cleaning up data for layoffs, divorce records, and CEO visual images
- 

## SKILLS & Interests

- Technical Skills: Microsoft Office; Python; Latex; Matlab; SQL; Java; Photoshop
- Languages: Chinese (native); German (conversational)
- Activities: CAL Boxing member; Internal Manager & Photographer for Student Ambassador for the Arts at UC Berkeley

## EDUCATION

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### Princeton University

*Bachelor of Arts, major in Finance, Guanghai School of Management*

*New Jersey, United States*

*Aug. 2021*

### Peking University

*Bachelor of Arts, major in Finance, Guanghai School of Management*

*Beijing, China*

*Sept. 2017 - Jun. 2021*

- **Cumulative GPA:** 3.92/4.00 (Rank: 2/211)
- **Courses:** Stochastic Analysis, Game theory, Mathematical Method in Finance, Econometrics, Advanced Mathematics, Probability and Statistics, Linear Algebra, Corporate Finance, Financial Statement Analysis, Time Series Analysis, Numerical Method, Macro Economics, Data Structure and Algorithm
- **Honors:** National Award, Wusi Scholarship(2/211), Fengqi Scholarship(1/211), ICBC Star Scholarship (3/211), Merit Student of Peking University

### University of California, Berkeley

*BESAP Exchange Program, Department of Economics*

*Berkeley, United States*

*Aug. 2019–Jan. 2020*

- **Cumulative GPA:** 4.00/4.00
- **Courses:** Ordinary Differential Equations, Intermediate Financial Economics Econometrics(PhD level)

## WORK EXPERIENCE

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### Spring Capital

*Incoming Analyst Intern*

*Beijing, China*

*Jun. 2021*

### Citadel Securities

*Trading Intern*

*Hongkong, China*

*Jun. 2020-Aug. 2020*

- Designed a systematic trading monitoring system in Python to detect high-frequency tick data analysis on market volatility, trading frequency and one-direction trading; Enhanced the efficiency of all functions via matrix usage and the system was applied to optimize order timing
- Reproduced the company's live trading status using company's high frequency data and order data. Developed a system for the lifecycle of an order to monitor multiple dimensions of order flow and instruct the company's trading desk
- Conducted in-depth research on Malaysian and Indonesian stock markets and delivered insights to facilitate trading in these markets

### TaiKang Asset Management Co. Ltd

*Analyst Intern*

*Beijing, China*

*Jan. 2020*

- Established a risk control system based on 50ETF option trading and gave a presentation to the manager to illustrate how the system worked on the trading floor
- Conducted in-depth research on soybean-soy soil-soybean meal future. Used cointegration test to analyze their price relationship and built a GARCH model for prediction and verifying the efficiency of the market.

### CICC

*Intern, Sales and Trading*

*Beijing, China*

*Jul. 2019-Aug. 2019*

- Took charge of tracking daily volatility of bond market; analyzed key dynamics elevating or weighing down yields; wrote daily commentary on the fluctuation of yield to maturity at both the short and the long end
- Conducted research on Bank of Jiangsu's convertible bonds and drafted a 30-page report based on analysis of the essential driving force of prices
  - Implemented a convertible bond pricing model by leveraging binomial tree in equity pricing and comparable analysis in bond pricing
  - Analyzed the decision-making of Bank of Jiangsu's stockholders regarding capital raising and the terms of convertible bonds

## RESEARCH EXPERIENCE

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### Peking University, Research Project on Foreign Exchange of the People's Bank of China

*Team leader, Advised by Prof. Michael Pettis*

*Beijing, China*

- Conducted research by using CFETS SAFE BoP data, estimated FX inflow and outflow data through the country and studied the discrepancy
- Developed thorough understanding of the statistic system in China and discovered hidden intervention by PBoC

### Peking University, Transition Dynamics underlying Chinese Housing Return Premium

*Research Assistant, advised by Prof. Yu Zhang*

*Beijing, China*

*Jul. 2019-Apr. 2020*

- Assisted in developing the DSGE model to explain the dynamics of Chinese housing return premium; introduced the Arrow Security technique to improve the tractability and practicality of the model
- Drafted an executive summary of cutting edge technical research; detected and solved potential problems which greatly speeded up the research
- Publicized research through writing articles to introduce the research work and communicated with publications about the research work

## LEADERSHIP EXPERIENCE

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### Hedge Fund Association

*President*

*Beijing, China*

*July, 2019-Now*

- Open up a new course called *Advanced Skills in Quant Industry* in Guanghai School of Management, invited cofounder of AxiomQuant to be lecturer
- Built an online platform for HFA and planning to expand HFA to all prestigious schools in China (pkuhfa.com), HFA now has more than 180 members

### Project GSM Inspire

*President*

*Beijing, China*

*February. 2021-Now*

This program aims to bring high-quality learning resource to high-school students to help them learn more about Economics and Finance

- Developed an online platform that has high-quality open course created by Guanghai School of Management with online Q&A and offline summer camp
- The platform is used by Guanghai School of Management as an important tool to attract and recruit high school students

## SKILLS & INTERESTS

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- Technical: C++, Python, Matlab, R, Excel VBA | MS Office | Wind Database, Bloomberg
- Languages: Mandarin (Native), English (Fluent, TOEFL: 110/120, GRE: V158+Q170+AW 3.5)
- Interests: Shuang Sheng & Card Games (4th place in Freshman Bridge Cup of Peking University), Economics, Piano (Level 9), Travel

# Dorothy Zhang

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## EDUCATION

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### Princeton University

Princeton, NJ

*Master in Finance, Certificate in Machine Learning*

Sept. 2021 – May 2023

- **Anticipated Coursework:** Asset Pricing, Statistical Analysis of Financial Data, Financial Econometrics, High Frequency Trading, Fixed Income Models and Applications, Quantitative Data Analysis in Finance

### University of Toronto

Toronto, ON

*BASc in Engineering Mathematics, Statistics and Finance, Minor in Artificial Intelligence*

Sept. 2016 – May 2021

- **CGPA:** 3.92/4.00
- **Coursework:** Linear Algebra, Probability and Statistics, Multivariable Calculus, Differential Equations, Stochastic Processes, Financial Optimization Models, Computer Algorithms and Data Structures
- **Capstone Project:** Multiperiod Robo-Investment Wizard (used robust MVO, CVaR, PCA, LSTM, HMM)
- **Certificate:** C++ Programming for Financial Engineering with Distinction, Baruch College

## PROFESSIONAL EXPERIENCE

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### Borealis AI

Waterloo, ON

*Research Intern*

May 2020 – Aug 2020

- Priced callable swaps using Least Squares Monte Carlo simulation and the Vasicek model.
- Used feed-forward neural networks to imitate Monte Carlo pricing, improving efficiency by orders of  $10^4$ .
- Wrote a technical report conducting literature reviews and detailing methodology and results.

### Royal Bank of Canada

Toronto, ON

*Data Scientist Intern*

Sept 2019 – May 2020

- Identified anomalous behaviour for insider trading using unsupervised KNN, improving efficiency by  $10^2$ .
- Built credit risk models with logistic regression, random forest, and xgboost.
- Improved AUC of existing models by 10% by applying oversampling techniques to combat imbalanced data.

### Bank of Montreal Capital Markets

Toronto, ON

*Quantitative Analyst Intern*

May 2019 – Aug 2019

- Wrote a predictive trading algorithm based on technical indicators.
- Generated labels using triple barriers and meta-labelling, created features including the Hurst exponent, RSI, and %K, and used combinatorial purged cross-validation to tune a random forest model.
- Identified optimal strategy that had 1.5 times higher Sharpe ratio than the S&P500 index.

## RESEARCH EXPERIENCE

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### University of Toronto Rotman Finance

Toronto, ON

*Research Associate*

Sept 2020 – present

- Working with Prof. John C. Hull to generate synthetic market data with various deep generative models.
- Using stylized facts for financial time series to measure the performance of variational autoencoders, restricted Boltzmann machines, and generative adversarial networks.
- Hired as research associate upon completion of undergraduate thesis with team.

### University of Toronto Engineering

Toronto, ON

*Undergraduate Researcher*

Sept 2019 – Sept 2020

- Worked with Prof. Chi-Guhn Lee to apply quantum annealing graph algorithms to portfolio management, identifying asset correlations through clustering.
- Compared the speed and quality of quantum and classical optimization algorithms for community detection.
- Created multiplex networks to capture the change throughout time of asset correlations in the S&P500.

## SKILLS AND INTERESTS

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**Languages:** Python, C++, MATLAB, R, C, SQL, VBA, AMPL, Git

**Clubs:** U of T Rotman Finance Lab (Lab Development Specialist), IEEE U of T (Finance Director), U of T Consulting Association (Finance Director), U of T Engineering Finance Association, Engineers Without Borders

**Interests:** Table Tennis (Bronze Medalist, Canada Winter Games), Chinese Bridge, Collecting/Trading Virtual Dragons

# ERHAO ZHAO

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## EDUCATION

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### Princeton University

Master in Finance

Princeton, NJ

05/2023 (expected)

- **Anticipated Coursework:** Asset Pricing, Statistical Analysis of Financial Data, Financial Econometrics, Computational Finance in C++, Financial Risk and Wealth Management, Statistical Theory and Methods

### Cornell University

Master of Engineering in Computer Science

Bachelor of Arts in Computer Science and Economics (with Distinction)

Ithaca, NY

05/2021

05/2020

- **GPA:** 4.04/4.3 (3.93/4.0), Dean's List (all semesters)
- **Relevant Coursework:** OOP and Data Structures, Computer Architectures, Algorithms, Operating Systems, Systems Programming, Mathematical Analysis, Linear Algebra, Probability, Statistics, ODE, Stochastic Processes, Statistical Data Mining, Machine Learning for Intelligent Systems (TA), Large-Scale Machine Learning Systems (TA), Big Data Technologies, Computer Vision, NLP

## WORK EXPERIENCE

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### Vanguard

Quantitative Research Intern, Quantitative Equity Group (Equity Alpha Strategies)

Malvern, PA

06/2020 – 08/2020

- Conducted a research project on seeking alpha strategies using machine learning techniques with PyTorch and Scikit-Learn and statistical techniques such as ad-hoc signal regularization and industry contextualization and neutralization for signal noise reduction and financial forecasting with nonparametric panel dataset
- Explored and built unstructured and non-linear multi-factor equity forecasting frameworks to identify potential complements to traditional linear-structured models commonly used in quantitative equity investment space
- Experimented with various signal filtering and processing techniques and performed neural network architecture design, hyperparameter optimizations, fixed-window and extending-window rolling training, software optimizations, out-of-sample and in-sample backtesting on long/short portfolios constructed by models which outperformed the linear benchmark model

### CICC

Investment Banking Intern, Energy Group, Investment Banking Division

Beijing, China

06/2019 – 08/2019

- Material Asset Restructuring M&A (600131.SH): Joined an on-site project team and worked closely with an A-share listed energy company on its restructuring, fundraising and acquisition of four energy-related technology companies
- Potential NYSE Spin-off IPO: Conducted research and provided advisory on Spin-off IPO for an NYSE listed TMT company, performed financial statement analysis, built valuation models and prepared presentation materials and pitchbook

### CITIC Securities

Fixed Income Research Intern, Research Group

Beijing, China

06/2018 – 08/2018

- Conducted quantitative and fundamental fixed income research and modeling with a focus on rate securities for internal and external distribution
- Research Topics:
  - Statistical modeling such as degree of deviation of DR007 for macroeconomic forecasting
  - Divergence of high liquidity injection and low public credit level based on Chinese AFRE and M2 data
  - Depressed infrastructure and fixed-asset investment of 1HY of China with a focus on the electricity power industry

## PROJECTS AND RESEARCH

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### Extending Diebold-Li Model to Yield Curve Forecasting Models using Machine Learning

Research Project, Advised by Professor David Ruppert, Cornell University

Ithaca, NY

09/2020 – 12/2020

- Conducted research on building dynamic forecasting models for parameters in the Diebold-Li model using various machine learning techniques including feedforward neural network and LSTM

### Neural Question Answering Systems

NLP Project, Cornell University

Ithaca, NY

10/2020 – 12/2020

- Designed two Question Answering NLP systems for the SQuAD 2.0 dataset with deep learning and DistilBERT fine-tuning for extracting answers for questions given relevant context texts

### Mixed Frequency Time Series Forecasting using LSTM-CNN Architecture

Research Assistant, Beijing Institute of Big Data Research, Peking University

Beijing, China

12/2019 – 01/2020

- Built Mixed Frequency Time Series Forecasting models using LSTM-CNN architecture with PyTorch for macroeconomic and financial index forecasting with mixed-frequency dataset

### Equity Forecasting Based on Twitter Sentiment Analysis with Deep Learning

Artificial Intelligence Practicum Project, Cornell University

Ithaca, NY

09/2019 – 12/2019

- Built an NLP model with deep neural network to perform real-time sentiment analysis on Twitter tweets for day trading decision making on large-cap stocks

## SKILLS AND INTERESTS

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**Computer Skills:** Python, C/C++, Java, SQL, R, OCaml, MATLAB, Stata, Latex, Excel, Word, PowerPoint, Wind, Bloomberg

**Languages:** Mandarin (Native)

**Interests:** Soccer (President of Cornell CDSC Soccer Club, Bronze Medal in 2018 Ivy Cup Soccer Tournament), Basketball, Tennis, Football, Poker, Fishing, Skiing

**Hange (Cathy) Zhu**  
415 South Street, Waltham, MA | [h7741@princeton.edu](mailto:h7741@princeton.edu) | +86-150-1106-5206

## EDUCATION

**Princeton University** *Princeton, NJ*  
*Master in Finance Candidate, Bendheim Center for Finance* August 2021 – Expected May 2023

- **Anticipated Courses:** Statistical Analysis of Financial Data; Financial Econometrics; Asset Pricing; Stochastic Calculus; Machine Learning and Pattern Recognition

**Brandeis University** *Waltham, MA*  
*Bachelor of Science in Applied Mathematics, Bachelor of Science in Economics* August 2017 – December 2020

- **GPA:** 3.92 / 4.0; **Honors:** Phi Beta Kappa, magna cum laude, Dean's List
- **Fields of Study:** Stochastic Processes and Models; Probability Theory; Differential Equations; Mathematical Statistics; Applied Linear Algebra; Advanced Programming Techniques in Java; Econometrics; Mathematics for Natural Sciences

## WORK EXPERIENCE

**Alibaba Group Company** *Beijing, China*  
*Data Analyst Remote Assistant, Business Intelligence Department* June 2020 – August 2020

- Researched fresh food e-commerce industry in both pre and post COVID periods in mainland China, including tracing fresh food industry development history and supply chain deficiencies, analyzing three modes' (warehouse, community group buy, and O2O) leading companies and their performances, predicted how the industry and consumer behaviors would be influenced by COVID. Conducted cluster analysis of China's cities by R.
- Researched O2O chocolate candy industry development and major players in the field by looking through Euromonitor datasets, market research, and financial statements.
- Participated in the investment group and applied Deep Deterministic Policy Gradient (DDPG) algorithm to train the investment portfolio management model.

**Zhongtai Securities Co., LTD** *Beijing, China*  
*Summer Assistant, Investment Banking Department* June 2019 – August 2019

- Assisted with an M&A project in the sharing economy and conducted industry research on the bike sharing market, including the evaluation of two companies' financial reports, analyzing the comparative companies' market shares, financial indexes, predicting future development directions and market share.
- Participated in analyzing the acquired company's valuation by researching its financing history and core technologies, identified key market leaders and competition.

## RESEARCH & COURSE PROJECTS

**Brandeis University, Applied Mathematics Department** *Waltham, MA*  
*Research Assistant, Chemical Oscillations Project* January 2020 – August 2020

- Analyzed PDEs models in biological supplements by collaborators from the Department of Chemistry to numerically convert them in weak formulation.
- Dug into the relationship between nondimensionalized concentrations of  $\text{HBrO}_2$  and  $\text{Ru}(\text{bipy})_3^{3+}$ , and the volume fraction of polymer by analyzing and visualizing PDEs in MATLAB, FreeFem++ and Mathematica. Updated solution results to research team, including analyzing unexpected numerical fluctuations and blow-ups.
- Hunted for the directional locomotion of the gel driven by autonomous propagation of pulse waves in 1D system and the periodic migration of the gel with illumination-induced instability in 2D system.

**Brandeis University, Applied Mathematics Department** *Waltham, MA*  
*Biodiversity Model and Its Application in Python Project* December 2019

- Modeled Python program based on the mathematical models from "The Measurement of Diversity in Different Types of Biological Collections" by E. C. Pielou.
- Generated biodiversity trend in Finglandrigg National Reserve, UK by reconstructing and applying real-world dataset to the Python model in visualized format.

**Brandeis University, Business Department** *Waltham, MA*  
*Oracle and Salesforce Financial Analysis Project* April 2019

- Analyzed financial comparisons between Oracle and Salesforce by examining financial statements and indexes obtained from Capital IQ, including comparing asset profitability, equity profitability, and debt repayment ability.

## LEADERSHIP AND INVOLVEMENT

**Brandeis University, Chinese Student Association (BC3)** *Waltham, MA*  
*President* September 2019 – May 2020

- Organized activities associated with Chinese traditional festivals and collaborated events with other cultural clubs.

## SKILLS AND INTERESTS

**Technical Skills:** Python, Java, R, MATLAB, SQL, Excel.

**Languages:** Mandarin (Native)

**Interests:** scuba diving, photographing, LEGO building.