



NYU

COURANT INSTITUTE OF
MATHEMATICAL SCIENCES

RESUME BOOK

CLASS OF 2023

MATHEMATICS IN FINANCE

Master of Science Program

DEAR COLLEAGUE,

We are pleased to provide you with the resumes of the first semester students in the Courant Institute's Mathematics in Finance Master's Program. They just started the program this semester and will graduate from our Master's program in December 2023. We hope you will consider them for possible summer internship positions at your firm.

We believe our students are the most astute, most capable, and best trained group of students of any program. The resumes you find in the resume book describe their distinguished backgrounds. For the past years we have one of the highest placement records for summer internships and full-time positions of any program. Our students enter into front office roles such as trading, portfolio or risk management, on the buy and the sell side. Their computing, quantitative finance, and machine learning skills, as well as their hands-on practical experience, makes them productive from day one.

Our curriculum is dynamic and challenging. For example, the first semester investment course does not end with CAPM and APT, but is a serious data-driven course that, for example, examines the statistical principles and practical pitfalls of covariance matrix estimation and portfolio construction. As part of our core curriculum, students learn the modern tools of machine learning and data science as they are used in the financial industry today. Our advanced electives cover cutting-edge topics in pricing, algorithmic trading, portfolio management and financial machine learning. Our instructors are high-level industry professionals and faculty from the Courant Institute, the top ranked department worldwide in applied mathematics. You can find more information about the curriculum and faculty at the end of this document, or at math.nyu.edu/financial_mathematics.

Sincerely yours,

Petter Kolm
DIRECTOR

Deane Yang
CHAIR

Leif Anderson
INDUSTRY ADVISOR

THE CURRICULUM HAS FOUR MAIN COMPONENTS

For more information about the program curriculum and course descriptions, visit math.nyu.edu/financial_mathematics/academics/courses

01. FINANCIAL THEORY, STATISTICS, AND FINANCIAL DATA SCIENCE

These courses form the core of the program, covering topics ranging from equilibrium theory, Black-Scholes, Heath-Jarrow-Morton, linear regressions, covariance matrix estimation to modern machine learning techniques and how they are used in quantitative finance.

02. PRACTICAL FINANCIAL APPLICATIONS

These classes are taught by industry specialists from prominent Wall Street firms. They emphasize the practical aspects of quantitative finance, drawing on the instructor's subject matter experience and expertise.

03. MATHEMATICAL TOOLS

This component provides appropriate mathematical background in areas like stochastic calculus and partial differential equations.

04. COMPUTATIONAL SKILLS

These classes provide students with a broad range of software skills in Java and Python, and facility with computational methods such as optimization, Monte Carlo simulation, EM-type algorithms and the numerical solution of partial differential equations.

PRACTICAL TRAINING

In addition to coursework, the program emphasizes practical experience. All students do a capstone project (the Project and Presentation course), mentored by finance professionals. Most full-time students do internships during the summer between their second and third semesters.

YANG (SHAWN) BAI

(551) 344-4566 // yang.bai@nyu.edu // [linkedin.com/in/yang-shawn-bai](https://www.linkedin.com/in/yang-shawn-bai)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** object-oriented programming (Java), statistical inference, Black-Scholes, machine learning, stochastic differential equations, risk-neutral valuation, risk management
- 09/18 - 07/22 **FUDAN UNIVERSITY** Shanghai, China
B.S. in Mathematics
- **Coursework:** functional analysis, partial differential equations, CAPM model, game theory, brownian motion, Bayesian statistics, control theory, linear and nonlinear optimization
 - **Thesis:** ESG Investment CAPM model and Properties of ESG Factors in A-shares
 - **Honors and Awards:** Outstanding Leader (for top 2 School of Math students)

EXPERIENCE

- 09/21 - 11/21 **GUOTAI JUNAN ASSET MANAGEMENT (\$70 billion AUM)** Shanghai, China
Quantitative Research Intern, Proprietary Securities Department
- Analyzed macro movements of gold prices from different perspectives, including supply and demand, monetary property, and risk avoidance
 - Coded error correction and dynamic factor models to predict gold prices statistically
- 05/21 - 08/21 **EVERBRIGHT SECURITIES** Shanghai, China
Quantitative Research Intern, Financial Engineering Group
- Built portfolios that earned alpha based on ESG ratings and ESG controversy scores; achieved 25% returns over 7-month period, compared to -0.7% from CSI 300 Index
 - Investigated divergence of ESG ratings using data from 4 major Chinese ESG rating agencies
 - Co-wrote two reports published on Wind Research Report Platform: "Significance of ESG Alternative Data" and "Progress of ESG Data Disclosure"
- 12/20 - 3/21 **GALAXY DERIVATIVES** Shanghai, China
Quantitative Analyst, Market Making Department
- Tested and mathematically analyzed validity and efficiency of options portfolio margin strategy
 - Used Python simulation to assess prediction power of top orders in options market
 - Optimized market making strategy by including top orders as trading signal

PROJECTS

- 09/21 - 10/21 **FUDAN UNIVERSITY** Shanghai, China
Application of Machine Learning in Interest Rate Bond Surface Prediction (Python)
- Performed comprehensive analysis on disproportionate influence of monetary policies, market liquidity, and credit risk on interest rate bonds
 - Applied convolutional neural network to predict yield surface of interest rate bonds
- 02/21 - 10/21 **Federated Machine Learning with Non-i.i.d Data (Python)** Shanghai, China
- Conducted numerical experiments to test impact of non-IID data on accuracy of federated machine learning algorithms on datasets such as MNIST
 - Measured degree of data independence with function distance between joint distribution and product distribution of different datasets; analyzed upper bounds of algorithm error

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, MATLAB, Java, SQL

Languages: English (fluent), Mandarin (native), Japanese (basic)

Activities: Vice President, Student Union; Advanced Mathematics Teaching Assistant, Fudan University

HUYI CHEN

(551) 998-1181 // huyi.chen@nyu.edu // [linkedin.com/in/huyi-chen/](https://www.linkedin.com/in/huyi-chen/)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** object-oriented programming (Java), algorithmic trading, Black–Scholes model, VaR, covariance matrix estimation, Monte Carlo simulation, data-driven models
- 09/16 - 06/20 **WUHAN UNIVERSITY** Wuhan, China
B.S. in Mathematical Finance and B.S in Mathematics
- **Coursework:** linear algebra, probability theory, statistics, real analysis, optimization, stochastic process, random forest, neural networks, differential equations, numerical analysis, derivatives pricing, volatility smile, regression, C++ programming, data structures
 - **Honors/Awards:** national scholarship (top 5%), first prize of the 10th national college student mathematics competition
 - **Thesis:** The expected utility maximization problem with general asset dynamics

EXPERIENCE

- 10/19 - 01/20 **ZMATE QUANTITATIVE TECHNOLOGY LTD** Shenzhen, China
Quantitative Research Intern
- Developed 6 trading strategies for cryptocurrency and stocks with Python
 - Used empirical stock data to update strategy implementation, database communication, and log system for backtesting; wrote research reports
 - Improved performance of stock selection program based on CAPM by introducing mixed integer programming, increasing Sharpe ratio by 6% and reducing max drawdown by 5%
 - Prepared technical aspects of presentation to security company clients to better demonstrate technical implementation
 - Communicated final results to security company clients; succeeded in selling them stock selection program

PROJECTS

- 07/21 - 08/21 **UBS SECURITIES CO. LIMITED** Remote
Pair Trading Strategies Based on Cointegration Arbitrage (Python)
- Conducted data cleaning for government bond futures using Python; applied co-integration tests
 - Wrote fully functional backtesting program with Python to implement statistical arbitrage strategies of Treasury bond futures based on residual deviation signal
 - Used moving average and Kalman filter to better fit time-varying strategy parameters, which significantly improved strategy performance in most cases
 - Optimized program by restricting data structure to pure numpy array and using vectorization heavily; improved average running speed of backtesting program 22-fold
- 09/21 - 02/22 **CALIFORNIA INSTITUTE OF TECHNOLOGY** Remote
Performance Comparison of BS and Heston Models in Options Pricing (Python, C++)
- Collected Apple Inc. stock and options data with Python; calibrated market parameters and priced options with Black-Scholes and Heston models
 - Fitted parameters by minimizing the prediction errors of option prices with hybrid schemes
 - Compared performance of Black-Scholes and Heston models by calculating prediction error on test set and conducting Delta hedging for specific portfolios

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, C++, MATLAB, Java

Languages: English (fluent), Mandarin (native)

RUIZE CHEN

(585) 540-6418 // ruize.chen@nyu.edu // [linkedin.com/in/ruize-chen](https://www.linkedin.com/in/ruize-chen)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
 - **Expected Coursework:** object-oriented programming (Java), stochastic calculus, Brownian motion, Fama-French, Black-Scholes, risk and portfolio management, data-driven modeling
- 08/18 - 05/22 **UNIVERSITY OF ROCHESTER** Rochester, NY
B.A. in Mathematics and Statistics & B.S in Finance
 - **Coursework:** linear algebra, ordinary differential equations, real analysis, stochastic processes, probability theory, linear regression, mean-variance optimization, corporate finance
 - **Honors/Awards:** Dean's List (3 years), Cum Laude, Beta Gamma Sigma Honor Society

EXPERIENCE

- 06/21 - 08/21 **NORTHEAST SECURITIES** Shenzhen, China
(Top 25 Chinese securities firm)
Quantitative Research Intern
 - Identified factors, from firm's database, that better predicted stock returns, by calculating information coefficients (i.e., correlation between factor value and stock yield)
 - Constructed new stock selection factors using principal component and cluster analyses
 - Applied Python to carry out web crawler for acquiring Chinese real estate data (e.g., construction area, floor area ratio) to support research on future housing trends; stored data using MongoDB
 - Preprocessed acquired data with log transformation and performed exploratory data analysis and graphed time series plots to examine housing construction patterns over past 10 years
- 01/21 - 02/21 **INDUSTRIAL SECURITIES** Guangzhou, China
(Top 7 Chinese securities firm)
Quantitative Research Intern
 - Employed quantitative stock selection methodology to healthcare stocks
 - Reproduced factor construction process with random forest model to extract most influential ones; built linear model based on selected factors
 - Achieved annualized returns of 28% and Sharpe ratio of 1.5 from derived factor model

PROJECTS

- 04/22 - 05/22 **UNIVERSITY OF ROCHESTER** Rochester, NY
Study on Factors Affecting Likelihood of Having Heart Disease (Python)
 - Built logistic regression, random forest, and artificial neural network via NumPy, pandas, and scikit-learn packages to explore possible impact of factors such as blood pressure
 - Evaluated performance of each model and achieved recall of 97%
- 04/21 - 05/21 **Optimal Risk and Return Portfolio Construction (Excel)**
 - Collected 60 years' monthly returns of 3 types of Fama-French risky assets; measured their variances, covariances, and correlations to derive mean-variance efficient portfolios
 - Created CAPM linear regression model in Excel; evaluated excess return rate and influential degree brought by the 3 Fama-French assets
- 03/21 - 04/21 **Analysis of Rochester Housing Market (R)**
 - Performed linear regression, stepwise regression, ANOVA test, and Tukey's HSD test to examine how factors (e.g., architectural style, location) could affect Rochester home sales prices; utilized ggplot2 package to create statistical plots
 - Derived best fit linear model with metrics including AIC and R-squared; constructed confidence and prediction intervals

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Java, Python, R, VBA, Excel, Tableau, MongoDB

Languages: English (fluent), Mandarin (native), Cantonese (native), German (intermediate)

YONGYAO CHEN, FRM

(201) 286-8485 // yongyao.chen@nyu.edu // [linkedin.com/in/yongyao-chen](https://www.linkedin.com/in/yongyao-chen)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** stochastic calculus, time series analysis, scientific computing, risk and portfolio management, dynamic asset pricing, algorithmic trading, equity derivatives
- 08/16 - 06/20 **NANYANG TECHNOLOGICAL UNIVERSITY** Singapore
B.ENG. in Electrical and Electronic Engineering
- **Coursework:** linear algebra, probability & statistics, numerical methods, differential equations, data structure & algorithms, intelligent system design, business finance, accounting fundamentals
 - **Graduated with Honors (Highest Distinction)**
- 02/18 - 07/18 **ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE (EPFL)** Lausanne, Switzerland
Semester Exchange
- **Award:** Exchange Student Scholarship

EXPERIENCE

- 09/20 - 07/22 **JPMORGAN CHASE & CO.** Singapore
Analyst, Software Engineer (Asset and Wealth Management)
- Created data-centric investment technology that facilitates portfolio management and trading decisions for private bank's internal investors and financial advisors
 - Contributed to development of new global strategic data framework that consolidates and processes data from all accounting systems, using big data, cloud, and automation technologies
 - Expanded portfolio analytics space with new features (e.g., trending trades analysis, large cash position indicator, overdraft alert, client service communication, morning briefs, trade idea feeds)
 - Designed and implemented novel automated monitoring system surveying data pipelines; it now serves as primary platform for service-line agreement management internationally
- 06/19 - 08/19 **Summer Analyst, Software Engineer** (Corporate and Investment Banking)
- Collaborated with London commodities team to develop new Python-based software for base metal post-trade customer information maintenance in firm's cross-asset platform, Athena
 - Accelerated legacy system decommissions, saving time and effort as well as reducing expenses
- 01/19 - 05/19 **ERNST & YOUNG SOLUTIONS LLP** Singapore
IT Advisory Intern
- Facilitated business design, implementation, and data migration of Sales & Distribution module in largest global SAP S/4HANA ERP project at EY Singapore in 2019 for client, DyStar Group
 - Conducted international localization workshops for franchises in 8 countries; communicated business demands with key stakeholders and produced requirement traceability matrices

PROJECT

- 08/19 - 04/20 **NANYANG TECHNOLOGICAL UNIVERSITY** Singapore
Onboard 3D SLAM for AGV Localization - With Delta Electronics, Inc. (C++, Linux)
- Designed Simultaneous Localization and Mapping (SLAM) system for automated guided vehicles (AGVs), addressing dangers of human-robot collisions and human interference during robot positioning process in dynamic environments such as modern warehouses
 - Proposed human classifier in complex 3D point clouds utilizing anthropometric geometry and support vector machine model; implemented system with ROS in C++ in Linux environment

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Java, Python, SCALA, C++, SQL, Unix Shell

Languages: English (fluent); Mandarin (native); Japanese and French (elementary)

Affiliations/Certifications: Certified Financial Risk Manager (FRM); Passed CFA Exam Level II (November 2021)

Activities: NTU Chinese Orchestra, Two-String Fiddle Performer (Singapore, Taipei); Singapore Marathon (2017, 2019)

ZELIN DING

(814) 699-1810 // zelin.ding@nyu.edu // [linkedin.com/in/zelin-ding/](https://www.linkedin.com/in/zelin-ding/)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** object-oriented programming (Java), Black-Scholes, decision trees, linear regression, stochastic processes, Monte Carlo method, data-driven modeling
- 08/18 - 05/22 **PENN STATE UNIVERSITY** University Park, PA
Dual B.S. in Computational Statistic and Applied Mathematics
- **Coursework:** calculus III, linear algebra, probabilities, ordinary differential equations, partial differential equations, real analysis, time series analysis, Bayesian statistics, programming in R, Python, Java and C++, data structure and algorithms, dynamic programming
 - **Honors/Awards:** Dean's List for 7 semesters

EXPERIENCE

- 06/21 - 07/21 **CHINA SECURITIES** Beijing, China
Investment Banking Intern
- Conducted enterprise risk assessments for clients of Nanjing Metro from qualitative and quantitative perspectives
 - Performed due diligence to obtain comprehensive understanding of Nanjing Metro's capital structure and credit risk
 - Calculated credit rating scores with China Securities' model, using financial statistics such as quick and working capital ratios for client companies
 - Developed KMV rating model, calibrated by historical default data of Chinese corporate bonds over prior 5-year period; estimated probability of defaults and mapped to ratings buckets
- 03/21 - 06/21 **HUAXI SECURITIES** Shanghai, China
Industry Research Intern
- Monitored Chinese electronics industry business and financial news; produced daily reports by quantifying effect of industry events on financial markets
 - Wrote reports after completing in-depth analysis of semiconductor and electronics industry, including deep dive into its current state and future trends
 - Led company and industry analysis for Chinese GPU sector; compared profitability and market shares of leading companies; generated graphs to visualize research conclusions

PROJECT

- 09/21 - 11/21 **MORGAN STANLEY** New York, NY (remote)
Quantitative Research (Python)
- Analyzed SPY and risk-on/risk-off US sector ETFs' correlations and dynamic co-movements using Pearson and Spearman correlations and ML algorithms (linear regression, cluster analysis)
 - Evaluated risk attributes of selected ETFs by studying their historical volatility
 - Designed quantitative trading strategy that used risk attributes of each selected ETF by allocating to different sectors under various market scenarios and volatile regimes
 - Backtested strategy over 20 years of data; achieved 7.2% annualized return and 0.4 Sharpe ratio, benchmarked against SPY

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python (Numpy, Pandas, Statsmodels, Sklearn, Tensorflow), R, Java, C++

Languages: English (fluent), Mandarin (native)

Interests: Honor of Kings multiplayer online battle arena game (ranked top 10 of 100M contestants in Season 11)

LAKSHAY GARG

(551) 344-7032 // lakshay.garg@nyu.edu // [linkedin.com/in/LakshayGarg](https://www.linkedin.com/in/LakshayGarg)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
 - **Expected Coursework:** object-oriented programming (Java), penalized regression, decision trees, linear regression, Fama-French, Black-Scholes, stochastic processes, Hull-White model
- 07/13 - 07/17 **INDIAN INSTITUTE OF TECHNOLOGY** Guwahati, India
B.Tech in Mathematics and Computing
 - **Coursework:** linear algebra, numerical methods, stochastic calculus, time series analysis, linear regression, SVM, PCA, data structures and algorithms, Monte Carlo simulation

EXPERIENCE

- 11/18 - 06/22 **NOMURA SERVICES INDIA PVT. LTD.** Mumbai, India
Model Risk Associate
 - Validated and approved new products and model changes in FX/IR using Excel and Python
 - Analyzed and approved ad-hoc trade requests with hard deadlines; raised prompt concerns in cases of unstable risks and PnL attribution
 - Automated smoothness, convergence, PnL, and stress testing for rates and FX in Python, reducing time for analysis by 60% as well as operation risk
 - Developed restriction monitoring functionality for FX in C++ and Python
- 07/17 - 11/18 **FIDELITY INVESTMENTS** Bengaluru, India
Software Engineer
 - Developed multiple APIs and web services for brokerage firm with SOAP and WSO2 in Java
 - Performed support function for team-owned services and APIs
 - Built on Ethereum platform to develop DApps for reconciliation problems of transfer agents (e.g., IPs and fund houses), reducing reconciliation time by 99%

PROJECTS

- 11/18 - 06/22 **NOMURA SERVICES INDIA PVT. LTD.** Mumbai, India
American Barriers for Scripted FX Option Templates
 - Approved American barriers for scripted FX option templates in local vol, local stochastic vol, and multi-currency local vol models
 - Investigated numerical stability and barrier touch probabilities to resolve instability of Monte Carlo method for continuous barriers; suggested mitigation by smoothing digital features
 - Analyzed impact of gamma instability on PnL under stressed scenarios
 - Presented findings and conclusions to upper management committee in model risk division at Nomura**CapFloor for Risk-free Rate**
 - Validated cap floor for risk-free rate (e.g., SOFR, OIS) as part of IBOR migration
 - Reviewed anew model for pricing backward and forward looking caplets
 - Implemented valuation model in Excel and identified inconsistencies in normal vol calculation function
 - Charged reserves on trades based on historically realized volatility calculation of RFR

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, C++, Java

Languages: English (fluent), Hindi (native)

Affiliations/Certifications: CFA Level II Candidate, FRM Part II Candidate

JIONGYANG (MAXWELL) HE

(201) 565-6328 // jiongyang.maxwell.he@nyu.edu // [linkedin.com/in/jiongyang-maxwell-he](https://www.linkedin.com/in/jiongyang-maxwell-he)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** OOP and data structure in Java, risk and portfolio management, financial securities and markets, stochastic calculus, statistics and data science, machine learning, market microstructure, asset pricing, scientific computing in finance, algorithmic trading
- 09/17 - 07/21 **PEKING UNIVERSITY** Beijing, China
B.S. in Mathematics and Applied Mathematics
- **Coursework:** calculus, linear algebra, abstract algebra, analytic geometry, ODE, PDE, real analysis, complex analysis, topology, functional analysis, mathematical model, differential manifolds, Riemann-Roch Theorem, mathematical logic, probability theory, applied stochastic process, combinatorics, data structure and algorithm (Python), regression, decision tree, basic neural network, SVM, Bayes classifier, ensemble learning, unsupervised learning, computational learning theory

EXPERIENCE

- 11/21 - 04/22 **DYNAMIC TECHNOLOGY LAB** Shanghai, China
(A leading international hedge fund)
- Quantitative Research Intern**
- Built features from Chinese stock market imbalance messages during opening auction and historical data; predicted short-term stock price returns after market open using LightGBM
 - Created engine that picked factors to predict short-term stock price returns after market open using linear regression with orthogonalization in 2 US stock markets
 - Backtested strategy based on above models and achieved stable performance with overall PnL/trading values $> 1e-3$ on test sets
- 07/21 - 09/21 **JQ INVESTMENT MANAGEMENT** Shanghai, China
(A top Chinese hedge fund)
- Quantitative Research Intern**
- Constructed order book matching engine with high-frequency message-based data
 - Conducted research on market microstructure; analyzed order book derived snapshot characteristic to explore patterns of orders (especially those with 3 different kinds of sizes)
 - Applied vectorization methods, NumPy and Pandas built-in functions, and multiprocessing programming to accelerate processing of large-scale data
- 01/20 - 02/20 **RUITIAN INVESTMENT MANAGEMENT** Shanghai, China
(A top Chinese hedge fund)
- Quantitative Research Intern**
- Used NumPy and Pandas packages and Linux operating syntax to backtest some factors
 - Studied numerical optimization and discussed paper on that with mentor

HONORS

- 11/16 Gold Medal (61st in China), 32nd China Mathematics Olympiad (CMO)
10/15 & 10/16 First Prize, The National High School Mathematics League

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, C++, Java

Languages: English (fluent); Mandarin (native); Shanghainese (native)

Affiliation/Certification: Member of quant department of Hedge Fund Association; C++ Programming for Financial Engineering from QuantNet

IONKENG HO

(626) 244-9700 // ionkengho@nyu.edu // [linkedin.com/in/ionkengho](https://www.linkedin.com/in/ionkengho)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** object-oriented programming (Java), penalized regression, linear regression, Fama-French, Black-Scholes, stochastic processes, Hull-White model
- 09/18 - 06/22 **UNIVERSITY OF CALIFORNIA SANTA BARBARA** Santa Barbara, CA
B.S. in Physics and B.S. in Financial Math & Statistics
- **Coursework:** vector calculus, linear algebra, partial differential equations, complex analysis, numerical methods, stochastic process, Cramér–Rao bound, MLE estimation, Hamiltonian mechanics, thermodynamics, Schrödinger equation, Maxwell equations, public speaking
 - **Honors/Awards:** High Honors (Top 8% GPA in College of Letters and Science)

EXPERIENCE

- 01/22 - 03/22 **UNIVERSITY OF CALIFORNIA SANTA BARBARA** Santa Barbara, CA
Learning Assistant, Special Relativity Class
- Held weekly office hours to answer students' questions about course material and homework; graded 30 assignments and exams
 - Discussed students' performance with professor; participated in selecting homework problems
- 08/21 - 09/21 **SHENZHEN TENGYIN INFORMATION CONSULTING** Shenzhen, China
News Department Assistant
- Researched financial news daily; drafted 20 morning briefings to customers by summarizing news and predicting how it may affect global markets
 - Organized and analyzed provincial government debt data; wrote comprehensive report on local governments' financial conditions for inclusion in company publication

PROJECTS

- 04/22 - 06/22 **UNIVERSITY OF CALIFORNIA SANTA BARBARA** Santa Barbara, CA
Solving Acoustic Wave Equations Using Crank-Nicolson Method (Python)
- Proved stability of Crank-Nicolson Method; used it to write simulation of wave equation into linear system of equations in lexicographical order
 - Applied ADI algorithm to solve linear system; obtained approximate solution, which achieved less than 1% deviation from exact solution
- 01/22 - 03/22 **Pricing Multiple Options With Black-Scholes Formula (Python)**
- Derived Black-Scholes equations from Ito's lemma; learned about different kinds of options (e.g., European, American, and Asian)
 - Used Monte-Carlo method to simulate geometric Brownian motion behind Black-Scholes model by taking large N up to 10^6 , which achieved error reduction at rate of $1/\sqrt{N}$
- 09/21 - 12/21 **Applying Machine Learning in Finding Relationships Between Poverty and Education Level (R)**
- Pruned data from United States county-level census and education using PCA to 12 PCs while capturing 90% of variance
 - Applied decision tree and logistic regression to pruned data; observed that poverty level of counties was strongly related to number of people who had less than a high school diploma
 - Used cross-validation to optimize parameters used in above models; reduced test mean square error by 20%

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Java, Python, R

Languages: English (fluent), Cantonese (native), Mandarin (native)

Activities: 2018 International Physics Olympiad Macau Team; won 4th place in UCSB poker tournament

SAMAR HOLKAR

(551) 344-6954 // samar.holkar@nyu.edu // [linkedin/samarholkar](https://www.linkedin.com/in/samarholkar)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** object oriented programming in finance, portfolio optimization, derivatives pricing, econometrics, machine learning
- 08/13 - 05/17 **INDIAN INSTITUTE OF TECHNOLOGY ROORKEE** Roorkee, India
B.Tech. in Computer Science and Engineering (awarded 09/17)
- **Coursework:** probability (basics), linear algebra, machine learning, multi-variable calculus and differential equations
 - **Honors/Awards:** MCM (Merit-Cum-Means) Scholarship for Exemplary Performance (99.9 percentile) in All India IIT Joint Entrance Examination

EXPERIENCE

- 04/19 - 06/22 **GOLDMAN SACHS** Bangalore, India
Associate - Quantitative Strategist
- Modeled initial margin for U.S. equity derivatives flow desk's portfolio, resulting in 14% reduction in overall margin postings
 - Calibrated 5-day 99.7% GAP risk calculation for option hedges to offer clients optimal margins on their portfolios
 - Calculated credit risk benchmarks for U.S. equity derivatives clients trading single stock portfolios using different strategies
 - Structured corporate trade models to optimize collateral and margin constraints for clients
 - Optimized CVA capital risk for clients, resulting in reduction in attributed equity (capital constraint) by about 4%
- 06/17 - 04/19 **PAYTM** New Delhi, India
(E-commerce and utility startup)
Software Engineer
- Built language translation engine that accommodated 11 languages, enhancing user experience through interactive design flow
 - Created rule-based engine that standardized product names, streamlining operational design, as well as cutting expenses and time-intensive manual operations

PROJECTS

- 08/16 - 02/17 **INDIAN INSTITUTE OF TECHNOLOGY ROORKEE** Roorkee, India
Text-Image Synthesis with Uni-Skip Vectors (Python, Deep Learning)
- Used natural language understanding; designed model that learned image generation from text data with 1M-word vocabulary, producing high-level generic sentence representations
 - Improved model by employing distributed text encoder conditioned with generative adversarial modeling to produce visual representations
- 04/16 - 05/16 **INDIAN INSTITUTE OF TECHNOLOGY ROORKEE** Roorkee, India
Object Identification from Visual Data (Python)
- Followed hypothesis to optimize hyperparameters such as receptive fields and feature maps to improve invariance and filtering in convolutional neural net architecture

COMPUTATIONAL SKILLS / OTHER

Programming Languages: C/C++, Python, Javascript, Slang

Languages: English (fluent), Hindi (native)

Certifications (Coursera): [Financial Markets](#), [Introduction of Financial Engineering and Risk Management](#), [Statistics with Python](#), [Numerical Methods](#)

Interests: Programming (ranked top-4th percentile in ACM ICPC), Public Speaking (President of GS Toastmasters)

JIAMING HU

(617) 888-3569 // jiaming.hu@nyu.edu // [linkedin.com/in/jiaming-hu](https://www.linkedin.com/in/jiaming-hu)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** objective-oriented programming (Java), data-driven modeling in Python, stochastic calculus, time series analysis, derivatives pricing, Fama-French, Monte Carlo simulation, portfolio optimization
- 09/18 - 05/22 **NORTHEASTERN UNIVERSITY** Boston, MA
B.S. in Data Science & Mathematics
- **Coursework:** multivariate calculus, linear algebra, ordinary differential equations, law of large numbers, Markov chain, numerical analysis, supervised/unsupervised machine learning, database design (SQL and No-SQL), options pricing (binomial and Black-Scholes)
 - **Honors/Awards:** Cum Laude

EXPERIENCE

- 08/21 - 12/21 **MOYI TECH** New York, NY
(Fintech company that automates market research and data analysis)
Quantitative Research Intern (Python)
- Conducted industry research on technology and financial sectors in US market
 - Researched quantitative aspects of financial crises to predict future ones by analyzing transactions and other historical financial metrics (e.g., GDP growth rate, real interest rate)
 - Used existing full-fledged quantitative trading packages such as VNPY to perform backtesting, and simulated live trading on proposed strategies using Python; analyzed and reported results

PROJECTS

- 01/21 - 04/21 **NORTHEASTERN UNIVERSITY** Boston, MA
Loan Default Predictor (Machine Learning, Python)
- Collected historical loan application data and performed PCA to reduce dimensionality
 - Developed probability-based Bayesian classification model to determine whether to issue loans
 - Applied linear and non-linear regression models to predict loan amount to be issued
 - Performed cross-validation, and evaluated different models' performance by interpreting R_2 , RMSE, and profits under pre-set conditions (e.g., APR, default duration)
 - Translated statistical results into business insights and created visualized dashboard in Tableau
- 07/20 - 10/20 **Options Pricing and CBOE Options Market Efficiency (Python)**
- Detected \$1M in arbitrage opportunities due to options mispricing; tested boundary condition violations, call-put-parity, and Black-Scholes model using Python
 - Analyzed arbitrage by applying Black-Scholes model with delta-neutral strategy in different time periods and assessed its feasibility

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python (Numpy, Pandas, Scikit-learn, Matplotlib), Java, SQL, R

Languages: English (fluent), Mandarin (native)

Publication: [Option Mispricing & Arbitrage Opportunity](#), ICSET 2021 Taiwan

Activities: Discrete Structure Teaching Assistant at Northeastern University

YUE (RAY) HU

(551) 349-5568 // rayhu@nyu.edu // [linkedin.com/in/yue-hu-ray](https://www.linkedin.com/in/yue-hu-ray)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** object-oriented programming (Java), unsupervised learning, time series analysis, Monte Carlo, derivatives pricing, Fourier analysis, Black-Scholes, stochastic calculus
- 09/17 - 04/22 **UNIVERSITY OF WATERLOO** Waterloo, Canada
B.Math. in Mathematical Finance
- **Coursework:** linear algebra, partial differential equations, Itô's lemma, real analysis, Bayesian statistics, CAPM, WACC, options, data structure (Python), stochastic processes, linear regression
 - **Honors:** Dean's Honors (top 5% of GPA in department), President's Scholarship

EXPERIENCE

- 03/22 - 04/22 **CITIC SECURITIES** Shenzhen, China (remote)
Equity Research Analyst Intern
- Analyzed target companies' financial statements and industries' business cycles and future trends
 - Made predictions in new-generation education industry (e.g., AI and new vocational learning)
- 09/21 - 12/21 **AVIVA CANADA** Toronto, Canada
(2nd largest property and casualty insurance company in Canada)
Actuarial Intern, Group and High Net Worth
- Provided actuarial pricing for high-net-worth clients with properties valued at more than \$50M
 - Developed credit analysis for insurance brokers to determine whether to apply more risk factors
 - Improved efficiency of pricing tools built in Excel by 30% through automation and optimization
 - Consolidated group case database, with over 10K observations and 500K features, in Python
 - Drafted tier analysis for top corporate entities; prepared and presented rate adjustment strategies
- 09/20 - 12/20 **GORE MUTUAL INSURANCE COMPANY** Cambridge, Canada
(Oldest property and casualty insurance company in Canada)
Actuarial Analyst, Actuarial Transformation and Operations
- Revamped rating structure model to transform actuarial pricing process from flat to multi-stage
 - Renovated data retrieving process with SQL and VBA; improved data flow efficiency by 40%
 - Created reconciliation calculator to fit new modeling structure that replaced old pricing process
 - Developed calculator for underwriting in Excel for privately-owned automobiles in Ontario

PROJECTS

- 08/21 - 10/21 **ARTIFICIAL INTELLIGENCE FINANCE INSTITUTE (AIFI)** New York, NY
Impact of COVID-19 on Perth Housing Prices: A Machine Learning Perspective (Python)
- Conducted statistical analysis and model validation with TensorFlow and scikit-learn
 - Identified several new and original parameters after testing hundreds of transformed ones
 - Applied CatBoost regression for price forecasting, and difference-in-difference (DID) methods for impact evaluation
 - Wrote [manuscript](#) (independently) that was published by 7th International Conference on Financial Innovation and Economic Development (2022)
- 01/21 - 04/21 **UNIVERSITY OF WATERLOO** Waterloo, Canada
Applications of Multi-Layer Perceptrons on Time Series Forecasting (R)
- Examined real-life applications using MLPs, a class of feedforward artificial neural network
 - Forecasted annual lynx trappings in Canada using efficient ADAM optimization algorithm

COMPUTATIONAL SKILLS / OTHER

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

Languages: English (fluent), Mandarin (native)

Interest: China Flight Simulation Competition (4th place out of 1K+)

XIXIANG HU

(201) 290-3800 // xixianghu@nyu.edu // [linkedin.com/in/xixiang-hu/](https://www.linkedin.com/in/xixiang-hu/)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
 - **Expected Coursework:** stochastic processes, Black-Scholes & Greeks, Hull-White model, penalized regression, linear regression, Fama-French, object-oriented programming (Java)
- 09/21 - 07/22 **LONDON SCHOOL OF ECONOMICS (LSE)** London, UK
M.S. in Data Science
 - **Coursework:** time series, SVM, random forest, boosting, lasso, ridge regression, principal component analysis, Q-learning, Sarsa, distributed computing
- 09/17 - 06/21 **SOUTHWESTERN UNIVERSITY OF FINANCE AND ECONOMICS** Chengdu, China
B.S. in Computer Science
 - **Coursework:** corporate finance, derivative financial instruments, Java, database, statistics, data structures, probability, algorithms, machine learning, linear algebra, Hadoop

EXPERIENCE

- 07/21 - 09/21 **CAITONG SECURITY** Chengdu, China
Wealth Management Intern
 - Researched and identified stocks, fixed income, and bond products in China
 - Gathered information about newly developed fund; analyzed it to facilitate sales to clients
 - Processed and visualized fund and stock data for further survival analysis and presentation
- 07/19 - 09/19 **HUAWEI TECHNOLOGIES** Chengdu, China
Product Manager and Service Engineer Assistant
 - Collaborated on 5G base station installation detection and late part signal debugging
 - Collected and organized signal information; marked poor signal areas and relevant base stations; suggested adjustments for nearby base stations
 - Researched relevant theories for antenna feeder systems and 5G and technologies like Hadoop, Spark, and distributed computing for processing large-scale data

PROJECTS

- 12/21 - 08/22 **LSE & SIEMENS ADVANTA CONSULTING** London, UK
Inventory Optimization (Python)
 - Applied ARIMA and ARIMAX time series models and machine learning methods (Prophet, LSTM) to simulate and predict product order demand over forthcoming 3 months
 - Constructed environment for inventory management process; compared reinforcement learning methods, DQN and Dueling DQN, to optimize reorder points
- 10/21 - 12/21 **LONDON SCHOOL OF ECONOMICS** London, UK
Machine Learning Analysis of Songs on Spotify (R)
 - Preprocessed data, using one-hot encoding and lasso regression to adjust features
 - Used logistic regression, random forest, and boosting to explore popularity of each song; accuracy of final result reached 75%
 - Implemented QDA, KNN, and SVM to classify song genres; achieved 90% accuracy

COMPUTATIONAL SKILLS / OTHER

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

Languages: English (fluent), Mandarin (native)

HUA (HANA) JING

(720) 431-3760 // huahana.jing@nyu.edu // [linkedin.com/in/huahanajing](https://www.linkedin.com/in/huahanajing)

EDUCATION

Expected 12/23	NEW YORK UNIVERSITY The Courant Institute of Mathematical Sciences M.S. in Mathematics in Finance <ul style="list-style-type: none">• Coursework: object-oriented programming (Java), regressions & time series, data-driven modeling, deep learning, Black-Scholes, Monte Carlo simulation, stochastic calculus	New York, NY
08/19 - 05/22	UNIVERSITY OF COLORADO, DENVER B.S. in Mathematics, B.A. in Economics, minor in Data Sciences <ul style="list-style-type: none">• Coursework: machine learning, regression analysis, probability, real analysis, numerical analysis, PDE, linear algebra, econometrics, macroeconomics, microeconomics• Honors/Awards: Magna Cum Laude, Dean's List every semester	Denver, CO
08/18 - 06/22	CHINA AGRICULTURAL UNIVERSITY B.A. in Economics (Joint Degree Program with CU Denver)	Beijing, China

EXPERIENCE

11/21 - 01/22	HUATAI SECURITIES Quantitative Research Intern <ul style="list-style-type: none">• Projected upper and lower bounds of crude oil prices for next quarter by aggregating data from indices (e.g., US Dollar Index, PMI) as well as crude oil production; conducted analysis• Used Python to complete Monte Carlo pricing model and simulate returns of snowball autocallable options after identifying their structure	Remote Nanjing, China
09/20 - 12/20	DELOITTE CONSULTING Research Assistant <ul style="list-style-type: none">• Evaluated largest Chinese express delivery, logistics, e-commerce, and financial conglomerate by developing 5-year cross-industry strategic plan• Assessed wide range of data with Python API; employed exponential smoothing to make recommendations to client about entering or expanding into 12 sub-sectors• Predicted net income of client's parent company for forthcoming 5 years with regression methods in R	Beijing, China
01/20 - 03/20	SOOCHOW SECURITIES Research Intern <ul style="list-style-type: none">• Analyzed communications company by reviewing development budgets, technology advancement, and potential customers; wrote published report with research results• Read annual reports of 52 communications companies; compared data on public fund positions for 3Q19 using Excel VLOOKUP; calculated and evaluated quarter-on-quarter growth ratios	Beijing, China

PROJECT

02/22 - 05/22	ZAP ENERGY & UNIVERSITY OF COLORADO, DENVER Computational Accuracy and Efficiency in Solving Partial Differential Equations (Python) <ul style="list-style-type: none">• Built finite difference solution functions for 1-D, 2-D, and 3-D spherical heat equations to contribute to Zap Energy's fluid dynamics study• Compared speed and accuracy of calculations with GPU's and CPU's capabilities to calculate numerical solutions; depicted errors in grids and time steps	Denver, CO
---------------	--	------------

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, Java, R

Languages: English (fluent), Mandarin (native)

Other Experience: Research Assistant at University of Colorado Denver focusing on Development Economics (Stata, Latex, and GIS); Volunteer Group Leader helping 300+ patients from rural areas of China (Hospital Guidance)

ZHENQI (HARRY) JING

201-668-1456 // zhenqi.harry.jing@nyu.edu // [linkedin.com/in/zhenqi-harry-jing/](https://www.linkedin.com/in/zhenqi-harry-jing/)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** object-oriented programming (Java), data-driven modeling, Fama-French, Black-Scholes, stochastic processes
- 01/19 - 04/21 **UNIVERSITY OF MICHIGAN, ANN ARBOR** Ann Arbor, MI
B.S. in Mathematics, Economics
- **Coursework:** simple linear regression, multiple regression analysis, probability, numerical methods, interest theory, term structure, CAPM, binomial model
 - **Honors:** Graduation With Highest Distinction (top 3% of class)
- 08/17 - 12/18 **CASE WESTERN RESERVE UNIVERSITY** Cleveland, OH
Applied Mathematics Studies

EXPERIENCE

- 02/22 - 07/22 **HIGH HOPE WISDOM INVESTMENT** Nanjing, China
(Asset management firm with +\$1B in AUM)
- Quantitative Research Intern**
- Studied “Likely gains from market timing” paper; developed math derivations; and explained findings to team to offer perspective for China A-share performance
 - Analyzed intraday/interday prices and trading volumes of China A-shares; identified pattern variations; studied papers about explanations; assessed implications for investments
 - Applied research-based decomposition method to China A-shares; identified its potential significance in constructing portfolios to outperform market
 - Evaluated performance of 6 financial factors during differently performing market periods; identified significant persistence of SML factor
 - Conducted literature reviews on different topics (e.g., measures for economic policy uncertainty; patterns in trading volume and return volatility)

PROJECTS

- 10/19 - 11/19 **UNIVERSITY OF MICHIGAN, ANN ARBOR** Ann Arbor, MI
Data Analytics (STATA)
- Replicated Tennessee Student Teacher Achievement Ratio Project to study bias caused by reverse causality and benefits of random experiments
 - Investigated effect of seatbelt law introduction in California with time series regression models; used dummy variable to detect seasonal patterns in accidents
- 03/19 - 04/19 **Creative AI Learning Models Based on NLP (Python)**
- Trained Beatles song lyrics using n-grams language modeling

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, Java, R, STATA

Languages: English (fluent), Mandarin (native)

Activities: Modern Algebra and Numerical Methods Grader, University of Michigan

SUSHMANTH KAKULLA

(267) 378-1082 // sushmanthkakulla@nyu.edu // www.linkedin.com/in/sushmanthkakulla

EDUCATION

Expected 12/23	NEW YORK UNIVERSITY The Courant Institute of Mathematical Sciences M.S. in Mathematics in Finance <ul style="list-style-type: none"><i>Future Coursework:</i> stochastic calculus, machine learning, Black Scholes, monte carlo simulation, CAPM, computing in finance	New York, NY
06/18 - 03/20	INDIAN INSTITUTE OF MANAGEMENT AHMEDABAD M.B.A. <ul style="list-style-type: none"><i>Coursework:</i> stochastic calculus, data analysis, algorithmic trading, option pricing, blockchain	Ahmedabad, India
07/12 - 05/16	INDIAN INSTITUTE OF TECHNOLOGY BOMBAY B.Tech in Mechanical Engineering and Minor in Electrical Engineering <ul style="list-style-type: none"><i>Coursework:</i> calculus, linear algebra, computer programming	Mumbai, India

EXPERIENCE

07/20 - 05/22	FINIQ CONSULTING INDIA PVT. LTD. AVP - Derivatives Platform Consultant <ul style="list-style-type: none">Designed and implemented accumulator, decumulator pricing with back-solve functionality and Greeks calculationsDeveloped Monte Carlo pricing scripts for equity structured investment products; implemented pricer functionality on platform to showcase indicative prices on screenLed team to create optimum underlying basket size calculator using Excel VBA; formulated recommendation to investors for higher yieldsImplemented payoff scripts that OCBC Bank and RHB Bank use for pricing; developed system interfaces for RHB Bank using C# and SQL – they are now live at RHBManaged 15 people to develop and deliver customized products for client, JAR Capital	Pune, India
04/19 - 05/19	AXIS BANK Management Trainee <ul style="list-style-type: none">Devised go-to-market strategy for app to increase market penetration and build business volumeRecommended 7 new features on marketing and product fronts by identifying gaps in current portfolioAchieved 15% increase in transactions by implementing app; onboarded 130+ distributors of app	Mumbai, India
08/16 - 06/18	VIRTUSA CONSULTING SERVICES PVT. LTD. Engineer – Technology <ul style="list-style-type: none">Rolled out 20 deliverables to production successfully in \$2.5M transformation projectReceived highest rating (10/10) as well as direct appreciation from client in assigned projectAttained 25% reduction in weekly bug reporting rate by devising and formulating regression suiteRecognized as subject matter expert in development and implementation using Java, J2EE technologies, and GWTResolved 100+ critical client issues in production and reduced count by 70% in less than 1 year	Hyderabad, India

PROJECT

09/19 - 12/19	INDIAN INSTITUTE OF MANAGEMENT AHMEDABAD Pricing of Power <ul style="list-style-type: none">Researched valuation of power and weather derivatives using differential equationsImplemented model to solve price of derivatives with application of Ito's lemma, PDE, and boundary conditions	Ahmedabad, India
---------------	---	------------------

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Java, Python, C++, SQL, VBA, MATLAB, R

Languages: English (fluent), Hindi (fluent), Telugu (native), German (basic)

Certification: Programming for Everybody (Python) from Coursera

ERDING LIAO

(858) 888-2605 // erding.liao@nyu.edu // [linkedin.com/in/ErdingLiao](https://www.linkedin.com/in/ErdingLiao)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** high-level programming language (Java, C++), stochastic process, penalized regression, linear regression
- 09/18 - 06/22 **UNIVERSITY OF CALIFORNIA, SAN DIEGO** San Diego, CA
B.S. in Mathematics (Applied)
- **Coursework:** linear algebra, partial differential equations, method of moments, maximum likelihood estimation, Bayesian statistics, Markov chain, big data analysis, data mining, neural networks, recommendation systems
 - **Honors/Awards:** Cum Laude (top 8%)

EXPERIENCE

- 08/19 - 10/19 **DONGXING SECURITIES CHONGQING BRANCH** Chongqing, China
Data Analyst Summer Intern
- Collected and processed clean energy industry data (e.g., from top 20 car companies in China), with Azure HDInsight; prepared data visualization for industry report
 - Built large-scale database from daily news and data for 3,000 clean energy automobile stocks from 2018 to 2019, using R and SQL
 - Used feature extraction on news about 1,000 selected stocks in 2019; improved stock prediction based on sentiment analysis with RNN; average accuracy increased by 7%

PROJECT

- 09/20 - 06/21 **UNIVERSITY OF CALIFORNIA, SAN DIEGO** San Diego, CA
Math Honors Research: Hidden Markov Model with Partially Missing Observations (C++, R)
- Evaluated practicality of Hidden Markov model in financial market prediction with respect to HMM-GMM algorithm and Monte-Carlo GMM
 - Developed alternative EM-algorithm for Hidden Markov model with discontinued observations; mathematically proved and analyzed its potential implementation for HMM-GMM model
- 02/21 - 05/21 **Deep-Learning AI - Poetry Generator (Python)** San Diego, CA
- Implemented language model for RNN based on datasets of Shakespeare poetry; analyzed performance with respect to BIC and time/space complexity
 - Discussed potential improvements of N-gram model with RNN Markov and possibility of reducing complexity through pruning
- 09/20 - 12/20 **Prediction Model - NYPD Allegations (Python)** San Diego, CA
- Conducted data cleaning on dataset of complaints and allegations against New York Police Department; analyzed dependency of factors with Kolmogorov Smirnov Test
 - Applied feature engineering on data; constructed prediction model of allegation outcomes using random forest and SVM
 - Analyzed performance of model through grid-search and evaluation on fairness

COMPUTATIONAL SKILLS / OTHER

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

Languages: Mandarin (native); English (fluent)

Activities: Vector calculus teaching assistant and grader at UCSD

SIHAN LIU

(201) 238-3749 // sihan.liu@nyu.edu // [linkedin.com/in/sihanliu643](https://www.linkedin.com/in/sihanliu643)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Forthcoming Coursework:** portfolio theory, risk management, Fama-French, Black Scholes, Monte Carlo simulation, stochastic calculus, Hull-White model
- 09/18 - 06/22 **NEW YORK UNIVERSITY SHANGHAI** Shanghai, China
B.S., Double Major in Honors Mathematics and Data Science
- **Coursework:** linear algebra, mathematical statistics, Brownian motion, law of large numbers, machine learning, data structures, algorithms, databases
 - **Honors/Awards:** Dean's list for 4 years, Latin Honors Cum Laude

EXPERIENCE

- 12/21 - 01/22 **GUOTAI JUNAN SECURITIES CO., LTD** Shanghai, China (remote)
Quantitative Research Intern
- Evaluated Chinese stock market's key indicators (e.g., major indices, cross-sectional volatility, stock turnover rate); wrote market overview report
 - Built backtest system using Python, with modules including data collection, data preprocessing, trading signal detection, data visualization and performance analysis
 - Backtested double moving average strategy and achieved 8.9% annualized return as well as 23% max drawdown
- 06/21 - 08/21 **ATOS INFORMATION TECHNOLOGY** Chengdu, China
Data Visualization Intern
- Collected information from multiple web databases, cleaned and organized it into Excel tables, as well as generated frequent reports to facilitate manager's monitoring of team productivity
 - Created dashboards to display cleaned data clearly and concisely
 - Used VBA and Power Query to automatically generate daily reports and send emails; results: reductions to 25% of production time and 17% of computer memory used by data
- 08/20 - 09/20 **SICHUAN WANYI ENERGY TECHNOLOGY CO., LTD.** Chengdu, China
Data Mining Intern
- Collaborated with team to build ML model that helped clients extract information from images
 - Used Python to generate synthetic optical character recognition dataset comprising images of Chinese character lines in various backgrounds
 - Standardized 300+ images in Python; corrected thousands of mismatched labels in image dataset

PROJECTS

- 02/22 - 05/22 **NEW YORK UNIVERSITY SHANGHAI** Shanghai, China
Derivatives Pricing: Options Price Fluctuation Simulation with Black-Scholes Formula (Python)
- Implemented Black-Scholes formula on European calls; collected contract information and historical prices for 100+ Chinese options; simulated price fluctuations from list to maturity dates
 - Applied several models to estimate volatility of options, including moving average, exponentially moving average, and GARCH(1, 1)
- 05/21 - 06/21 **Machine Learning: Music Classification Based on Emotions (Python)**
- Designed conventional machine learning models including SVM, decision trees, and random forest, to classify musical pieces into 3 categories: sad, calm, energetic
 - Improved model performance with parameter tuning, PCA, oversampling, stacking, and cross-validation; achieved precision score of 88%

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Proficient in Python, SQL, Java, and Excel; basic in VBA

Affiliations/Certifications: Microeconomics and corporate finance from edX

Languages: English (fluent), Mandarin (native)

WENWEN (RITA) LIU

(651) 757-7552 // w11792@nyu.edu // [linkedin.com/in/wenwenrita-liu6](https://www.linkedin.com/in/wenwenrita-liu6)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
 - **Expected Coursework:** object-oriented programming (Java), penalized regression, decision trees, linear regression, Fama-French, Black-Scholes, stochastic processes
- 09/18 - 12/21 **MACALESTER COLLEGE** Saint Paul, MN
B.A. in Applied Mathematics and Economics
 - **Coursework:** unsupervised learning, linear algebra, probability, agent-based model, differential equation, data structure, options pricing, capital structure
 - **Honors/Awards:** Honorable Mention in COMAP 2019 Mathematical Contest in Modeling, Dean's List for 4 years

EXPERIENCE

- 01/22 - 06/22 **CREW** Saint Paul, MN
(Consulting firm that delivers IT solutions)
Data Analysis Associate
 - Participated in 6-week training in data analysis, visualization, and presentation skills
 - Cleaned and queried minute-level electricity data using SQL to create 3 dashboards in Power BI; presented them to clients, which reduced their information retrieval time by 50%
- 02/21 - 06/21 **ZHENGREN QUANTITATIVE INVESTMENT MANAGEMENT** Beijing, China
Quantitative Research Intern
 - Researched macro and fundamental factors to construct 30 variables using monthly data in Python; processed 20GB of data using methods such as Gram-Schmidt process for model input
 - Created LASSO model to forecast stock returns, and improved model performance by 20%
 - Developed program using OOP that automatically displayed descriptive statistics and visualizations of variables; enabled team to identify 3 patterns to improve
- 01/20 - 05/20 **MINNESOTA HISTORICAL SOCIETY** Saint Paul, MN
Data Analysis Intern
 - Gathered exhibition schedules through one-on-one meetings and processed 10GB minute-level weather data to support attendance study
 - Generated time series models to analyze effect of price change on museum attendance, using Monte Carlo simulation in Python; conclusion was inelastic demand for tickets
 - Created 15 visualizations for model results and presented to finance department; this contributed to pricing decisions that increased profitability of ticket sales

PROJECTS

- 10/21 - 12/21 **MACALESTER COLLEGE** Saint Paul, MN
Stock Return Forecasting (R)
 - Constructed LASSO, random forest, and stacking models using fundamental factors to forecast stock returns; model selected top 20 firms that had average annual return of 35% the next year
- 10/20 - 12/20 **Covid's Impact on Consumer Behavior (Python)**
 - Built agent-based model to simulate pandemic's effects on demand for necessary goods; analysis found low-income consumers spent 20% more on necessities relative to high-income consumers

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, R, Java, SQL, Stata, Linux, Github

Languages: English (fluent); Mandarin (native); German (conversational)

Certifications: CFA Level 1 Candidate, Microsoft Power BI Data Analyst

ZIYU LIU

(551) 229-5554 // ziyu.liu@nyu.edu // [linkedin.com/in/ziyuliu476](https://www.linkedin.com/in/ziyuliu476)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** object-oriented programming (Java), penalized regression, decision trees, linear regression, Fama-French, Black-Scholes, stochastic processes
- 10/20 – 07/21 **UNIVERSITY OF CAMBRIDGE** Cambridge, UK
M.A.S. in Pure Mathematics
- **Coursework:** algebraic number theory, commutative algebra, Weyl algebra, profinite groups and group cohomology, elliptic curves
- 09/16 - 05/20 **MOUNT HOLYOKE COLLEGE** South Hadley, MA
B.A. in Mathematics
- **Coursework:** abstract algebra, real and complex analysis, differential geometry, partial differential equations, combinatorics

EXPERIENCE

- 01/22 - 06/22 **FOSUN CAPITAL (\$7.3B AUM)** Shanghai, China
Investor Relations Intern, Fosun Capital Flagship USD Fund
- Drafted roadshow materials for growth stage USD fund targeting LPs in Asia, Europe, and Australia; participated in roadshows and communicated proactively on fundraising progress
 - Conducted research on secondary funds and completed report covering transaction structure, domestic and foreign market overview, and fundraising in Asia Pacific region
 - Collaborated with TMT, healthcare, and consumer project teams in connecting with potential investors; participated in roadshows; gained insight into multiple sectors
 - Prepared summary report on fund due diligence questions; crafted monthly reports to update LPS with latest developments in fund management
- 07/20 - 09/20 **TOPSPERITY FUND (\$4.7B AUM)** Shanghai, China
Research Analyst, Security Analysis / Consumer and TMT
- Collected TMT and consumer industry trends through 20 expert calls and industry conference calls; consolidated meeting memos and presented findings to fund managers
 - Selected stocks based on financial analysis, fundamentals, sector trends and shareholding structure in TMT and consumer industries based on financial reports and WIND
 - Analyzed companies and stocks in TMT and consumer industries (e.g., RELX, Smoore Intl.) through industry analysis and competitive strengths analysis as well as valuation
 - Automated daily morning reports process with Python and Excel

PROJECTS

- 05/18 - 07/18 **MUHLENBURG COLLEGE REU – REU Math Research** Allentown, PA
Investigation on Partitions with Equal Products
- Initiated new approach to applying combinatorics and number theory; published [paper](#) on integer partitions in International Journal of Number Theory
- Sums of Polygonal Numbers**
- Conducted research and collaborated on report with team members

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Java; Python

Languages: English (fluent), Mandarin (native); German (basic); Homeric Greek (basic)

Activities: President of Association for Women in Mathematics at Mount Holyoke College chapter

YOURAN PAN

(551) 325-8065 // youran.pan@nyu.edu // [linkedin.com/in/youran-pan](https://www.linkedin.com/in/youran-pan)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** object-oriented programming (Java), decision trees, linear regression, Fama-French, Black-Scholes, derivative securities, quantitative portfolio theory, finite difference method, data-driven models, scientific computing regression
- 08/18 - 05/22 **DUKE UNIVERSITY | DUKE KUNSHAN UNIVERSITY** Durham, NC | Kunshan, China
B.S. in Applied Mathematics
- **Coursework:** linear algebra, ODEs, PDEs, stochastic process, numerical analysis, mathematics of machine learning, econometrics
 - **Awards:** Mathematical Modeling Context (honorable mention) 2021, Mathorcup Mathematical Modeling Challenge 2020 (group won 1st place)

EXPERIENCE

- 07/22 - present **ENHANCED HEALTHCARE PARTNERS** New York, NY (remote)
(Healthcare-focused private equity firm)
- Investment Research & Data Analytics Intern (Python, SQL, Excel, Tableau)**
- Researched macro trends, industry drivers, and market segments of plastic surgery industry
 - Profiled 16 prospective pre-assigned investment targets by investigating locations, business descriptions, ownership, revenues, ratings, and rationales
 - Used Python and SQL to manage data; calculated and analyzed it with Excel and SQL to find summary values and trends; correlated data using Tableau
 - Presented market landscape research summary and recommended investment targets to manager
- 12/20 - 05/22 **DUKE KUNSHAN UNIVERSITY** Kunshan, China
Research Assistant, Data Science Research Center (Python)
- Developed web crawler to collect first-hand data for translated books from 3 online libraries; performed data cleaning and conducted analysis and visualizations; wrote and presented reports
 - Sorted and merged information for Shanghai Library database
- 05/21 - 08/21 **Research Scholar (Python, R, STATA)**
- Conducted literature review on healthy lifestyles using PubMed, WHO, and UN databases
 - Accessed Yinzhou, China, databases collaboratively, and calculated influenza vaccine effectiveness using static decision tree model

PROJECTS

- 03/20 - 04/20 **DUKE KUNSHAN UNIVERSITY** Kunshan, China
Air Transportation Overbooking and Revenue Management (Python)
- Conducted literature reviews on overbooking and cabin control during COVID
 - Created web crawler to collect demand and daily ticket sales data
 - Developed pricing and SIR models
- 05/21 - 08/21 **CHINA UNIVERSITY OF MING & TECHNOLOGY** Xuzhou, China
Link Prediction With Deep Learning For Weighted Symmetric Graph in Undirected Graphs
- Reviewed latest research on social network analysis, specifically for recommender systems
 - Contributed to proposing and testing weighted symmetric graph embedding approach based on deep learning for link prediction

COMPUTATIONAL SKILLS / OTHER

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

Languages: English (fluent); Mandarin (native); Japanese (fluent)

XINYUAN (FRANK) QIU

(757) 332-3099 // frank.qiu@nyu.edu // [linkedin.com/in/xinyuan-frank-qiu](https://www.linkedin.com/in/xinyuan-frank-qiu)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** stochastic calculus, Black-Scholes, Hull-White model, penalized regression, object-oriented programming (Java)
- 08/18 - 05/22 **WILLIAM & MARY** Williamsburg, VA
B.S. in Mathematics and Data Science
- **Coursework:** singular value decomposition, positive definite matrices, numerical differentiation and integration, central limit theorem, method of moments, Markov chain, basic data structure, dynamic programming, SQL database, support vector machine, Monte-Carlo simulation

EXPERIENCE

- 06/22 - 08/22 **YINHUA FUND MANAGEMENT CO., LTD.** Shenzhen, China (Remote)
(Chinese asset management firm with \$8B AUM)
Quantitative Market Analysis Intern
- Summarized and analyzed reports on relationship between investors' emotions and Chinese stock market indices
 - Investigated history of CBOE's VIX index and its negative correlation with S&P 500
 - Used visualization and ANOVA to determine whether VIX was correlated with NASDAQ and US Treasury Bond Index
- 06/21 - 08/21 **WILLIAM & MARY'S GLOBAL RESEARCH INSTITUTE** Williamsburg, VA
Geospatial Analysis Researcher
- Collaborated with another W&M undergraduate researcher to develop traffic simulation model using multi-agent transportation simulation (MATSim)
 - Built and tested geospatial agent-based model that used location data of 5,000 local residents to simulate traffic in Williamsburg area
- 05/19 - 07/19 **PEOPLE'S BANK OF CHINA** Beijing, China
Digital Currency Intern
- Collected and organized latest news on technological updates in cryptocurrency and blockchain
 - Integrated and translated documents to track Facebook's cryptocurrency, Libra

PROJECT

- 06/21 - 04/22 **RESEARCH: FINDING EIGENVALUES WITH MATLAB** Williamsburg, VA
- Developed algorithm in MATLAB to calculate eigenvalues of matrices that satisfied certain conditions of Gershgorin theorem
 - Collaborated with professor and other linear algebra experts to extend computational results to theoretical proof in published paper

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, SQL, R, C, Java, C++, MATLAB, LaTeX

Languages: English (fluent); Mandarin (native)

HARSHIN HITEN SHAH

(551) 358-8230 // harshin.shah@nyu.edu // [linkedin.com/in/harshinshah](https://www.linkedin.com/in/harshinshah)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** high-performance computing (Java), multivariate regression, supervised and reinforcement learning, Black-Scholes, econometric analysis, portfolio optimization, stochastic processes, optimal execution, exotic options
- 08/18 - 12/21 **THE PENNSYLVANIA STATE UNIVERSITY** State College, PA
B.S. in Computer Science and B.S. in Mathematics: Systems Analysis
- **Coursework:** randomized, optimization, and approximation algorithms, linear algebra, game theory, numerical analysis, Bayesian statistics, differential equations, multivariate calculus
 - **Honors:** Summa Cum Laude, Student Marshal for College of Engineering (ranked 1 out of 500+)

EXPERIENCE

- 04/22 - 07/22 **EQUITREE CAPITAL ADVISORS PVT LTD** Mumbai, India
(Proprietary investment firm)
- Options Trader (European Options)**
- Developed and executed delta-neutral options strategies based on Greeks such as short theta, short, long, and neutral vega, and short gamma
 - Implemented and managed risk of options strategies (e.g., straddles, strangles, butterflies, ratio spreads, iron condor, calendar spreads)
 - Specialized in trading strategies for weekly options on expiration dates
 - Analyzed data of Nifty and Nifty Bank options along with India VIX to determine strategies' entry and exit points
- 08/21 - 12/21 **THE PENNSYLVANIA STATE UNIVERSITY** State College, PA
Undergraduate Researcher (Game Theory)
- Collaborated with professor to reverse engineer mathematical model used in "[Cooperation in the Long Run](#)" research paper
 - Employed Matlab and Monte Carlo simulation build model and emulate original results
 - Analyzed experimental results of deterministic system; applied Mathematica to find equilibrium of Iterated Prisoner's Dilemma theoretically
 - Deconstructed paper's stochastic system using Markov processes, evolutionary game theory, PDEs, and linear programming

PROJECTS

- 08/20 - 12/20 **THE PENNSYLVANIA STATE UNIVERSITY** State College, PA
Multithreading Scheduling Framework (C)
- Implemented scheduling algorithms (e.g., FCFS, PBS, SRTE, MLFQ with semaphores)
- 01/20 - 05/20 **Cloud-based Device Driver (C)**
- Developed interface between virtual devices and file system
 - Programmed caching, networking, and IO file system commands into device operations
- 09/19 - 12/19 **Database-driven Application (Java and SQL)**
- Built database-driven classroom scheduling application

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Java, C, C++, Python, MATLAB, R, Mathematica, SQL

Languages: English (native), Hindi (fluent), Gujarati (fluent)

AADEESH SHASTRY

510-409-9975 // aadeesh.shastry@nyu.edu // www.linkedin.com/in/aadeesh-shastry

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Forthcoming Coursework:** high-performance computing, algorithmic trading, derivative pricing, portfolio and risk management, machine learning, computational statistics, alternative data
- 10/18 - 06/22 **UNIVERSITY OF CHICAGO** Chicago, IL
B.S. in Computational and Applied Mathematics, B.S. in Statistics, B.A. in Economics
- **Graduate Level Coursework:** stochastic differential equations, matrix spectral methods, high dimensional data, big data, multivariate data analysis, nonconvex optimization, Fourier analysis
 - **Undergraduate Coursework:** stochastic calculus, time series, probability theory, economic analysis, algorithms, machine learning, discrete math, linear algebra

EXPERIENCE

- 06/21 - 08/21 **UNIVERSITY OF CHICAGO** Chicago, IL
Participant in Math REU (Research Experience for Undergraduates)
- Modeled evolution of eigenvalues, eigenvectors, and entries of covariance matrices of correlated stocks stochastically using random matrix theory
 - Priced corresponding options; results accounted for volatility smile and occasionally forecasted large movements in the underlying stocks
- 01/20 - 04/20 **UNIVERSITY OF CHICAGO** Chicago, IL
Economics Research Assistant
- Scraped websites for high school and college baseball player information; performed data cleaning and analysis to aid Chicago White Sox in drafting players
- 02/19 - 09/19 **CLARK STREET CAPITAL** Chicago, IL
Quantitative Investment Research Intern
- Researched and made modifications to futures (mainly VIX) quantitative trading strategies

PROJECTS

- 09/21 - 06/22 **UNIVERSITY OF CHICAGO** Chicago, IL
S&P 500 Trading
- Used spectral matrix completion methods along with optimization methods for forecasting time series; outperformed ARIMA and had profitable backtests when forecasting stock returns
 - Applied tensor network methods to weight matrices of wide recurrent neural networks to reduce computation time and overfitting when training on high-dimensional financial data
 - Traded S&P 500 daily and had high directional test accuracy and returns
 - Trained recurrent neural networks on tick data (very large amount) sourced from TAQ across correlated assets to trade S&P 500 intraday
- 09/21 - 12/21 **UNIVERSITY OF CHICAGO** Chicago, IL
Basketball Betting
- Improved NBA power rankings by implementing optimization and time series methods in existing ranking methods (mainly spectral) to account for injuries, home-court advantage, and season progression; backtested moneyline bets profitably

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, Keras, R, Java

Activity: Grader/TA in Mathematics and Statistics Departments at University of Chicago

Awards: Eagle Scout (among top 4% of Boy Scouts of America), President's Volunteer Service Gold Award (hundreds of hours of leadership and instructional efforts at Boy Scout leadership camp), 5x AIME Qualifier, USAJMO Qualifier

TINGHAN (TIRRY) WANG

(551) 337-1901 // tinghan.wang@nyu.edu // [linkedin.com/in/tinghan-tirry-wang](https://www.linkedin.com/in/tinghan-tirry-wang)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** object-oriented programming (Java), penalized regression, decision trees, linear regression, Fama-French, Black-Scholes, stochastic processes, Hull-White model
- 09/18 - 07/22 **SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY** Shenzhen, China
B.S. in Mathematics and Applied Mathematics
- **Coursework:** calculus, linear algebra, ordinary and partial differential equations, real analysis, probability, hypothesis testing, Markov chain, Black-Scholes-Merton, time series analysis, econometrics, programming in C/C++, Java, data structures
 - **Award:** First Prize Scholarship (top 5% in college)

EXPERIENCE

- 07/20 - 08/20 **SINOLINK SECURITIES** Chengdu, China
Settlement Officer Intern
- Collected data daily on customer margins, net transfer of bank securities accounts, and total number of transactions; generated charts for management's review and monitoring
 - Inspected settlement statements from Shanghai Stock Exchange
 - Compiled intraday securities delivery list

PROJECTS

- 04/22 - 05/22 **SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY** Shenzhen, China
Financial Crash Forecasting Using LPPL (Python)
- Retrieved monthly Shanghai Composite Index data and implemented log-periodic power law (LPPL) model
 - Applied generic algorithm to estimate model parameters based on data collected; forecasted date of Shanghai stock market's next crash
 - Assessed LPPL model and identified sources of possible inaccuracies
- 11/21 - 12/21 **Matrix Multiplication and Convolutional Neural Network (C++)**
- Implemented standard matrix multiplication and Strassen's algorithm; theoretically proved time complexity of both
 - Established that below a certain threshold, one method was more efficient than the other; analyzed influencing factors for evaluating threshold (e.g., multithreading, matrix properties)
 - Parsed images using OpenCV; implemented convolutional neural network (CNN) model
- 07/21 - 08/21 **NORTH CAROLINA STATE UNIVERSITY** Raleigh, NC
Computational and Financial Mathematics and Simulations (Java)
- Implemented least-squares Monte Carlo simulation and finite difference method on valuation of American options
 - Applied weighted least squares to decrease estimation bias, and used forward Monte Carlo simulation to improve computational speed
 - Compared accuracy and computational speed of enhanced methods with traditional ones

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Java, C/C++, R, MATLAB, Python

Languages: English (fluent); Mandarin (native)

Interests: Badminton (captain of varsity team; Guangdong Badminton Championships, 2nd place in men's singles)

WEI (OLIVIA) WANG

(718) 864-1836 // weiwang@nyu.edu // [linkedin.com/in/wei-olivia-wang](https://www.linkedin.com/in/wei-olivia-wang)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Coursework:** Black-Scholes, Fama-French, Hull-White model, object-oriented programming (Java), statistical inference, algorithmic trading, deep learning, Monte Carlo simulation, portfolio optimization, penalized regression, Ito's lemma, risk-neutral valuation
- 09/18 - 06/22 **THE CHINESE UNIVERSITY OF HONG KONG, SHENZHEN** Shenzhen, China
B.B.A. in Financial Engineering
- **Coursework:** linear algebra, ODEs, calculus, probability and statistics, time series, stochastic process, Python, discrete mathematics, data analysis, econometrics, microeconomics, finance
 - **Honors/Awards:** Dean's List Honor (2019, 2020); Academic Performance Scholarship 2019-2020
- 10/20 - 06/21 **UNIVERSITY OF OXFORD** Oxford, UK
Visiting Program
- **Coursework:** probability measures, mathematical models of financial derivatives, statistical machine learning, game theory, macroeconomics

EXPERIENCE

- 11/21 - 12/21 **UBS** Beijing, China (remote)
Quantitative Analyst Assistant (Python)
- Coded pricing formulas using different methodologies (e.g., Black Scholes, Bachelier)
 - Generated European and American options pricing formulas
 - Found implied volatility of each pricing formula; drew volatility smile curve and Greeks graph of each option
- 10/21 - 11/21 **GUANGFA SECURITIES CO., LTD** Guangzhou, China (remote)
Quantitative Analyst Assistant
- Researched quantitative finance trading in China and characteristics of each strategy
 - Identified several features with strong past performance; built models for feature combinations using data and fundamental factors

PROJECTS

- 09/21 - 10/21 **NEW YORK UNIVERSITY** New York, NY (remote)
Valuation of Google's Snowball Option
- Built pricing model and created price expressions for variety of snowball option scenarios
 - Simulated 1,000 paths for Google's stock price; calculated snowball option price for each one; obtained average to determine snowball option price (using Monte Carlo simulation)
 - Presented sensitivity analysis about relationships among knock-out price, knock-in price, sigma, and option price
- 12/19 - 05/20 **THE CHINESE UNIVERSITY OF HONG KONG, SHENZHEN** Shenzhen, China
Econometrics Model: Influence of Violent Films on Violent Behaviors (STATA)
- Built econometrics model that determined causal effect of different levels of violence in movies on real-world assaults; used movie attendance in 1 week before and after as instrument variables
 - Calculated model parameters; tested multicollinearity, validity of instrument variables, and autocorrelation of error terms
 - Concluded that moderately violent movies decrease number of assaults; articulated argument for that and policy recommendations in paper and presentation

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, Java, R, STATA, Julia
Languages: English (fluent); Mandarin (native)

XUAN (SELINA) WANG

(201) 885-9392 // xuanselinawang@nyu.edu // [linkedin.com/in/xuanselinawang](https://www.linkedin.com/in/xuanselinawang)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Coursework:** object-oriented programming (Java), penalized regression, decision trees, Fama-French, Black-Scholes, stochastic processes, Hull-White model, machine learning
- 09/17 - 06/22 **UNIVERSITY OF TORONTO** Toronto, Canada
B.S. in Mathematics and Statistics
- **Coursework:** ordinary/partial differential equations, real analysis, probability theory, corporate finance, financial economics, multiple linear regression, time series analysis
 - **Awards:** Dean's List for 3 years, Merit-based New College Council In-Course Scholarship

EXPERIENCE

- 05/21 - 07/21 **BOC INTERNATIONAL (CHINA)** Shanghai, China
Quantitative Research Intern
- Wrote SQL queries to monitor expiration dates of futures contracts, dramatically reducing labor costs and improving timeliness of rolling contracts
 - Implemented SQL queries, which increased stock dividend payment prediction accuracy
 - Collaborated with portfolio managers to conduct decomposition and analysis of portfolio performance measures, such as alpha, beta, drawdown, and return drivers
 - Aggregated trading data and generated reports to facilitate team's portfolio analysis
 - Developed thorough understanding of investment instruments and their competitive edges by participating in roadshows for multiple high-profile funds
 - Created onboarding procedures; designed learning materials for incoming analysts and interns
- 04/20 - 05/20 **SHANDONG QUANLUKERUN SEED INDUSTRY** Weifang, China
(Vegetable seed producer and retailer)
Assistant Sales Associate
- Created pipeline to gather raw data from sales team; developed data cleaning and consolidation process using Excel
 - Designed reporting dashboards with processed data to automatically calculate and track revenue metrics and trends, which facilitated strategic decision-making processes
 - Presented results of sales analyses and communicated them clearly with crisp visualizations to management team

PROJECTS

- 02/22 **UNIVERSITY OF TORONTO** Toronto, Canada
Construction of Bond YTM/Spot/Future Curve (R, Excel, LaTeX)
- Consolidated raw Canadian government bond data from public sources with Excel
 - Used bootstrapping, Newton's method, and interpolation techniques to calculate rates; created visualization with R
 - Summarized results and algorithm explanations; composed final project report with LaTeX
- 04/21 **UNIVERSITY OF TORONTO** Toronto, Canada
Valuation of Convertible Debt for AMC
- Gathered capital structure information for AMC from public sources (e.g., Yahoo Finance)
 - Used put-call parity and Black-Scholes-Merton theorem to calculate value of convertible bond AMC had recently issues; cross-validated accuracy of estimations

COMPUTATIONAL SKILLS / OTHER

Programming Languages: R, Python, SAS, SQL, LaTeX

Languages: English (fluent); Mandarin (native)

Certifications: Base SAS and SAS Advanced

Interests: Guzheng and piano (highest level 10 player)

YIFAN (MICHAEL) WANG

347-429-2345 // wang.yifan@nyu.edu // [linkedin.com/in/Yifan-Michael-Wang](https://www.linkedin.com/in/Yifan-Michael-Wang)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
 - **Expected Coursework:** Black-Scholes & Greeks, stochastic processes, object-oriented programming (Java), penalized regression and time series, decision trees, machine learning
- 09/20 - 05/22 **COLUMBIA UNIVERSITY** New York, NY
B.S. in Applied Mathematics
 - **Coursework:** linear regression, partial differential equations, statistical inference, Fourier analysis, modern algebra, numerical analysis, CAPM model, advanced linear algebra, options
- 09/17 - 05/22 **DICKINSON COLLEGE** Carlisle, PA
B.A. in Mathematics
 - **Honors:** Major Honor Society, Dean's List, Pi Mu Epsilon Honor Society

EXPERIENCE

- 06/22 - 07/22 **DEUTSCHE BANK** Shanghai, China
Capstone Project, Quantitative Research
 - Conducted portfolio optimization on index ETFs and gold using mean-variance, Black-Litterman, and risk parity in Python; simulated asset weights to calculate efficient frontier
 - Extracted pricing from data APIs using Python; performed data cleaning and transformation
 - Backtested portfolio performance based on risk parity method that auto-adjusted its weights monthly; built functions to calculate annualized return, volatility, Sharpe ratio, max drawdown
- 05/21 - 08/21 **DELOITTE CONSULTING CHINA** Shanghai, China
Finance & Performance Consulting Intern
 - Developed talent scoring framework based on machine learning models such as linear regression, random forest, and gradient boosting decision tree in Python
 - Performed data collection, cleaning, and transformation of past employee evaluation data; conducted feature engineering based on dimensions such as leadership and technical skills
 - Created interactive data visualization dashboard in Tableau to perform comparative analyses

PROJECTS

- 03/22 - 05/22 **COLUMBIA UNIVERSITY** New York, NY
Machine Learning Driven Sector Return Prediction (Python)
 - Built machine learning models such as linear regression, ridge regression, and random forest to predict returns of sector ETFs such as US Technology and Financials iShares
 - Constructed features based on macro factors (e.g., CPI) and sector average fundamental ratios
- 09/21 - 12/21 **Stock Valuation Based on DCF and Black-Scholes Model (Python)**
 - Built web crawler to collect price and financial statement data from Yahoo Finance
 - Applied DCF model with growth-rate assumptions in high- and stable-growth periods; performed Monte Carlo simulations of company's value and stock prices through 10K+ paths
 - Calculated intrinsic stock value using weighted average result from DCF, MCS, and B-S models
- 02/21 - 05/21 **Future Arbitrage Using Ornstein-Uhlenbeck Model (MATLAB)**
 - Crafted Ornstein-Uhlenbeck mean version model to predict spot-to-future price ratio for gold
 - Back-tested arbitrage trading strategy using ratio to test model's efficacy

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python (NumPy, Pandas, Sklearn, SciPy), SQL, Java, R, MATLAB

Languages: English (fluent); Mandarin (native)

ZHANGYI WANG

(510) 988-3153 // zhangyiwang@nyu.edu // [linkedin.com/in/zhangyioliverwang](https://www.linkedin.com/in/zhangyioliverwang)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Coursework:** object-oriented programming (Java), financial modeling, algorithmic trading, stochastic processes, machine learning, Fama-French, Black-Scholes
- 08/18 - 05/22 **NEW YORK UNIVERSITY SHANGHAI** Shanghai, China
B.S. in Data Science, B.A. in Economics
- **Coursework:** deep learning, regression, causal inference, optimization, databases, linear algebra, multivariable calculus, probability and statistics
 - **Honors/Awards:** Dean's List for Academic Year 2020, 2021; NYU Shanghai Excellence Award; Magna Cum Laude

EXPERIENCE

- 06/22 - 08/22 **TURING FUND MANAGEMENT** Shanghai, China
Quantitative Research Intern
- Replicated and examined different versions of AlphaNet (factor mining network) with Keras
 - Conducted single factor IC testing and multi-layer testing using latest daily trading data
 - Achieved annualized rate of return of 14% and Sharpe ratio of 3.00 in 7-year period
 - Adjusted inner operators and layers of AlphaNet and improved rank IC by 1%
- 10/21 - 01/22 **GF SECURITIES** Shanghai, China
Institutional Sales Intern
- Participated in fund managers' research and data compilation for institutional clients
 - Constructed database for targeted fund products and fund managers' profiles
 - Implemented clustering analysis of fund products' comprehensive capacities using Python, and divided targeted fund products into 5 tiers
- 07/21 - 08/21 **INSTITUTE OF INTELLIGENT COMPUTING TECHNOLOGY, CAS** Suzhou, China
Financial Data Mining and Analysis Intern
- Collected sector index data; examined potential sector linkage and rotation patterns for over 120 industries from 2014 to 2021
 - Labeled data as well as extracted and categorized information from financial news and reports

PROJECTS

- 02/22 - 05/22 **NEW YORK UNIVERSITY SHANGHAI** Shanghai, China
Momentum Strategy with Deep Reinforcement Learning in Chinese Stock Market
- Implemented risk-adjusted momentum strategies using DDPG model, based on first open-source DRL framework, FinRL
 - Conducted backtesting for automatic trading with SSE 50 constituent stock portfolio
 - Achieved Sharpe ratio of 2.46 in backtesting across 12 months
- 10/21 - 12/21 **NEW YORK UNIVERSITY SHANGHAI** Shanghai, China
Music Style Recombination and Interpolation
- Extracted fundamental frequencies and chords from wav files using Python; quantified and mapped fundamental frequencies to integer-level pitches
 - Applied EC2VAE trained with pop songs to conduct interpolation of information in latent space
 - Generated new pieces using midi-level as well as wave-level synthesis methods

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, Java, MySQL, Stata, Javascript

Languages: English (fluent); Mandarin (native)

PAUL WAWSZCZYK

(646) 546-3580 // paul.wawszczyk@nyu.edu // [linkedin.com/in/paul-wawszczyk](https://www.linkedin.com/in/paul-wawszczyk)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Coursework:** object-oriented programming (Java), penalized regression, decision trees, linear regression, Fama-French, Black-Scholes, stochastic processes, Hull-White model
- Expected 12/23 **ÉCOLE CENTRALE DE LYON** Lyon, France
M.S. in General Engineering (completed all coursework for degree)
- **Coursework:** machine learning, market finance, corporate finance, economics, mathematics, computer science, civil engineering, mechanical engineering, electrical engineering
- 09/20 - 06/21 **LYON 1 UNIVERSITY** Lyon, France
B.S. in Mathematics
- **Coursework:** differential calculus, continuous probabilistic models, complex analysis, measure theory, group theory
- 09/18 - 08/20 **LYCÉE LAKANAL** Sceaux, France
Preparatory Classes for the Grandes Écoles
- **Coursework:** mathematics, physics, engineering, computer science
 - **Ranking:** 2 (out of 42) in competitive Grandes Écoles entrance examinations

EXPERIENCE

- 05/22 - 08/22 **CNRS - LIRIS LAB** Lyon, France
(Computer science research lab)
AI Research Intern
- Analyzed fairness, robustness, and their interactions in federated learning (machine learning on distributed systems)
 - Implemented state-of-the-art robustness algorithms in Python to detect and neutralize adversarial clients; improved accuracy by 30% during attacks
 - Integrated state-of-the-art bias mitigation methods using multi-objective optimization, min-max methods, and reinforcement learning
 - Collaborated with team leadership on project management; refactored project's Git and reduced its size by 90%
- 12/21 - 05/22 **ANACOURS** Lyon, France
Private Tutor
- Taught mathematics, physics, and natural sciences to high school students
 - Helped struggling students to keep up and gifted students to deepen their knowledge

PROJECT

- 09/21 - 08/22 **ÉCOLE CENTRALE DE LYON - ISFA (actuarial school)** Lyon, France
Pricing Perpetual Turbo Warrants under the GBM model
- Derived 1st pricing formula for PTW (exotic options)
 - Computed explicitly various sensitivities (Greeks, volatility smile)
 - Implemented pricing in Python and compared to real-life financial products scraped from online banks

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python (including machine learning libraries), Java, MATLAB, SQL, VBA

Languages: English (fluent), French (native), Spanish and Japanese (basic)

Interest: Chess: participated in numerous tournaments from regional to international (Elo 1900)

DAJUN XU

(949) 751-9575 // dajun.xu@nyu.edu // [linkedin.com/in/dajunxu](https://www.linkedin.com/in/dajunxu)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** stochastic calculus, Black-Scholes equation, fixed-income securities, portfolio optimization, statistical inference, machine learning, object-oriented programming
- 09/17 - 03/22 **UNIVERSITY OF CALIFORNIA, IRVINE** Irvine, CA
B.S. in Mathematics (Honors Program), B.S. in Neurobiology
- **Coursework:** real analysis, linear algebra, numerical analysis, stochastic process, partial differential equations, numerical differential equations, optimization, modeling in biology

EXPERIENCE

- 06/20 - 08/20 **UNIVERSITY OF CALIFORNIA, IRVINE** Irvine, CA
MathBioU Research Assistant
- Calculated and mapped electrostatic impacts of remdesivir nucleotide analogue on SARS-CoV-2 RNA-dependent polymerase with Poisson-Boltzmann equation
 - Visualized and rendered calculated data and identified potentially interesting protein regions for further molecular dynamics simulation
 - Mentored 2 high school students on partial differential equations and academic writing
 - Contributed to research, resulting in publication of [Probing remdesivir nucleotide analogue insertion to SARS-CoV-2 RNA dependent RNA polymerase in viral replication](#)
- 03/19 - 03/22 **Math Department Grader**
- Graded homework for more than 300 students in upper-division courses including real analysis, linear algebra, abstract algebra, and probability
 - Provided feedback to instructors and students, and wrote solutions for abstract algebra notes
 - Held Q&A sessions with students on real analysis problems and exam reviews

ACADEMIC PROJECTS

- 08/21 - 09/21 **UNIVERSITY OF CALIFORNIA, IRVINE** Irvine, CA
Image Steganography
- Used least significant bits method to conceal secret image within original one
 - Combined discrete cosine transform with neural network to reduce size of secret images
 - Trained encoder and decoder neural networks to encode secret images and scatter their information in original images
- 03/20 - 06/20 **Epidemic Modeling**
- Implemented delayed SIR model with MATLAB to fit and predict number of COVID-19 cases
 - Added delayed differential equation and equation solver to Bayesian interference and Markov chain Monte Carlo model to account for oscillation in daily COVID-19 case trend

COMPUTATIONAL SKILLS / OTHER

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

Languages: English (fluent), Mandarin (native)

JIAXIN (JACKSON) YANG

(551) 344-6049 // jiaxin.jackson.yang@nyu.edu // [linkedin.com/in/jiaxin-jackson-yang](https://www.linkedin.com/in/jiaxin-jackson-yang)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
 - **Expected Coursework:** object-oriented programming (Java), penalized regression, decision trees, linear regression, Fama-French, Black-Scholes, stochastic processes, Hull-White model
- 09/18 - 06/22 **UNIVERSITY OF INTERNATIONAL BUSINESS AND ECONOMICS** Beijing, China
B.A. in Financial Mathematics
 - **Coursework:** linear algebra, real analysis, game theory, ordinary differential equations, Bayesian statistics, ARIMA model, financial derivatives, stochastic process, risk-neutral pricing
 - **Honors/Awards:** 1st-tier scholarship (top 5%); 1st place (2x), nationwide Chinese math modeling
- 08/21 - 12/21 **UNIVERSITY OF CALIFORNIA, BERKELEY** Berkeley, CA
Exchange Program
 - **Coursework:** statistical learning, time-series analysis, optimization

EXPERIENCE

- 03/22 - 06/22 **CHINA MERCHANTS SECURITIES** Shenzhen, China
Quantitative and Fund Evaluation Research Intern
 - Used compound logic to detect holdings of 1,000+ fund managers; achieved 0.96 sample accuracy for their leading products
 - Calculated stock positions in funds using lasso; tracked industry coefficients that showed preferred sectors for heavily weighting stocks in each fund
 - Analyzed 200K+ quarterly fund reviews using natural language processing; conducted sentiment analysis and generated time-varying word clouds
- 11/20 - 05/21 **FOUNDER SECURITIES** Beijing, China
Quantitative Analyst Intern
 - Processed 3-minute data from IC and IF stock index futures contracts (2018 - 2020) in Python; built basic high-frequency timing strategy framework
 - Used intra-day high-frequency indicator MACD to construct CTA timing strategy; conducted backtest timing strategy introducing threshold and peak breakthrough
 - Achieved 3-year excess returns of 95% on IC and 129% on IF backtests; maximum retractions reached 24% and 26% and daily average win ratios were 59% and 60% on backtests

PROJECTS

- 03/22 - 05/22 **UNIVERSITY OF INTERNATIONAL BUSINESS AND ECONOMICS** Beijing, China
Examination of Relationships Among 50ETF IV, 50ETF, and Future Realized Volatility
 - Compared asymmetric effects of A-share and Hong Kong markets using Kalman filter; discovered higher sensitivity to both positive and negative returns for investors in A-share market
 - Predicted future realized volatility with VIX using linear and dynamic models; identified VHSI (VIX in HK) as unbiased estimate while 50ETF IV (VIX in China) was biased
- 09/19 - 09/20 **UNIVERSITY OF INTERNATIONAL BUSINESS AND ECONOMICS** Beijing, China
Research on Investment Strategy Based on Text Mining and Natural Language Processing
 - Analyzed news about individual stocks and constructed sentiment characteristics for it; calculated weighted average sentiment scores and constructed factors
 - Proposed stock price prediction model based on news feature extraction with SVM model and conducted empirical research; obtained regression coefficient of 0.16

COMPUTATIONAL SKILLS / OTHER

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

Languages: English (fluent); Mandarin (native)

Activity: Linear algebra and real analysis teaching assistant at University of International Business and Economics

YICHAO (ZACK) YANG

(551) 344-5163 // yichao.zack.yang@nyu.edu // [linkedin.com/in/yichao-zack-yang](https://www.linkedin.com/in/yichao-zack-yang)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** programming (Java), risk and portfolio management, Black-Scholes, stochastic calculus, data science and modeling, Fama-French, statistics and machine learning, algorithmic trading, alternative data modeling, time series analysis, FX models, asset pricing
- 08/17 - 06/21 **SUN YAT-SEN UNIVERSITY** Guangzhou, China
B.S. in Information and Computing Science
- **Coursework:** multivariate calculus, probability, statistics, ordinary/partial differential equations, graph theory, linear algebra, numerical methods, regression models (Ridge, Lasso, decision tree, SVM), operating systems, database (SQL), programming (C, C++, Python)
 - **Honors:** first class scholarship (top 5%), honorable mention of MCM/ICM (top 15%)

EXPERIENCE

- 12/20 - 06/22 **SUNSHINE QUANTITATIVE INVESTMENT** Shenzhen, China
Quantitative Researcher (C#, Python)
- Used C# to develop AI/ML based research framework for equities, commodities, and digital currency research; this became standard tool that firm's research team used
 - Applied framework to train stock regression models and calibrated model parameters; implemented trading strategies and attained annualized 20.2% rate of return in backtesting
 - Trained models with 1-minute data; developed trading strategies with higher trading frequency that reached Sharpe ratio of 1.6 and annualized 24% returns (2018 - 2022)
 - Automated model predictions and generated signals for real trading; monitored status of trading servers and developed company's trading systems
- 08/20 - 11/20 **FUTU HOLDINGS** Shenzhen, China
Quantitative Analyst Intern (Python)
- Collaborated on launch of Futu Elephant FOFs; developed performance/risk analysis algorithm to calculate and display metrics (e.g., net worth, annual return, max drawdown, Sharpe ratios)
 - Adapted open source backtesting framework for quant team, connected it to local databases, and developed modules for compatibility with different markets and assets
 - Developed trading strategy based on return volatility of ETFs, which had annualized return of 19.1% (2012 - 2020) and beat equal-weighted benchmark by 5.7% per year
- 03/20 - 04/20 **FOXON INVESTMENT** Guangzhou, China
Quantitative Research Intern (MATLAB)
- Programmed over 200 factors from latest research papers, evaluated them using information coefficients and backtesting results, and picked most effective factors for real trading
 - Generated capitalization-weighted indexes for 30 industries in China; implemented trend detection algorithm for indexes and identified attractive stocks for investment opportunities

PROJECT

- 03/19 - 10/19 **SUN YAT-SEN UNIVERSITY** Guangzhou, China
Financial Engineering Program at Southern China Center for Statistical Science (C#, Python)
- Researched TD (Tom DeMark) Sequential and TD Combo indicators, implemented modified TD indicators that turned out to fit Chinese market better, and devised strategies for trading ETFs
 - Implemented Hidden Markov and Random Forest models to predict future trends of SSEC Index; applied PCA algorithm and LSTM model to predict weekly stock returns

COMPUTATIONAL SKILLS / OTHER

Programming Languages: C#, Python, Java, MATLAB, C++, C, SQL

Languages: English (fluent), Mandarin (native)

Activity: Player, Sun Yat-Sen University basketball team (won 1st place, provincial championship)

JIAQI (GEORGE) YE

(347) 534-5818 // jiaqigeorgeye@nyu.edu // [linkedin.com/in/jiaqigeorgeye](https://www.linkedin.com/in/jiaqigeorgeye)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** object-oriented programming (Java), penalized regression, decision trees, linear regression, Fama-French, Black-Scholes, stochastic processes, Hull-White model
- 08/19 - 05/22 **NEW YORK UNIVERSITY** New York, NY
B.A. in Mathematics
- **Coursework:** multivariable calculus, linear algebra, probability, statistics, numerical analysis, real analysis, data structures, algorithms, financial accounting, economics
 - **Minor:** Computer Science
 - **Honors/Awards:** Degree with Distinction; Dean's List for 5 semesters

EXPERIENCE

- 06/21 - 08/21 **SHENWAN HONGYUAN CO., LTD**
(Top 10 securities firm in China)
- Quantitative Research Intern** Beijing, China
- Priced convertible bonds with Black-Scholes model and Monte Carlo simulation in Python; built convertible bond index in Excel
 - Audited 3 asset securitization investment projects; analyzed and integrated information and data according to clients' promotional material; crafted reports and presented to manager
 - Predicted cash flow for asset securitization investment projects using Excel; created tables to visualize data and ensured their accuracy
 - Updated and supplemented research reports of clients China Railway, China Communications Construction, China Railway Construction, and China Power Construction
- 07/20 - 08/20 **KPMG CHINA** Shanghai, China
Audit Intern
- Audited over 3,000 car replacement contracts; checked their accuracy and formatting
 - Collaborated with team members on creating and presenting audit reports to partners

PROJECT

- 11/20 - 12/20 **NEW YORK UNIVERSITY SHANGHAI** Shanghai, China
Welfare and Inequality in China
- Collected data and analyzed relationship among the level of education, medical treatment, and inequality in different provinces in China
 - Applied linear regression to calculate relationships among different provinces' data; used hypothesis testing to determine which data was relevant
 - Summarized data in Excel and applied GeoDa to make visualization about inequality; wrote reports and presented findings

COMPUTATIONAL SKILLS / OTHER

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

Languages: English (fluent), Mandarin (native)

Affiliation/Certification: CFA Level I candidate

Other Experience: English Language Teaching Assistant, Martz Educational Institute in Soochow, China

BAIHE YUAN

781-869-0307 // baiheyuan@nyu.edu // [linkedin.com/in/baihe-yuan](https://www.linkedin.com/in/baihe-yuan)

EDUCATION

Expected 12/23	NEW YORK UNIVERSITY The Courant Institute of Mathematical Sciences M.S. in Mathematics in Finance • <i>Expected Coursework:</i> Java, option pricing models, equilibrium asset pricing models, arbitrage pricing theory, risk neutral pricing, Black-Scholes theory, stochastic calculus	New York, NY
07/18 - 05/22	BRANDEIS UNIVERSITY B.S. in Economics & Mathematics Double Major; Business Minor • <i>Coursework:</i> machine learning with Python (numerical linear algebra), probability, statistics • <i>Honors and Awards:</i> Magna Cum Laude	Waltham, MA

EXPERIENCE

05/21 - 07/21	TAIKANG PENSION & INSURANCE Strategic Planning Intern • Conducted research and summarized results about public health policies in 6 regions • Tabulated data on health conditions for 1,600+ employees; used Excel and MySQL to analyze and visually present Chinese employees' health in 17 industries	Beijing, China
07/19 - 09/19	TOTO NORTH CHINA Administrative and Data Analysis Intern • Learned and applied Excel functions to collect and verify new product information; gave factory suggestions for production planning based on new products' sales volume • Improved colleagues' work efficiency by taking inventory of office supplies and ranking materials according to frequency of use	Beijing, China

PROJECTS

09/21 - 11/21	RENMIN UNIVERSITY Forecasting Chinese Stock Market (Shanghai Shenzhen CSI 300) • Developed and tested ARIMA models for analyzing Shanghai and Shenzhen stock exchange returns to forecast future returns • Created GARCH models to compare the two stock markets; found volatility of markets to be closely correlated by analyzing models' coefficients and conditional standard deviation	Beijing, China
09/21 - 12/21	BRANDEIS UNIVERSITY Movie Recommendation Algorithm • Collaborated with team members to use algorithm that made movie recommendations based on users' movie preferences • Built model with PCA, regression, and k-clustering based on 4,500 observations	Waltham, MA
09/19 - 11/19	Investment Club - Analysis of US and China Energy Sectors • Speculated future investment opportunities by collecting data on petroleum wholesaling, semiconductor, and energy industries, while analyzing impact of external factors • Wrote paper on investment opportunities after collecting and analyzing information; predicted crude oil return decrease and natural gas and renewable energy increase after 2025	

COMPUTATIONAL SKILLS / OTHER

Programming Languages: RStudio, Python, MySQL

Languages: English (fluent), Mandarin (native)

Certification: Passed CFA Level I

WEI (ANDY) YUAN

(201) 993-9268 // wei.andy.yuan@nyu.edu // [linkedin.com/in/weiandyyuan/](https://www.linkedin.com/in/weiandyyuan/)

EDUCATION

-
- | | | |
|----------------|---|-----------------|
| Expected 12/23 | NEW YORK UNIVERSITY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance <ul style="list-style-type: none">• Expected Coursework: derivatives pricing, stochastic processes, time series analysis, Support Vector Machines, object-oriented programming (Java), linear regression, Fama-French, Black-Scholes & Greeks, interest rate models, optimization | New York, NY |
| 08/18 - 05/21 | INDIANA UNIVERSITY
B.S. in Mathematics, B.A. in Economics with High Distinction <ul style="list-style-type: none">• Coursework: calculus, linear algebra, probability, statistics, ODEs, econometrics, multi-factor models, time series models• Award: James E. Moffat Scholarship (Highest GPA in Economics Department in 2020) | Bloomington, IN |

EXPERIENCE

-
- | | | |
|---------------|--|-----------------|
| 09/21 - 03/22 | GALAXY DERIVATIVES CAPITAL MANAGEMENT
Quantitative Analyst Intern <ul style="list-style-type: none">• Designed and backtested futures trading strategy with Sharpe ratio of 2.1 by using fundamental data and Backtrader library• Constructed multi-factor model and factor analysis structure that analyzed performance of fundamental and technical factors of chemical commodities futures• Applied risk parity technique to optimize fund allocation for futures trading strategy, which decreased maximum drawdown to 5% | Shanghai, China |
| 09/20 - 10/20 | ALLIED MILLENNIALS PARTNERS
Quantitative Analyst Intern <ul style="list-style-type: none">• Analyzed Charles Schwab Corporation's common stock returns using AR(1) model; tested whether those returns achieved weak efficient market criteria• Created dummy variable model and examined seasonality in financial markets by exploiting ordinary least squares regression• Charted data (e.g., PE ratio, ROE) of Schwab compared to other financial services firms' | New York, NY |
| 06/19 - 08/19 | FOUNDER SECURITY
Steel and Coal Industry Research Intern <ul style="list-style-type: none">• Aggregated Chinese steel and coal industry data; compiled it into daily reports• Collaborated with team members in building iron ore price analysis system• Forecasted decline of iron ore prices during 2nd half of 2019 correctly | Beijing, China |

PROJECTS

-
- | | | |
|-------|---|-----------------|
| 03/22 | BARUCH COLLEGE
Options Pricing System (C++) <ul style="list-style-type: none">• Applied Boost, STL library, and OOP technique to build options pricing system• Used exact pricing method for European and perpetual American options; built Greeks calculation functions• Developed numerical method pricing with Monte Carlo and finite difference methods for European options | New York, NY |
| 04/21 | INDIANA UNIVERSITY
PetroChina Company Limited Analysis (Python) <ul style="list-style-type: none">• Identified number of lags in time series models by using Bayesian information criterion• Built EGARCH and Markov switching models to analyze PetroChina on Shanghai Stock Exchange and New York Stock Exchange using Python• Concluded that basic volatility of PetroChina on Shanghai Stock Exchange was almost double of its volatility on New York Stock Exchange | Bloomington, IN |

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, Java, C++, MATLAB, VBA, SQL

Languages: English (fluent), Mandarin (native)

Activity: North American Debate Contest for Chinese University Students (Team won 2nd place)

JINMING (JIM) ZHANG

(608) 692-6164 // jinming-jim-zhang@nyu.edu // [linkedin.com/in/jinming-jim-zhang/](https://www.linkedin.com/in/jinming-jim-zhang/)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
 - **Expected Coursework:** object-oriented programming (Java), penalized regression, decision trees, linear regression, Fama-French, Black-Scholes, stochastic processes, Hull-White model
- 09/19 - 05/22 **UNIVERSITY OF WISCONSIN-MADISON** Madison, WI
B.A. in Mathematics and B.A. in Economics
 - **Coursework:** stochastic processes, probability, linear algebra, ordinary differential equations, game theory, Bayesian statistics, law of large numbers, econometrics
 - **Honors/Awards:** Dean's list (top 2%)
- 09/17 - 06/19 **SHANDONG UNIVERSITY** Ji'nan, China
B.S. in Human Resource Management
 - **Coursework:** calculus, accounting, time series analysis, statistics, economics

EXPERIENCE

- 07/21 - 09/21 **SHENWAN HONGYUAN SECURITIES** Beijing, China
Investment Banking Intern
 - Evaluated property trust and its financial solvency, analyzed risks, and created investment scheme including risk management suggestions
 - Collaborated with teammates in performing due diligence as well as drafting prospectus and investment reports
 - Analyzed financial statements released by top 30 sports teams worldwide; evaluated pandemic's impact on them
 - Co-wrote research report on multiple aspects of ice-snow sports industry in China (e.g., clothing, gear) over prior 10 years
- 04/21 - 07/21 **MORGAN STANLEY** Shanghai, China
Quantitative Analyst Intern
 - Developed Python programs based on FIX protocol to receive and store order information
 - Used high-frequency algorithm to classify, time, and quantify orders; accelerated processing by 45%; retrieved and enriched FIX messages according to different trading strategies
 - Optimized VWAP and TWAP algorithms; simplified codes and sped up processing by 20%

PROJECTS

- 01/21 - 05/21 **UNIVERSITY OF WISCONSIN-MADISON** Madison, WI
Tracking Worldwide COVID-19 Vaccination (Python)
 - Programmed database crawler that extracted information from 50 countries (e.g., HDI, GDP, and number of new vaccinations)
 - Analyzed collected data to define duration of pandemic's phases in each country
 - Predicted COVID-19 vaccination development in those countries
- 09/20 - 12/20 **Loose Monetary Policy in New Framework**
 - Analyzed how Taylor's rule fit new objectives that Federal Reserve Board stated in 2020
 - Used IS-LM model to assess effectiveness of new conventional monetary policies during economic shocks
 - Applied Expectations Hypothesis of Term Structure model and Phillips Curve to assess impact of unconventional monetary policies (e.g., credit easing) on market since 2018

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, Java, Stata

Languages: English (fluent); Korean (native); Mandarin (native)

YUXUAN (LEXIE) ZHANG

(551) 349-4915 // yuxuanlexie.zhang@nyu.edu // [linkedin.com/in/yuxuanlexiezhong](https://www.linkedin.com/in/yuxuanlexiezhong)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
 - **Expected Coursework:** OOP in Java, LSTM model, Black-Scholes formula, Ito's lemma, options pricing, derivatives trading, risk-neutral valuation
- 09/18 - 06/22 **BEIJING JIAOTONG UNIVERSITY** Beijing, China
B.S. in Statistics
 - **Coursework:** probability, linear regression, stochastic process, machine learning, real analysis, functional analysis, ordinary differential equations, time series analysis
 - **Honors:** National Recognition (team ranked top #65 of 844) in Bayesian Statistics, First Prize in Chinese Undergraduate Mathematical Contest in Modeling (team ranked in top 4% nationwide)

EXPERIENCE

- 07/21 - 09/21 **CHINA GALAXY SECURITIES** Beijing, China
Investment Banking Analyst Intern (Wind, Excel)
 - Used conditional stock selection function in Wind (Chinese version of Bloomberg) to find relevant cases for due diligence and transaction evaluation
 - Visualized data with PivotChart; cleaned multiple fixed income securities' data with VLOOKUP
 - Wrote evaluation, referring to prior 3 years' mergers, using precedent transaction analysis
- 12/20 - 02/21 **ACCENTURE** Beijing, China
Technology Consulting Assistant (SAP)
 - Collaborated with business planning and consolidation consultant to construct expense budget table in SAP; created 23 logical carding diagrams of cost allocation configuration rules
 - Maintained weekly reports and meeting minutes; listed outstanding issues in group budget; promoted customers' user training progress and optimized speed of system implementation
- 07/20 - 08/20 **PANGUWEB TECHNOLOGY**
(Regional operator of China's largest search engine, Baidu)
Data Analyst Intern (Power BI, Power Query) Shijiazhuang, China
 - Processed data with Power Query to assess sales volume of different goods for prior 10 years
 - Applied Pareto's rule to analyze sales data; drew waterfall plot in Power BI to visualize changes
 - Analyzed seasonal influence of different goods' sales data for target customers; submitted report to senior managers to facilitate their sales strategy

PROJECTS

- 06/20 - 04/21 **BEIJING JIAOTONG UNIVERSITY** Beijing, China
Empirical Bayesian Estimation in Generalized Censoring Scheme (R, MATLAB)
 - Estimated parameters of censored data with Bayesian and E-Bayesian methods based on LINEX and SE loss functions (methods for model optimization)
 - Conducted KS test and implemented Metropolis-Hastings algorithm for simulation study
 - Published two papers in SCI journals: one in [Entropy](#) and one in [Mathematical Problems in Engineering](#)
- 05/20 - 07/20 **HARVARD BUSINESS SCHOOL** Remote
Fintech and Asset Management (Python)
 - Utilized DCF model and DuPont analysis methods for Yangjie Technology Co., Ltd.
 - Predicted stock price trends in Python with ARIMA, GARCH, and Holt-Winter models; introduced SVM algorithm to process nonlinear parts of data
 - Tested and removed outliers from ARIMA and SVM models
 - Recommended purchase of Yangjie Technology shares, which achieved 148% return in forthcoming 1.5 years compared to 6% from CSI 300 Index

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, Java, R, MATLAB, SQL, Wind
Languages: English (fluent); Mandarin (native)

CHEN ZHAO

(412) 888-9306 // chen.zhao@nyu.edu // [linkedin.com/in/chen-zhao-cz](https://www.linkedin.com/in/chen-zhao-cz)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** stochastic calculus, object-oriented programming in Java, supervised and unsupervised machine learning, portfolio optimization, Fama-French, time series analysis
- 09/18 - 04/22 **UNIVERSITY OF PITTSBURGH** Pittsburgh, PA
Completed first two years at Sichuan University (China)
B.S. in Material Science and Engineering, Minor in Economics
- **Coursework:** stochastic process, probability theory, linear algebra, MLE, machine learning, partial differential equation, corporate finance, game theory, Hamilton's equations, thermodynamic modeling and numerical simulation, time-independent Schrödinger equation
 - **Honors/Awards:** Term Honors, all semesters Dean's Honor, all semesters

EXPERIENCE

- 06/21 - 08/21 **JINRUI FUTURES** Shanghai, China
(Traditional commodity hedging and arbitrage research firm)
Market Research Intern
- Interpreted and qualitatively analyzed copper futures in China under carbon-neutral policies
 - Collaborated in writing report on using iron ore and coke futures in rebar industry, hedging against adverse price movements
 - Explained logic of cross-hedging strategy in presentation to department
- 02/21 - 03/21 **CHINA INTERNATIONAL CAPITAL CORPORATION (CICC)** Shanghai, China
Quantitative Analyst Intern
- Managed large-scale datasets of Shanghai Stock Exchange 50 ETF Option in Python
 - Calculated synthetic forward prices and implied volatility of options using different market discount factors in Python
 - Calculated implicit market discount factor of options by linear regression in Python
 - Built backtesting system and tracked daily profit and loss to verify accuracy of new implicit market discount factor and reliability of strategies in MATLAB

PROJECTS

- 09/22 - 10/22 **NEW YORK UNIVERSITY** New York, NY
Stock Trading Platform Design (Python)
- Implemented functions that users can bid buy/sell prices for a stock and view the real time price
 - Designed match system by constructing new data structure according to price/time
- 03/21 - 05/22 **UNIVERSITY OF PITTSBURGH** Pittsburgh, PA
Math Research on Low-Dimensional Lotka-Volterra Models of Economic Growth (R, MATLAB)
- Contributed to developing new mathematical model to interpret different countries' economic growth trends; discovered nonlinear relationships among several variables; created new features
 - Developed algorithms that combined linear regression, sparse identification, and particle swarm optimization to calculate model's parameters; checked parameters' convergence
 - Analyzed model's Hamiltonian system and numerically simulated it
 - Visualized evolution equations and calculated the attractors of dynamic system
- 07/22 - 08/22 **Kaggle Competition: American Express – Default Prediction (Python)**
- Managed large-scale dataset with time series and filled in missing data
 - Implemented several methods (e.g., QDA, PCA, SVM) to predict default probability
 - Designed parallel computing algorithms to speed-up calculation

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, JAVA, MATLAB, R

Languages: English (fluent); Mandarin (native)

YUAN (LEO) ZHAO

(347) 205-1173 // yuanleo.zhao@nyu.edu // [linkedin.com/in/yuan-leo-zhao](https://www.linkedin.com/in/yuan-leo-zhao)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** scientific computing, risk management (VaR and stress testing, XVA), trading energy derivatives, Monte Carlo, Black-Scholes, stochastic processes
- 09/18 - 05/22 **NEW YORK UNIVERSITY** New York, NY
B.A. in Mathematics, Minor in Computer Science & Business Studies
- **Coursework:** ODE, theory of probability, real analysis, linear regression, algorithm, data structures (Java), logistic regression, time series (ARIMA-GARCH), statistics, CAPM
 - **Honors/Awards:** Cum Laude University Honor Scholar (Top 15%)

EXPERIENCE

- 06/21 - 08/21 **INDUSTRIAL SECURITIES** Shanghai, China
Capital Markets Intern
- Extracted 2 years of Alibaba stock data and performed time series analysis by fitting ARIMA-GARCH model; analyzed 85% low accuracy backtesting results from Ant Group's IPO failure; improved model by adding 3 more years' data to increase accuracy
 - Researched 5 key differences (e.g., tax and exit policies) for IPO listings on China A-Shares versus Hong Kong Stock Exchange, streamlining client communication process
- 07/19 - 08/19 **GUOTAI JUNAN SECURITIES** Shanghai, China
Corporate Finance Intern
- Constructed 10 investment profiles for prospective investors by assessing companies' fundamentals and major shareholders' holdings; conducted competitor analysis
 - Gathered key information from Wind database to perform research on global down jacket industry; compared and analyzed materials, price levels, sales channels, and profits
 - Reviewed Keqian Biology's pre-IPO application documents and summarized key details (e.g., steering committee, fundamentals, vaccine market) for colleagues

PROJECTS

- 04/22 - 05/22 **NEW YORK UNIVERSITY** New York, NY
Time Series Forecasting (Python)
- Built ARIMA-GARCH model to construct 95% forecast intervals for Bitcoin's forthcoming 50 days' prices; selected model based on ACF, PACF, AIC_c; backtested with 95% accuracy
- 05/20 - 06/20 **ETF GLOBAL FINANCIAL SERVICES** New York, NY
Quantitative Trading (Python)
- Designed pairs trading strategy with ARNC and UNG stocks using data from prior 3 years; conducted Engle-Granger cointegration test; achieved Sharpe ratio of 2.07
 - Employed QSTrader package to perform buy-and-hold trading strategies with Ray Dalio All Weather Portfolio; achieved Sharpe ratio of 1.30

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Java, Python, C, MATLAB, R, HTML5, SQL

Languages: English (fluent); Mandarin (native)

Affiliations/Certifications: Neural Networks and Deep Learning, HTML5, SQL, Tableau

YILONG (AARON) ZHOU

(929) 832-6786 // yilong.zhou@nyu.edu // [linkedin.com/in/yilong-Aaron-zhou](https://www.linkedin.com/in/yilong-Aaron-zhou)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** stochastic calculus, Brownian motion, Fama-French, Black-Scholes, portfolio management and risk management, risk neutral valuation, lognormal hypothesis
- 09/19 - 05/22 **STONY BROOK UNIVERSITY** Long Island, NY
B.S. in Applied Mathematics and Statistics
- **Coursework:** one-way analysis of variance, regression analysis, algebra of expectations, discrete and continuous probability distributions, multivariate distributions, linear algebra, differential equations, descriptive statistics

EXPERIENCE

- 09/21 - 12/21 **STONY BROOK UNIVERSITY** Long Island, NY
Undergraduate Teaching Assistant, Data Analysis Course (RStudio)
- Taught class of 50 students online and in person
 - Designed different levels of exercises according to students' learning abilities
 - Corrected exams and assignments in collaboration with professor
 - Summarized students' most important takeaways and questions for discussion with professor
- 01/22 - 02/22 **Undergraduate Teaching Assistant, Laboratory Statistical Course (RStudio, SAS)**
- Prepared for course with professor; taught over 20 college students online and in person
 - Guided students to think about abstract questions and summarize their takeaways

PROJECTS

- 3/21 - 04/21 **STONY BROOK UNIVERSITY** Long Island, NY
Data Analysis Coursework (R)
- Analyzed 15 beauty product conglomerates' sales statistics
 - Produced industry trend reports with R analysis
- 11/21 - 11/21 **HD EDUCATION**
- Financial Markets and Portfolio Management Coursework**
- (Provides training to Chinese students at 40 US universities) Shenzhen, China and New York, NY (remote)
- Analyzed stocks using Markowitz and index models; identified optimal investment portfolios
 - Calculated and compared yield and standard deviation of each portfolio under the two models
 - Used data solver in Excel to arrive at maximum Sharpe ratio points
 - Completed data visualization and drew diagrams; provided feasible investment suggestions for ordinary as well as risk-averse investors

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Java, Python, R, Excel

Languages: English (fluent), Mandarin (native)

YUQI (ZOE) ZHOU

(858) 230-4286 // yuqizoe.zhou@nyu.edu // [linkedin.com/in/yuqizoezhou](https://www.linkedin.com/in/yuqizoezhou)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
 - *Expected Coursework:* Black-Scholes, risk management, object-oriented programming (Java)
- 09/18 - 06/22 **UNIVERSITY OF CALIFORNIA, SAN DIEGO** San Diego, CA
B.S. in Applied Mathematics and B.A. in Economics
 - *Coursework:* capital asset pricing model, arbitrage pricing theory, futures hedging techniques, options trading strategies, econometrics, probability, statistics, real analysis, regression models, Monte Carlo simulation, decision trees, corporate finance

EXPERIENCE

- 03/21 - 05/21 **ZHESHANG SECURITIES** Shanghai, China
(Top 20 securities firm in China)
Sales & Trading Intern
 - Researched Chinese government bonds and US Treasury market, investigated macro drivers (e.g., interest rates, inflation), and summarized key takeaways in research report
 - Analyzed credit bonds for coal, steel, oil, and electricity industries, developed data analysis for steel industry using R, and produced carbon-neutral investment research report
 - Drafted weekly market summary; gathered 15 liquidity indicators (e.g., DR rates, OMO and UST yields in rates market); assessed credit risk of defaulted bond entities
 - Approached ~200 financial institutions on Bloomberg, administered cross-border transactions for new clients, such as Deutsche Bank, and updated daily trading information and volumes
- 07/20 - 09/20 **SHANGHAI PUDONG DEVELOPMENT BANK** Guangzhou, China
Fund Custody Intern
 - Tracked private equity funds, contacted ~300 portfolio managers, and updated custodian records
 - Examined funds' capital backgrounds and investment restrictions; conducted risk verification
 - Converted funds' paper files into digital ones and built 300 digital transfer records
- 08/19 - 09/19 **GUANGFA SECURITIES** Guangzhou, China
Debt Capital Market Intern
 - Collaborated in drafting company's semi-annual report; sorted bond issuance documents and supplemented company and business introduction sections in offering memorandum
 - Created status-tracking tables for bonds of 4 Chinese provinces in Excel spreadsheets and learned issuance information for bonds from Wind Financial Terminal

PROJECTS

- 07/21 - 01/22 **UNIVERSITY OF CALIFORNIA, LOS ANGELES** San Diego, CA
High-frequency Stock Price Movements and Market Microstructure (R)
 - Calculated 4 US tech stock return rates by collecting 30-year price data; designed 3 types of portfolios and efficient frontiers based on Markowitz portfolio theory
 - Constructed and backtested volatility-managed model portfolio
- 01/21 - 03/21 **UNIVERSITY OF CALIFORNIA, SAN DIEGO** San Diego, CA
Data Analysis and Inference Projects (Python)
 - Designed statistical analysis methods and investigated correlations among 5 topics
 - Used data science techniques such as implementing Poisson Process model, Mixed-Effect model, and single exponential smoothing to complete 5 research reports

COMPUTATIONAL SKILLS / OTHER

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

Languages: English (fluent), Mandarin (native), Cantonese (basic)

RUIHAN ZHUANG

(858) 568-0640 // ruihanzhuang@nyu.edu // [linkedin.com/in/RuihanZhuang](https://www.linkedin.com/in/RuihanZhuang)

EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** Machine learning, risk management, portfolio management, strategy simulations, data science, extreme-value theory, copulas, VaR, expected shortfall, stochastic calculus, Black-Scholes, arbitrage, risk-neutral valuation, log-normal hypothesis, derivatives, Feynman-Kac equation
- 09/18 - 03/22 **UNIVERSITY OF CALIFORNIA SAN DIEGO** San Diego, CA
B.S. in Mathematics-Computer Science
- **Coursework:** OOP (Java, C++), data structures, agile methods, algorithms (e.g., greedy, graphs), statistics (hypothesis testing, MLE estimators, multivariate densities, Poisson process), econometrics (linear regression, IV estimators), multivariate calculus, linear algebra
 - **Honors/Awards:** 2021-2022 UC San Diego Physical Science Dean's Undergraduate Award for Excellence, Cum Laude

EXPERIENCE

- 07/22 - 08/22 **E FUND MANAGEMENT** Guangzhou, China
(Largest public fund in China, AUM \$236B)
- Equity Analyst Intern**
- Analyzed Chinese automobile company BYD and effects of government policies on new-energy vehicle industry
 - Reviewed sell-side research reports and government statistics to determine causes of BYD's success with its best-selling models
 - Summarized BYD's advantages in battery and semiconductor production
- 07/21 - 08/21 **CHENGQI ASSET MANAGEMENT** Shenzhen, China
(AUM \$4B)
- Quantitative Research Intern**
- Developed alpha-generating trading strategies using Python by leveraging stock market data, sell-side analytics forecasts, and company financial reports
 - Backtested alpha signals and analyzed their performance after risk factor and sector neutralization; improved several alpha signals
 - Experimented generating alpha by extracting market sentiment using sell-side forecasts

PROJECTS

- 12/20 - 06/21 **UNIVERSITY OF CALIFORNIA SAN DIEGO (Javascript, CSS)** San Diego, CA
Contribute to Research in Combinatorial Game Theory and App Development
- Conducted research and developed 2 mathematical games – as website and native app; created installation packages for MacOS and Windows; designed games' UI
 - Added new modules to open-source toolkit commonly used in combinatorial game theory to compute games' theoretic values
- 07/20 - 09/20 **INDEPENDENT PROJECT (Python)** Qingdao, China
Application of Machine Learning Models
- Designed and built housekeeping robot that recognizes human figures and controls flashlight to track and deter intruders
 - Customized heavy-duty pan-tilt hat, ensuring sufficient torque and control of flashlight rotation
 - Researched different machine learning models to find human-shape-recognition model suitable for robot with limited processing power

COMPUTATIONAL SKILLS / OTHER

Programming Languages: C++, C, Java, Python

Languages: English (fluent); Mandarin (native)

THE MOST ASTUTE. THE MOST CAPABLE. THE MOST PREPARED.

**OUR STUDENTS ARE READY
TO GET WORK.**

Connect with the students directly, or contact
MathFin's Office of Career Services at:
cims-mathfin-careerservices@nyu.edu