We are pleased to provide you with the resumes of the first year students in the Courant Institute’s Mathematics in Finance Master’s Program. They started the program in September 2023 and graduate from our Master’s program in December 2024. We hope you will consider them for 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. Besides the “classical” topics in quantitative finance, 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. Many of our instructors are senior 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 in this document, and at [math-finance.cims.nyu.edu](http://math-finance.cims.nyu.edu).

Sincerely yours,

Petter Kolm
DIRECTOR

Jonathan Goodman
CHAIR

Leif Anderson
INDUSTRY ADVISOR
THE CURRICULUM HAS FOUR MAIN COMPONENTS

For more information about the program curriculum and course descriptions, visit math-finance.cims.nyu.edu/academics.

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.
## OUR CURRICULUM

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<td><strong>PRACTICAL FINANCIAL APPLICATIONS</strong></td>
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For more information about the program curriculum and course descriptions, visit [math-finance.cims.nyu.edu/academics](http://math-finance.cims.nyu.edu/academics).
SRUJITHA AMBATI

(617) 869-2805 // sa8220@nyu.edu // linkedin.com/in/srujithaambati/

EDUCATION

Expected 12/24 NEW YORK UNIVERSITY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
  • Expected Coursework: derivatives pricing, quantitative risk and portfolio management, risk
    neutral pricing, capital asset pricing model, Hull-White model, stochastic processes, time series
    analysis, linear regression, Fama-French, Black-Scholes and Greeks, interest rate models
07/17 - 05/22 INDIAN INSTITUTE OF TECHNOLOGY KHRAGPUR
B.Tech and M.Tech Dual Degree in Civil Engineering
  • Relevant Coursework: linear algebra, probability and statistics, financial statements analysis,
    valuation of securities, time value of money, working capital management, portfolio theory

EXPERIENCE

07/22 - 08/23 JPMORGAN CHASE & CO.
Mumbai, India
Quantitative Analyst, CIB - Global Markets P&A, and CCAR (RStudio, Python)
  • Forecasted firm’s revenues for upcoming 9 quarters for CCAR 2023 and risk appetite exercises
  • Performed comprehensive statistical analyses of monthly revenue data for 10 years’ day 1, clean,
    and carry trading types
  • Employed STL (seasonal decomposition of time series) analysis to understand seasonality and
    trends; ensured models' robustness by validating it against 15 statistical tests
  • Developed quantitative and qualitative models for forecasting Prime Brokerage, Fixed Income
    Financing, and Clearing Businesses’ revenues in NA, EMEA, and APAC
  • Partnered with Corporate & Investment Banking Treasury (CIBT) and Model Risk Governance
    & Review (MRGR) teams, and business heads for model approvals
  • Managed firm’s Commodities business submission for CCAR 2023 with, end-to-end ownership
    from execution to submitting results, to US Federal Reserve for final regulatory review
05/21 - 07/21 MASTERCARD
Pune, India
Software Quality Intern (SQL, Java)
  • Created test plan with set of 500+ positive, negative, and edge cases to build web application for
    process management in software deployment
  • Executed test plan and reported bugs found to improve web application
  • Improve enterprise web application by executing test plan and reporting bugs
  • Conducted database integration validation through SQL in SSMS; leveraged Postman for API

PROJECTS

05/20- 06/20 INDIAN INSTITUTE OF TECHNOLOGY KHRAGPUR
Kharagpur, India
Bus ETAs Using Machine Learning (Python)
  • Predicted estimated arrival times for design and implementation of intelligent urban bus service
  • Developed hybrid model based on support vector regression analysis with rbf kernel
  • Improved model’s R-Squared metric by 17% by using dynamic Kalman filtering and additional
    relevant features such as land use, type of lanes, and dwell time
08/21 - 09/21 ANALYTICS VIDHYA
Loan Approval Prediction (Python)
  • Identified customer segments to validate customers’ eligibility for loans to automate approvals
  • Predicted approval decisions using logistic regression, random forest, and XGBoost models
  • Obtained 73% accuracy with XGBoost binary classification default parameters
  • Improved accuracy to 94% by tuning hyperparameters of XGBoost using grid search

COMPUTATIONAL SKILLS / OTHER

Programming Languages: C, C++, Python, Java, R, MATLAB
Languages: English (fluent), Hindi (fluent), Telugu (native)
KAILAI CHEN
(929) 313-0966 // kailai.chen@nyu.edu // linkedin.com/in/kailai-chen

EDUCATION

Expected 12/24
NEW YORK UNIVERSITY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- Coursework: Stochastic calculus, Black-Scholes, Fama-French, algorithmic trading and quantitative strategies, risk & portfolio management, statistical arbitrage, Hull-White model, penalized regression, decision trees, data science, crytopcurrency and blockchains

09/18 - 06/22
UNIVERSITY OF LEEDS
Leeds, UK
B.S. in Computer Science
- Coursework: calculus, linear algebra, probability, procedural programming, machine learning, object oriented programming, artificial intelligence, data mining, algorithms and data structures, software engineering, parallel computation, combinatorial optimization
- Honors/Awards: Second-Class Honors, Upper Division

EXPERIENCE

09/22 - 12/22
WORLDQUANT BRAIN
Global Alphathon 2022 (Quant Competition)
- Attained Gold level in WorldQuant Challenge
- Ranked in top 5% for Stage 1, and won 3rd place in US for Stage 2
- Identified 20 high-quality alphas, with Sharpe over 1.25 (3 of these alphas were higher than 4); turnover was within 70%

09/20 - 12/20
CHINESE ACADEMY OF SCIENCES
Beijing, China
Institute of Computing Technology
Machine Learning Algorithms Researcher Intern
- Analyzed online transaction data through machine learning algorithms to research consumer behavior and preferences of different user groups
- Processed 500k+ sets of original online transaction data through ETL and PCA
- Used K-means algorithm to cluster data; visualized data set
- Published paper ‘On a Machine Learning Based Analysis of Online Transaction’ for 2022 3rd International Conference on Machine Learning and Computer Application

PROJECTS

01/20 - 03/20
FUDAN UNIVERSITY
Shanghai, China
Face Recognition Based on Deep Learning and Pattern Recognition
- Used Python to achieve PCA algorithm and LBP feature algorithm
- Combined Haar-like feature extraction algorithm and Adaboost to train feature classifier
- Built convolutional neural network and trained face recognition model; improved accuracy of face recognition from 78% to 86%

02/22 - 05/22
UNIVERSITY OF LEEDS
Leeds, UK
Convolutional Neural Network Model for Video Analytics in Edge Computing
- Detected images in which background had changed, using Edge AutoTuner framework
- Used VIRAT Video Dataset and chose 10 videos from as datasets and trained them using model
- Modified structures and parameters of edge model by changing neural network
- Optimized algorithms by adjusting structure of neural networks; added residual networks to compensate for errors

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, Java
Interest: Texas Hold’em Poker (semi-professional)
Languages: English (fluent), Mandarin (native)
QUANQUAN CHEN
(201) 626-0959 // q.chen@nyu.edu // linkedin.com/in/Quanquan-Chen

EDUCATION

Expected 12/24  NEW YORK UNIVERSITY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** machine learning, financial asset trading, portfolio management, risk management, object-oriented programming in Python, Black-Scholes, Brownian motion, Feynman-Kac equation

09/19 - 06/23  ZHEJIANG UNIVERSITY
Hangzhou, China
B.S. in Mathematics and Applied Mathematics
- **Coursework:** mathematical modeling, combinatorial optimization, interpolated theory, parameter estimation, hypothesis tests, Bayesian statistics, calculus, linear algebra, real analysis, ordinary differential equations, law of large numbers, Newton method, corporate finance
- **Honors/Awards:** Outstanding Graduate, 2nd Prize of preliminary Chinese Mathematics Competition, 1st-Year Students’ Scholarship, 3rd-Year Students’ Scholarship, Academic Excellence Award, Outstanding Community Service Award

EXPERIENCE

06/22 - 11/22  SHENWAN HONGYUAN SECURITIES RESEARCH CO., LTD.
Shanghai, China
Analyst Assistant / Intern, Department of Financial Engineering (Python)
- Collected product data (e.g., trading volume, trading expenses, total cost, investment income) on nearly 300 fund of funds by web crawling in Python; provided data for follow-up research
- Investigated several pieces of information related to mutual recognition of funds; summarized its development, features, and difficulties
- Obtained and examined data about 10 overseas pension FOFs; summarized their features and advantages; produced client report
- Collaborated with colleagues to analyze 10 case studies of fixed income funds (e.g., in US, Japan) on features, purposes, and target groups to derive insights for Chinese fixed income funds
- Extracted and anatomized low-cost fund data; summarized competitive advantages and background, as well as business strategies of investment companies; produced client report
- Acquired and analyzed data related to stock index futures products; summarized developing status, historical changes, and background

PROJECT

03/23 - 06/23  ZHEJIANG UNIVERSITY
Hangzhou, China
Thesis: Extreme Value Distribution of Censored Samples and Its Applications (Python)
- Researched adaptive type-II progressive hybrid censored data (combination of type-I and type-II censored data, which exists widely in medical experiments)
- Estimated parameter using two methods, each with two loss functions: single-layer Bayesian estimation and E-Bayesian estimation, with square error and linear exponential loss functions
- Conducted simulation study to assess and compare accuracy of 4 estimations, and applied them to real data
- Made large improvement (with nearly $10^4$ in mean-square error) in accuracy of Weibull distribution’s parameter estimation of adaptive type-II progressive hybrid censored data

COMPUTATIONAL SKILLS / OTHER

*Programming Languages and Software:* Python, MATLAB
*Languages:* English (fluent), Mandarin (native)
SICHEN (FRODO) GU
(347) 449-4983 // sichen.gu@nyu.edu // linkedin.com/in/sichen-gu/

EDUCATION

Expected 12/24  NEW YORK UNIVERSITY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** object-oriented programming, algorithmic trading, Black-Scholes model, VaR, covariance matrix estimation, Monte Carlo simulation, stochastic process

09/19 - 05/23  NEW YORK UNIVERSITY
The Courant Institute of Mathematical Sciences
B.A. in Mathematics and Economics, Minor in Computer Science
- **Coursework:** linear regression, derivatives pricing, machine learning, real analysis, statistics, econometrics, ordinary differential equations, macroeconomic analysis, optimization
- **Honors/Awards:** Mathematical Association of America Problem of the Month Winners Circle, Dean’s List (all academic years), NYU Founders Day Award, NYU CAS/GSAS Scholarship

EXPERIENCE

06/23 - 08/23  CHUANG YUAN FUTURES
(1st futures company listed on NEEQ) Shanghai, China
**Investment Research Intern (Python, Wind)**
- Maintained and updated database of 166 municipal bonds; extracted and cleaned 145 monthly macroeconomic indicator data from FRED and Wind
- Implemented Dynamic Factor Models on Nowcasting model to forecast lower frequency macroeconomic indicators; formulated adjustments to weights, based on predictions
- Initiated Hierarchical Risk Parity Model research; analyzed relevant papers; plotted dendrogram for 150 stocks; presented model in group; facilitated future implementation of HRP at company

05/22 - 08/22  ASTOR REALTY CAPITAL
($2.27B in real estate AUM) New York, NY
**Private Equity Intern**
- Performed quantitative and qualitative due diligence on prospective investments; computed net operating income, yields on cost, and profits of waterfall structures
- Collaborated with analysts to filter out investment project, which generated IRR of 25%
- Developed capital raising research for LATAM investment institutions in response to Fed rate hikes; conducted macroeconomic analysis to assess their real estate investment decisions
- Contacted 100+ investment institution prospects within 3 weeks after rate hikes

PROJECTS

03/23 - 05/23  NEW YORK UNIVERSITY
**Quantifying Musical Evolution and Revolution (Python)**
- Built Cosine Similarity and Eigenvector Centrality Model for dataset of 50k musicians; evaluated similarity among genres and relative popularity
- Implemented PCA on k-means clustering; conducted multi-class classifications on music genres with random forest, AdaBoost, decision trees, and neural networks
- Achieved AUC of 0.92 in predicting music genres from their features

02/22 - 05/22  **Mathematical Modeling of Nonlinear Dynamic Systems (Python)**
- Solved nonlinear dynamics functions by performing dimensional analysis, linear approximation, and perturbation method
- Applied Euler’s Method to compute numerical solutions for damping pendulum; visualized dynamics using Matplotlib; examined differences between analytical and numerical solutions
- Rationalized choices of 3 models and 9 parameters; set up equations and interpreted results

COMPUTATIONAL SKILLS / OTHER

*Programming Languages:* Python (Numpy, Pandas, Scikit-learn, PyTorch), Java, C, R, Julia
*Languages:* English (fluent), Mandarin (native), Italian (intermediate)
*Interests:* Go 5th dan (highest amateur rank), Travel (222 cities in 30 countries)
*Activities:* Teaching Assistant, Grader, and Peer Mentor for undergraduate math majors at NYU Courant
SHENJUN (JAMES) GUAN
(812) 223-6448 // james.guan@nyu.edu // linkedin.com/in/jamesguanshengjun

EDUCATION

Expected 12/24
NEW YORK UNIVERSITY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- Expected Coursework: OOP (Java, Python), machine learning, Black-Scholes Model, stochastic volatility model, local volatility model, time series analysis, fixed-income model

09/18 - 05/23
ROSE-HULMAN INSTITUTE OF TECHNOLOGY
Terre Haute, IN
B.S. in Mathematics and Data Science (Double Major)
- Coursework: stochastics and deterministic models in operating research, Bayesian statistics, applied linear regression, data mining, deep learning, machine learning, numerical method
- Honors/Awards: Dean’s list 9 quarters, cum laude, Henry Turner Eddy Award for Application of Mathematics for 2 students out of class of 2023

PROJECTS

09/22 - 05/23
ROSE-HULMAN INSTITUTE OF TECHNOLOGY
Terre Haute, IN
Math Senior Thesis Research: Stochastic Model and Option Pricing (Python)
- Conducted literature reviews on stochastic volatility models and parameter estimation methodologies including extended Kalman filter
- Experimented with Double-Heston model with stochastic interest rate component to derive closed-form pricing formula for European option to extend model flexibility in theory
- Solved pricing equations under stochastic models with implicit finite schemes
- Implemented rolling-window BSM model trading strategy within VectorBT (Python) framework on FRCB stock, which resulted in more than 50% return in long-only position during backtesting

06/22 - 08/22
Rose-Hulman Summer Research Fellowship (R, Python)
- Reviewed literature on power of one-sample permutation, bootstrap tests, and student’s t-test
- Boosted simulation speed on GPU by 100 times and rendered interactive data visualization from results in R to compare power of statistical tests across sample sizes

12/22 - 02/23
NoSQL Database for Trading System (Python)
- Led 3-member team to engineer database that stored asset information, stock data, and company news data using Mongo, Neo4j, and InfluxDB
- Developed queue system using Kafka between Alpaca API and database systems

1/21 - 02/21
Machine Learning on SPY500 (Python)
- Used time-series modeling, KNN, random forests, PCA on SPY500 and VIX data to predict binary one-day return, with 56% accuracy
- Infused risk management signals generated by VaR and ES models with ML for prediction

06/21 – 09/21
Certificate in Quantitative (CQF) Finance Program Projects (Python)
- Solved Black-Scholes equation using partial differential equation and Martingale approaches
- Developed and backtested trading strategy using signals from random forest and trees

01/21 –02/21
Coffee Controller System Software Design and Implementation (Java)
- Led 4-member team to design and implement coffee controller system that involved business order management platform, coffee controller processing, and data layers
- Incorporated factory, observer, and decorator software design patterns

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, Java, R, NoSQL, MATLAB, Maple
Languages: English (fluent) and Mandarin (native)
Affiliations/Certifications: Passed FRM Level 1, Deep Learning Specialization on Deeplearning.ai, AI for Trading on Udacity Program, Golden Level in WorldQuant Challenge (alpha research)
SHUPENG (WAYNE) GUAN
(201) 600-3740 // wayneguan@nyu.edu // linkedin.com/in/wayneguan

EDUCATION

Expected 12/24  NEW YORK UNIVERSITY  
The Courant Institute of Mathematical Sciences  
M.S. in Mathematics in Finance

- **Expected coursework:** object-oriented programming, data science and data-driven modeling, financial securities and markets, risk and portfolio management, stochastic calculus, algorithmic trading, machine learning, XVA, capital and credit derivatives, Monte Carlo simulation

09/21 - 06/23  UNIVERSITY OF BIRMINGHAM  
B.S. in Mathematics with Honors

- **Coursework:** applied statistics (ML), integer programming, numerical methods and programming, probability, differential equations, real and complex analysis, multivariable calculus, linear algebra, mathematical finance (options pricing)

09/19 - 06/21  HUAZHONG UNIVERSITY OF SCIENCE AND TECHNOLOGY  
B.S. in Finance

- **Coursework:** Python programming, econometrics, microeconomics, macroeconomics, accounting, game theory, banking, public finance
- **Honors/Awards:** Freshman Award scholarship (50% tuition)

EXPERIENCE

08/22 - 09/22  CHINA SECURITIES  
Wealth Management Analyst Intern  
Shanghai, China

- Collaborated on promoting volatile derivative products to potential trust fund investors; specialized in consulting on specific structured derivatives products (e.g., autocallables)
- Communicated with PE clients, and provided customized financial services to implement trading needs for stocks and bonds
- Analyzed financial statements, gathered company data, and drafted reports for senior analysts to conduct industry research
- Adjusted customers’ portfolios based on Sharpe models, and achieved significant increase (>25% on average) in Sharpe ratio

PROJECT

02/22 - 05/22  C.I.S. EDUCATION  
Research on Potential Function of Bitcoins in Portfolio Management (Excel, Python)  
Birmingham, UK

- Developed multiple portfolios comprising cryptos, gold, S&P 500 index, and bonds
- Constructed 3 optimal portfolios based on maximum Sharpe ratio, and backtested their performance to determine best asset combination
- Analyzed role that bitcoin played in portfolios under different market scenarios; detected that bitcoin did not demonstrate hedging properties, as gold did, in portfolios

02/22 - 02/22  Mathematical Contest in Modeling 2022  
Trade-off between Return and Risk (Python, MATLAB)  
Online

- Constructed predictive model based on ARIMA to capture gold price trend
- Applied mean-variance analysis to contain volatility of positions
- Backtested various strategies using Python; ultimate strategy chosen had annualized return of 27.09% and maximum drawdown of -16.24% within 5-year window

COMPUTATIONAL SKILLS / OTHER

*Programming Languages & Software:* Python, R, MATLAB, SQL, C++, LaTex, Stata
*Languages:* English (fluent), Mandarin (native)*
TIANBI HU
(929) 313-6316 // tianbi.hu@nyu.edu // www.linkedin.com/in/tianbi-hu

EDUCATION

Expected 12/24
NEW YORK UNIVERSITY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance

- **Expected Coursework:** algorithmic trading, equity derivatives, risk and portfolio management, currency derivatives, interest rate models, credit modeling, data-driven modeling, OOP

09/18 - 06/22
CAPITAL NORMAL UNIVERSITY
Beijing, China
B.S. in Mathematics and Applied Mathematics

- **Coursework:** multivariable calculus, probability theory, mathematical statistics, linear algebra, ODE, complex analysis, graduate-level econometrics; intermediate macroeconomics
- **Honors/Awards:** Dean's List with Distinction (Top 4%), Outstanding Graduate Thesis, Award for Outstanding Research & Innovation, Chinese College Mathematics Competition (1st Place)
- **Thesis:** Parameter Calibration of SVJ Option Price Model Based on COS Method and Neural Network

EXPERIENCE

01/23 - Present
FREELANCE CRYPTOocurrency TRADER
Beijing, China

- Design and backtest cryptocurrency trading strategy for over $5M in cryptocurrencies, with average monthly return of 4.77% by using technical data
- Optimize fund allocation for cryptocurrency trading strategy, which decreased maximum drawdown to 2%
- Construct multi-factor model and factor analysis structure that analyze performance of technical factors of multiple cryptocurrencies' performance

03/22 - 05/23
PEOPLE'S BANK OF CHINA, SCHOOL OF FINANCE
Beijing, China
Research Assistant (Python, R, MATLAB)

- Collaborated with 3 colleagues to conduct macro-finance research on impact of carbon emissions on corporate profitability
- Processed data and built models in Python, R, and MATLAB as well as monitored model derivation and proofs as main programmer
- Chose multiple cutting-edge and influential entrepreneurial finance and economic growth papers; summarized relevant ones for colleagues and professors

04/20 - 10/20
FOUNDER SECURITIES CO., LTD
Beijing, China
Industry Research Intern

- Conducted independent secondary market industry research of military and defense sectors
- Investigated industry and value chains of Chinese military and defense industry through company reports, field research, and interviews with executives
- Developed dynamic 3D financial models that normalized Bloomberg and Wind industry data
- Partnered with cross-functional teams on consulting with mutual fund and private equity clients to provide asset management strategy

COMPUTATIONAL SKILLS / OTHER

- **Programming Languages:** Python, R, MATLAB
- **Languages:** English (fluent), Mandarin (native)
EDUCATION

Expected 12/24

NEW YORK UNIVERSITY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- Expected Coursework: time series analysis, scientific computing, risk and portfolio management, dynamic asset pricing, algorithmic trading, equity derivatives

07/19 - 05/23

INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
Mumbai, India
B.Tech. in Engineering Physics and Minor in Computer Science and Engineering
- Coursework: multivariate calculus, stochastic calculus, nonlinear dynamics, linear algebra, probability, statistics, machine learning, modeling and simulation

EXPERIENCE

06/23 - 08/23

TATA INDUSTRIES LTD.
Mumbai, India
Investment Analyst Intern (Excel)
- Designed hub-and-spoke plant framework for rapid extraction and fermentation of sweet sorghum bioethanol, thereby boosting ROI projection on existing financial models
- Evaluated investments and incubator opportunities globally via research and financial analysis
- Presented reports to senior executives, which contributed to strategic decision-making

05/22 - 07/22

BARCLAYS INVESTMENT BANK
Mumbai, India
Analyst Intern - Electronic Trading (Python)
- Demonstrated price improvement of up to 100 bps on liquidity seeking trades by backtesting novel short term price prediction models using SciPy and Pandas
- Enhanced client profiling on LX Darkpool by augmenting internal reports with 30+ trend visualizations using PySpark and SQL on Hadoop clusters
- Gained financial knowledge by communicating with teams across verticals

06/21 - 04/22

QUHU PVT. LTD.
Delhi, India (Remote)
Software Intern - Backend (Spring Java, SQL)
- Developed backend REST API infrastructure using Spring Java for Android application
- Incorporated end-to-end user and post-management service for blocking and reporting content
- Streamlined maintenance and accelerated queries by migrating databases to Amazon RDS

PROJECTS

04/23 - 05/23

INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
Mumbai, India
Monte-Carlo Method Simulation of the Ising Model (FORTRAN)
- Used Metropolis algorithm for Monte-Carlo simulation of Ising model in FORTRAN
- Plotted magnetization and specific heat of model system via GNUPlot for data analysis

11/20 - 12/20

INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
Mumbai, India
Analysis of Underlying Event Data in ROOT (C++, ROOT)
- Analyzed underlying event characteristics in p-p collisions using Monte-Carlo data in ROOT
- Computed and plotted histograms of rapidity, pseudo-rapidity and transverse momentum

COMPUTATIONAL SKILLS / OTHER

Programming Languages: C++, Python, Java, SQL, MATLAB, FORTRAN
Languages: English (fluent), Hindi (fluent), Tamil (native)
Activities: Statistical Physics and Introductory Biology Teaching Assistant, College Quiz Club Head
EDUCATION

Expected 12/24
NEW YORK UNIVERSITY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- Expected coursework: data-driven modeling, advanced statistical inference, financial data science, object-oriented programming (Java), portfolio optimization, stochastic calculus

03/15 - 08/22
SUNG KYUN KWAN UNIVERSITY
B.Econ. in Statistics and B.B.A. in Global Business Administration
- Coursework: Bayesian statistics, linear regression, multivariate statistics, mathematical statistics
- Honors/Awards: Sungkyun Talent Training Scholarship (merit-based; granted stipend and full tuition for all semesters), Magna Cum Laude (top 4% in graduating class)

08/19 - 12/19
NANYANG TECHNOLOGICAL UNIVERSITY
Exchange Program
- Coursework: stochastic processes, derivative securities, sampling & survey

EXPERIENCE

09/19 - 04/23
AMINO
Founder & CEO (Python)
- Executed comprehensive development and operation of e-commerce website, generating $28K+ in total revenue
- Engineered self-running 24/7 program that scraped and updated inventory data using bs4 and selenium libraries, processing 10K+ products hourly; decreased order cancellations >90%

06/21 - 05/22
DQ LAB PTE. LTD.
Data Analyst (Python, Excel)
- Managed global indices data from 25+ sources for Child Online Safety Index project; tripled data processing efficiency by switching from Excel to Python
- Fixed inconsistent data structure and reconciled differing representations of null values using pandas library, reducing human error on data preprocessing by 95%
- Resolved referential interdependence issues among sources through correlation analysis on 850+ indicators in conjunction with qualitative analysis on data dictionaries

02/16 - 11/17
SEOUL METROPOLITAN POLICE AGENCY
Police Sergeant
- Led 4 squads to manage 50+ high-intensity protests and guard important national facilities

PROJECTS

09/22 - 12/22
BARUCH COLLEGE, CUNY
Computation of Price and Greeks of Options (C++)
- Crafted object-oriented C++ program using STL and Boost libraries to compute price and Greeks of European and American perpetual options based on Black-Scholes formula
- Derived optimal, reasonable simulation numbers and time steps for Monte Carlo simulation method on various option batches by testing and comparing 300+ possible combinations

06/22 - 07/22
SUNG KYUN KWAN UNIVERSITY
Quantitative Research on Quality Factor Investment Strategy (Python)
- Built quantitative investment strategy based on quality factor, surpassing S&P 500 performance in out-of-sample testing with CAGR of 32.6% (vs. 22.0%) and Sharpe ratio of 1.07 (vs. 1.02)
- Processed and seamlessly integrated 11GB+ CRSP and Compustat datasets into stock screening and backtesting modules

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python (pandas, numpy, selenium, bs4), C++ (STL, Boost), LaTex, R, Excel
Languages: English (fluent), Korean (native)
Certification: Probability Theory for Financial Applications (Baruch College, 03/23, Certification with Distinction)
SOOHAN KIM
(929) 218-1873 // soo.han.kim@nyu.edu // linkedin.com/in/soohan-kim/

EDUCATION

<table>
<thead>
<tr>
<th>Expected 12/24</th>
<th>NEW YORK UNIVERSITY</th>
<th>New York, NY</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Courant Institute of Mathematical Sciences</td>
<td>M.S. in Mathematics in Finance</td>
<td></td>
</tr>
<tr>
<td>● Expected Coursework: data-driven modeling, portfolio optimization, stochastic calculus, financial data science, dynamic asset pricing, time series analysis, advanced statistical inference</td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>03/17 - 06/23</th>
<th>SUNG KYUN KWAN UNIVERSITY</th>
<th>Suwon, South Korea</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.S. in Mathematics and Computer Science</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Coursework: ODE/PDEs, linear algebra, real/numerical analysis, measure theory, financial mathematics, topology, data structures, algorithms, machine learning, deep neural networks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Honors: Magna Cum Laude (top 5% in graduating class)</td>
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</tr>
</tbody>
</table>

EXPERIENCE

<table>
<thead>
<tr>
<th>11/18 - 04/20</th>
<th>U.S. ARMY GARRISON DAEGU</th>
<th>Daegu, South Korea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sergeant, Public Affairs Specialist</td>
<td></td>
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</tr>
<tr>
<td>● Conducted photoshoots and interviews; posted articles regarding important events within garrison community</td>
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<tr>
<td>● Facilitated timely delivery of accurate information regarding garrison policies and measures during COVID-19 pandemic</td>
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</tr>
<tr>
<td>● Awarded Army Achievement Medal for excellent performance for interpreting during U.S. Army Garrison Daegu and local South Korean army regiment leadership conference</td>
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</tr>
</tbody>
</table>

PROJECTS

<table>
<thead>
<tr>
<th>09/22 - 05/23</th>
<th>SUNG KYUN KWAN UNIVERSITY</th>
<th>Suwon, South Korea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portfolio Optimization With Reinforcement Learning (Python)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Built and trained AI agent that allocates weights for U.S. equities portfolio, resulting in 23.9% annual returns and 0.86 Sharpe ratio</td>
<td></td>
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<tr>
<td>● Used fractional differentiation to preprocess stock price data efficiently; conducted Dickey-Fuller tests, checking stationarity with minimal signal loss</td>
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<tr>
<td>● Programmed graph neural networks to learn inter-stock relationships when building state-space</td>
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<tr>
<td>● Applied adversarial inverse reinforcement learning using modern portfolio theory; calculated expert weights from past data that agent imitates and extrapolates to future data</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>02/22 - 10/22</th>
<th>SK COMPUTER AND COMMUNICATIONS and KB SECURITIES</th>
<th>Seoul, South Korea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimal Trade Execution With Reinforcement Learning (Python)</td>
<td></td>
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</tr>
<tr>
<td>● Developed AI agent that generated daily buy order prices, 88%+ of which were within 10 bps, vs. daily VWAP</td>
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</tr>
<tr>
<td>● Used proximal policy optimization algorithm to train AI agent on high market-cap Korean stocks; worked with tick-level stock data</td>
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<tr>
<td>● Incorporated transformer networks that predicted U-shaped patterns of intraday volumes, enhancing performance from 64%+ to 88%+</td>
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<td></td>
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<tr>
<td>● Wrote research paper, currently under review by Expert Systems with Applications</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>07/21 - 07/22</th>
<th>SUNG KYUN KWAN UNIVERSITY</th>
<th>Suwon, South Korea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volatility Surface Prediction With Physics-informed Deep Learning (Python)</td>
<td></td>
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</tr>
<tr>
<td>● Proposed and implemented physics-informed convolutional transformer network for predicting volatility surface of SPX European call options</td>
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</tr>
<tr>
<td>● Wrote research paper, under review by Quantitative Finance, reporting proposed network’s mean absolute percentage error results: 4.92 (volatility prediction) and 3.85 (option price prediction)</td>
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</tr>
</tbody>
</table>

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python (pandas, numpy, pytorch, tensorflow), C/C++, Java, Mathematica, Unix shell
Languages: English (fluent), Korean (native)
Award: Army Achievement Medal (U.S. Army)
RUNQIAN (ELVIS) LI
(510) 453-0227 // elvis.li@nyu.edu // linkedin.com/in/runqian

EDUCATION

Expected 12/24  NEW YORK UNIVERSITY  New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
  - Expected Coursework: Ito’s calculus, time series analysis, scientific computing, risk and portfolio management, dynamic asset pricing, algorithmic trading, equity derivatives

09/19 - 06/23  UNIVERSITY OF CALIFORNIA, LOS ANGELES  Los Angeles, CA
B.S. in Mathematics of Computation
  - Coursework: derivative pricing models, implied volatility, ODE & PDE, real analysis, optimization, probability theory, numerical methods, machine learning, data structures, C++
  - Honors/Awards: Dean’s Honors List for 12 consecutive quarters

EXPERIENCE

12/21 - 01/22  TECHSHARPE QUANT CAPITAL MANAGEMENT  Beijing, China (Remote)
(Quantitative hedge fund with $500M AUM)
Quantitative Analyst Intern (Python)
  - Summarized 10 research reports on factor model to find factors impacting China A-shares prices
  - Gathered daily stock prices and key financials (e.g., market capitalization, TTM revenue, EV/revenue, EV/EBITDA multiples) from Wind API
  - Cleaned data and calculated value, growth, and momentum factors such as P/E and P/B
  - Conducted WLS regression to backtest profitability of factors at 0.05 significance level

07/21 - 09/21  CDH INVESTMENTS  Beijing, China
(Leading Chinese alternative asset manager with >$19B AUM)
PE Analyst Intern (Excel)
  - Facilitated investment in pharmaceutical company by analyzing its products, business model, and summary financials
  - Evaluated risks by researching government policies, pharmaceutical industry, and competitors
  - Arranged and conducted interviews on pharmaceutical products with 8 doctors at 3 client hospitals, complementing research results
  - Built DCF model from scratch by projecting cash flows; calculated WACC and terminal value
  - Facilitated leadership’s decision making by writing minutes explaining complex concepts simply

PROJECTS

05/23 - 06/23  UNIVERSITY OF CALIFORNIA, LOS ANGELES  Los Angeles, CA
Numerical Solution for Hamilton-Jacobi Equation (Python)
  - Used method of characteristics and numerical schemes such as explicit euler to obtain exact and approximate solutions to Hamilton-Jacobi equation
  - Verified solution’s accuracy by applying equations of motion to double-pendulum; graphed animated physical simulation with different initial conditions

02/22 - 03/22  Quantitative Analysis of Business Model (Python)
  - Collected data and engineered time series features and implemented linear-regression predictive models with hypothesis testing to find statistically important features at 0.05 significance level
  - Fine-tuned model with grid search, found optimal hyperparameters, and achieved average cross-validation score over 95%

10/21 - 12/21  Personal Wellness Tracker (Javascript)
  - Designed web-based application that tracks users’ physical health and “happiness” using Git, with components such as text area, menu bar, and switch button for dark and light modes
  - Wrote user interface with React.js library and made over 20 commits on GitHub

COMPUTATIONAL SKILLS / OTHER

Programming Languages & Softwares: Python, C++, MATLAB, R, Java, LaTeX
Languages: English (fluent), Mandarin (native), Japanese (intermediate)
EDUCATION

Expected 12/24  
NEW YORK UNIVERSITY  
The Courant Institute of Mathematical Sciences  
M.S. in Mathematics in Finance  
- **Expected Coursework**: OOP (Python), machine learning, data-driven modeling, stochastic processes, risk & portfolio management, financial securities & markets, asset pricing

09/19 - 06/23  
NANKAI UNIVERSITY  
Tianjin, China  
B.S. in Mathematics and Applied Mathematics, Concentration: Mathematical Finance  
- **Coursework**: mathematical analysis, advanced algebra, probability, statistics, data structure & algorithms (C++), machine learning (Python), financial engineering, actuarial, investments  
- **Honors/Awards**: Graduate with Honors (top 3%), 5 fellowships in 3 years (top 5%)

EXPERIENCE

03/23 - 05/23,  
CINDA SECURITIES  
Beijing, China  
(Asset management firm with $10B AUM)  
Investment Management Intern (Python, MATLAB)  
- Investigated trends of 680+ convertible bonds in China from 2017 to 2022; weighted their implied volatility (IV) to monitor market IV; updated it daily for department’s decision-making  
- Partnered with managers to design timing strategies based on volatility risk premium by drawing and updating IV surface of SSE 50 ETF options  
- Researched and wrote reports on 240+ bonds and REITs in China, supplying comprehensive analysis to senior management to inform their trading decisions

PROJECTS

NANKAI UNIVERSITY  
02/23 - 05/23  
Thesis: Study on the Pricing of Snowball Structured Products (Python)  
- Priced real snowball autocallable using GARCH model and Monte Carlo simulation  
- Conducted sensitivity and Greeks analysis; proposed 5 key findings on snowball products

05/21 - 04/22  
Quantitative Proposal for China’s 1st Digital Service Taxation (Python, SPSS)  
Tianjin, China  
- Processed 150+ sets of panel data; developed numerical models incorporating negative externalities; recommended tax rates for both digital advertising and entire industry  
- Tested results with 2 static games of incomplete information between tax authorities and enterprises; validated low probability of tax evasion under suggested tax rates  
- Presented paper to Tianjin Tax Research Institute; ranked #1 in Economics School of Nankai; received 1st place award for Outstanding Innovative Research Projects - top 3%

02/22 - 02/22  
Mathematical Contest in Modeling - MCM (MATLAB)  
Online  
- Served as team leader, main modeler, main author, and programmer, to offer optimal water and hydropower allocation for 2 reservoirs on Colorado River serving 4 industries across 5 states  
- Collected and processed data in 10+ fields; devised allocation models with linear programming and differential equations; offered solutions considering 3 different initial scenarios  
- Analyzed sensitivity and robustness to predict follow-ups; won Finalist Award - top 2% globally

CALIFORNIA INSTITUTE OF TECHNOLOGY  
09/21 - 12/21  
Models for Derivative Pricing and their Calibration (Python)  
Online  
- Analyzed traits, evolution, and markets, highlighting pros and cons of various structured products  
- Used binomial model with 3K layers to price Snowball VWO issued by Barclays Bank  
- Co-authored and published paper: A Binomial Pricing Method for Snowball Autocallable

COMPUTATIONAL SKILLS / OTHER

**Programming Languages & Software**: Python, C++, MATLAB, SQL, VBA, SPSS, Stata, EViews, LaTex, MSOffice  
**Certificates**: Machine Learning (Coursera), Python for Everybody (Coursera), NCRE Level 2, CFA Level 1 Candidate  
**Languages**: English (fluent), Mandarin (native)
RUNTIAN (LARRY) LIANG
(646) 818-0448 // larry.liang@nyu.edu // linkedin.com/in/rtliang

EDUCATION

Expected 05/24

NEW YORK UNIVERSITY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance

- Recent Coursework: Black-Scholes formula and partial differential equation, Monte Carlo simulation, deep learning, stochastic calculus, portfolio optimization, risk management
- Forthcoming Coursework: dynamic asset pricing, advanced statistical inference and machine learning, time series and statistical arbitrage, algorithmic trading

09/19-05/23

NEW YORK UNIVERSITY
College of Arts and Science
B.A. in Mathematics and Data Science

- Coursework: deep learning, linear algebra, probability and statistics, OOP in Java and Python, regression, random forest, numerical analysis, database management and analysis

EXPERIENCE

05/23 - 08/23

CITIC SECURITIES
Shanghai, China
Quantitative Research Intern (Python, MySQL)

- Built backtest system using Backtrader package, with modules including data collection, data preprocessing, trading signal detection, data visualization and performance analysis
- Created multi-factor model that analyzed performance of fundamental and technical factors of CSI 1000 stocks’ performance, which achieved Sharpe ratio of 1.43
- Constructed and managed database from over 800k research reports and data for more than 5k A-Share stocks.

02/21 - 05/21

HAITONG SECURITIES INNOVATIONAL CAPITAL
Shanghai, China
Private Equity Analyst Intern

- Collaborated on writing industry/company analysis, and provided investment suggestions
- Interviewed experts to develop industrial insight, which facilitated decision making process
- Researched supply chain for several fields (e.g., chips, renewable energy, SaaS systems), and produced reports about competitive patterns within them

PROJECTS

01/23 - 05/23

NEW YORK UNIVERSITY
Pricing an Exotic Option using Hull-White Model (Python)

- Derived dynamics of Nikkei index, forward rate, and risk free rate using past data and calibrated Nelson-Siegel Model and Hull-White Model
- Retrieved past data of variables(e.g., Nikkei-225 index, US 10Y Treasury) using NASDAQ API
- Built automated program that visualizes predictions of future data (e.g., Nikkei index) and returns option price while inputs are provided (e.g., relative strike prices, maturity date, settlement date)

04/22 - 07/22

Bitcoin Price Prediction based on Blockchain Information (Python)

- Conducted research by reading 20+ papers and replicating algorithms; made presentations about insights and results, while conducting peer reviews
- Cleaned all kinds of recent 13 years’ bitcoin related data and employed Bayesian neural network with 10 independent variables on block chain information to predict bitcoin price

01/22 - 05/22

Movie Rating Prediction Project (Python, PyTorch)

- Fitted different ML models (e.g., linear regression, clustering) to predict movie ratings with a dataset including 400k users and 5k movies; obtained RMSE of 1.274 with lasso regression

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python (Numpy, Scipy, Pandas, Pytorch), SQL, Java
Languages: Mandarin (native); English (fluent)
EDUCATION

Expected 12/24 NEW YORK UNIVERSITY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- Coursework: stochastic calculus, Object-oriented programming in Python, Monte Carlo simulation, portfolio optimization, machine learning, Black-Scholes, algorithmic trading

08/19 - 08/23 STONY BROOK UNIVERSITY
B.S., Double Major in Applied Mathematics & Statistics and Business Management
- Coursework: differential equations, probability theory, data mining, statistics, numerical analysis, data analysis, stochastic processes, time series, portfolio optimization
- Honors/Awards: Dean's List (7 semesters)

EXPERIENCE

06/21 - 08/21 RUISI CONSULTING CO., LTD
Shanghai, China
(Financial, risk, and internal management consulting firm)
Consulting Intern (Excel, Python, Visio)
- Wrote financial accounting and internal control manuals for 2 client organizations: $2.02B listed company, and largest public hospital in Wuxi (major city in China)
- Collaborated with senior leader on risk-based internal control audit for Shanghai government
- Cleaned and visualized data with Python (pandas, matplotlib) to fuel managers’ decision making

12/20 - 02/21 INDUSTRIAL SECURITIES CO., LTD
Fuzhou, China
($7.77B securities trading, asset management, and underwriting firm)
Business Development & Research Analyst Intern
- Researched distribution of Chinese household assets and drafted reports for clients
- Collaborated on crafting due diligence reports for private equity fund
- Expanded client base by 10% by opening 30+ brokerage accounts
- Prepared and delivered asset allocation reports on consulting services for clients

PROJECTS

01/23 - 05/23 STONY BROOK UNIVERSITY
Stony Brook, NY
Applying Deep Learning in Option Pricing (Python)
- Applied neural networks in Black-Scholes model to predict option prices; achieved low mean absolute error (MAE)
- Compared and analyzed model against Black-Scholes, demonstrating superior predictive capabilities of neural networks in option pricing

08/22 - 12/22 STONY BROOK UNIVERSITY
Stony Brook, NY
Portfolio Optimization on Multivariate Normal Tempered Stable Distribution (R)
- Examined whether S&P 500 returns conformed to Gaussian distribution
- Analyzed and obtained NTS parameters of S&P 500 and 10 selected stocks; validated suitability of applying NTS distribution to market model
- Performed mean-CVaR portfolio optimization on multivariate NTS market model
- Outperformed S&P 500 by 12% in 2022 through dynamic strategy of calibrating tangency portfolio every 10 business days

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, R, MATLAB
Languages: English (fluent), Mandarin (native)
Activities: Teaching Assistant at Stony Brook University for Differential Equations and Introduction to Economics course; Grader at New York University for Probability and Statistics course
EDUCATION

Expected 12/24
NEW YORK UNIVERSITY  
The Courant Institute of Mathematical Sciences  
M.S. in Mathematics in Finance  
- Coursework: stochastic calculus, machine learning, Black-Scholes, Monte Carlo simulation, CAPM, data-driven models

09/19 - 05/23
RUTGERS UNIVERSITY  
B.S. in Physics and minor in Mathematics and Computer Science  
- Coursework: quantum algorithms, linear algebra, ordinary differential equations, stochastic processes, computer programming, probability theory, linear regression  
- Honors/Awards: Paul Robeson Thesis Scholar, awarded High Honors in the Physics major  
- Thesis: “Mitigation of Noise in Quantum Computations for Solving the Fermi-Hubbard Model”

EXPERIENCE

09/21 - 12/21
RUTGERS UNIVERSITY  
School of Arts and Sciences  
Learning Assistant, Analytical Physics 2  
- Conducted research on communicating multiple topics clearly and concisely  
- Collaborated with several sections of undergraduate students to develop their conceptual knowledge of problem solving and technical skills

09/21 - 12/21
RUTGERS UNIVERSITY  
School of Arts and Sciences  
Learning Assistant, Analytical Physics Lab  
- Facilitated undergraduate student groups, improving their data modeling and data analysis skills  
- Collaborated with multiple student groups, enhancing their problem solving and technical skills

04/22 - 08/23
RUTGERS UNIVERSITY  
School of Arts and Sciences  
Research Assistant (Python)  
- Used linear regression analysis to reduce errors in technical/quantum computations, result: 20-fold improvement in computation  
- Demonstrated 99% mitigation of errors on IBM quantum computers  
- Learned Python libraries quickly (e.g., created ancilla qubit reuse code using IBM Qiskit)  
- Took initiative to create error mitigation techniques in quantum computations  
- Authored senior thesis and presented key results to faculty board; awarded High Honors

PROJECTS

05/23 - Present
BASKETBALL PLAYOFFS SIMULATION (Python)  
- Constructed algorithm in Python that takes in large set of parameters and runs Monte Carlo simulation that predicts NBA playoffs winner

06/16 - 08/16
MASTERS IN THE UNITED STATES (Java)  
- Led and collaborated with 2 other programmers on Android application that helps non-US students interested in pursuing US academic degrees

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Java, Python, C/C++, LaTeX, JavaScript, HTML, SAS, SQL, R, MATLAB, Maple, Origin  
Languages: English (fluent), Spanish (Conversational), Kannada (native)  
Affiliation/Certification: SAS Certifications: Programming on Reports, Tables Generation, Clinical Programming
# SIMAR OBEROI

(347) 864-8333 // simar.oberoi@nyu.edu // linkedin.com/in/simaroberoi

## EDUCATION

<table>
<thead>
<tr>
<th>Date</th>
<th>Institution</th>
<th>Location</th>
<th>Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected 12/24</td>
<td>NEW YORK UNIVERSITY</td>
<td>New York, NY</td>
<td>The Courant Institute of Mathematical Sciences M.S. in Mathematics in Finance</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>● <em>Expected Coursework:</em> object-oriented programming (Java), numerical methods in financial modeling, data-driven modeling, time series, Monte Carlo methods, Fama-French, Black Scholes</td>
</tr>
<tr>
<td>09/18 - 08/22</td>
<td>UNIVERSITY OF WATERLOO</td>
<td>Waterloo, Canada</td>
<td>B.Math in Mathematical Finance &amp; Statistics</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>● <em>Coursework:</em> ODE/PDE/SDE, measure theory, CAPM, DCF analysis, portfolio optimization, Ito’s lemma, VaR, EVT, stochastic processes, Markov chains, GLMs, time series analysis</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>● <em>Honors:</em> Graduated with Distinction, President’s Scholarship</td>
</tr>
</tbody>
</table>

## EXPERIENCE

<table>
<thead>
<tr>
<th>Date</th>
<th>Company</th>
<th>Location</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/20 - 03/20</td>
<td>TYNOR ORTHOTICS PVT LTD</td>
<td>Chandigarh, India</td>
<td>Summer Intern, Finance and Accounting</td>
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<td>(Largest Indian orthotic manufacturer)</td>
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<td></td>
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<td></td>
<td>● Contributed to 2x faster production speed by assessing and performing weekly checks on inventories and reporting machinery and raw material requirements to respective managers</td>
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<td>● Collaborated with tax valuation and accounting teams to streamline flow of information by entering 100+ supplier invoices every day as first step in constructing income statement</td>
</tr>
</tbody>
</table>

## PROJECTS

<table>
<thead>
<tr>
<th>Date</th>
<th>Institution</th>
<th>Location</th>
<th>Project Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>04/23 - 07/23</td>
<td>BARUCH COLLEGE, CUNY</td>
<td>New York, NY</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>● Applied OOP techniques in conjunction with C++ Boost and STL libraries to construct well-designed class structure for pricing European and American perpetual options</td>
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<tr>
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<td></td>
<td>● Incorporated methods to calculate prices and Greeks for 1K+ European options with different parameter values simultaneously</td>
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<tr>
<td></td>
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<td></td>
<td>● Used exact pricing methods (e.g., Black Scholes and Monte Carlo) as well as Explicit Euler and other finite difference methods</td>
</tr>
<tr>
<td>01/22 - 04/22</td>
<td>UNIVERSITY OF WATERLOO</td>
<td>Waterloo, Canada</td>
<td>Trading Simulation and Analysis (Capital IQ, Excel)</td>
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<tr>
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<td>● Simulated $100K portfolio over 4-month period, achieving annualized return of 21.9%</td>
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<td></td>
<td>● Executed value based trading strategy that factored in market capitalization, return on capital and earnings yield; allocated 90% of funds to equity and 10% to fixed income</td>
</tr>
<tr>
<td>01/22 - 04/22</td>
<td>Equity Research and DCF Analysis for MNST (Capital IQ, Excel)</td>
<td>Waterloo, Canada</td>
<td>● Conducted comprehensive equity research for Monster Beverages Corp. (MNST) stock, including industry analysis and competitive positioning to evaluate investment risks</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>● Built DCF model projecting cash flow for next 5 years; estimated terminal value and WACC</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>● Performed sensitivity analysis as well as evaluated comparables; arrived at buy rating</td>
</tr>
<tr>
<td>01/21 - 04/21</td>
<td>Monte Carlo Methods and Gamma Hedging (Python)</td>
<td>Waterloo, Canada</td>
<td>● Implemented Monte Carlo simulations based on stochastic differential equation model to price multiple options using 250K+ paths</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>● Constructed gamma hedged portfolio by short selling options, buying shares of underlying securities, and investing in risk-free asset (i.e., cash) by rebalancing 10K times</td>
</tr>
</tbody>
</table>

## COMPUTATIONAL SKILLS / OTHER

* **Programming Languages:** Python, C++, R, MATLAB  
* **Languages:** English (fluent), Hindi (native), Punjabi (fluent)  
* **Certification:** [C++ Programming for Financial Engineering](#) (Baruch College, CUNY)
YUCONG (PATO) SHAN
(412) 980-3346 // shanyucong@nyu.edu // www.linkedin.com/in/yucongs

EDUCATION

Expected 12/24 NEW YORK UNIVERSITY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- *Expected Coursework:* Black-Scholes, Fama-French, financial computing, Monte Carlo simulation, portfolio optimization, Ito’s lemma, risk-neutral valuation, volatility model

08/22 - 12/22 CARNEGIE MELLON UNIVERSITY
Information Systems Management, Study Abroad
- *Coursework:* Python, OOP in Java, data structure, algorithm, machine learning (regression, classification, clustering, decomposition, networks), database, unstructured data analysis

09/18 - 12/22 SHANDONG UNIVERSITY
B.S. in Financial Mathematics
- *Coursework:* calculus, linear algebra, ODE/PDE/SDE, probability, complex analysis, real analysis, measure theory, numerical analysis, optimization, stochastic process, econometrics
- *Honors/Awards:* Graduate with Honors (5%); Athletic Excellence Scholarships; MCM finalist

EXPERIENCE

06/23 - 08/23 MORGAN STANLEY HUAXIN FUND
Asset Risk Management Intern (Python, MATLAB)
- Applied Python to research options volatility trading strategies using Monte Carlo, finite difference, trinomial tree and Greeks; wrote report of methods comparison and error analysis
- Computed 5-day 99% VaR for portfolios with 8 methods; applied t-copula and KMV model to joint returns, and simulated stock returns to evaluate potential loss
- Built machine learning and statistic models such as random forest and GLM to predict LGD; executed LGD model on different timeframes to determine predictive power

12/22 - 06/23 EY
Quantitative Developer Intern, Risk Analyst (SQL, SAS, JAVA, Pyspark, Hadoop)
- Wrote SAS and Java to automatically build data tables, increasing efficiency to 5.5 minutes/day; performed SQL procedures to create 300+ tables with 16,000+ attributes
- Made queries by SQL window functions, and refined overdue payment collection strategies
- Initiated spatial econometrics model to monitor high moment risks of card holders, and to mitigate anti-fraud risks using vintage analysis, IV 2SLS, A-B test and DID model

06/22 - 08/22 CHINA SECURITIES
Quantitative Researcher Intern (Python, R)
- Collected macro data from 2018 to 2022 and performed data cleaning and analysis (recalculated CPI and PPI and identified anomalies by FGLS; calculated factors’ correlation matrix)
- Conducted alpha mining with ticked stock data to analyze order flows’ imbalance strategies

PROJECT

12/21 - 06/22 SHANDONG UNIVERSITY
Carbon Emission Pair Trading Strategy (MATLAB, Wind)
- Refined co-integration, univariate time series models using MATLAB to analyze ORIF curves; performed ACF, PACF and stationary tests; optimized portfolio using 6 performance measures
- Predicted carbon price with 0.82 out-sample $R^2$ based on convertible bonds arbitrage

COMPUTATIONAL SKILLS / OTHER

*Programming:* Python, C++, R, MATLAB, Java, SQL, SPSS
*Languages:* Mandarin (native), English (fluent), French(basic), Cantonese(basic)
*Certification:* FRM Part II Candidate, CFA Level II Candidate, NCRE Level II (Access Database, Python)
*Interest:* Soccer (Captain of gold-medal winning undergraduate soccer team)
*Activities:* TA, Recitation Leader for Calculus III at NYU Courant, and for Probability and Math Statistics at SDU
XINQIAO (RINSTER) TONG
(929) 777-0935 // xinqiao.tong@nyu.edu // linkedin.com/in/xinqiao-rinster-tong/

EDUCATION

Expected 12/24  NEW YORK UNIVERSITY  New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
  ● Coursework: financial computing in Python, stochastic calculus, derivatives valuation, penalized regression, data-driven modeling, portfolio optimization and risk

09/19 - 06/23  XI’AN JIAOTONG-LIVERPOOL UNIVERSITY  Suzhou, China
B.S. in Applied Mathematics
  ● Coursework: analysis, probability & statistics, ODE & PDE, mathematical modeling, operational research, numerical analysis, risk management, Markov chain, optimization
  ● Honors/Awards: Best Overall Academic Performance Award; Rajendra Bhansali Prize
  ● Thesis: Kou’s Jump Diffusion Model for Option Pricing

EXPERIENCE

06/22 - 09/22  RUISHENG INVESTMENT ($50M AUM)  Qingdao, China
Quantitative Research Intern (Python, MATLAB)
  ● Designed sell put strategy based on VIX, Greeks and return-risk ratio, attaining 8.7% annual return, 3.5% maximum drawdown and 90.3% winning rate
  ● Analyzed hedging with ratio and calendar spread based on support levels, with 2:1 ratio spread achieving 8.9% annual return, 3.0% maximum drawdown and 83.9% winning rate
  ● Selected combinations of moving averages and commodities at daily level for CTA strategy, which realized 15.7% annual return and 4.9% maximum drawdown
  ● Performed grid trades on 3 individual stocks (grid width 1%) after training

06/22 - 11/22  PURDUE UNIVERSITY  Remote
Research Assistant (Python)
  ● Tested sparsified DNN based on Bayesian analysis to recognize pivotal factors
  ● Implemented LassoNet to select factors; refitted DNN to evaluate significance of chosen factors based on portfolio’s monthly return and Sharpe ratio
  ● Discovered that top 5 factors explained 90% of return generated by all 63 factors

PROJECTS

09/22 - 06/23  XI’AN JIAOTONG-LIVERPOOL UNIVERSITY  Suzhou, China
Kou’s Jump Diffusion Model for Option Pricing (MATLAB)
  ● Derived pricing formula step by step and verified leptokurtic feature of returns
  ● Performed parameter estimation to calibrate Black-Scholes’ and Kou's models against real-world data of options on S&P 500 via fixing time to maturity and fixing option contract
  ● Reduced prediction errors by 50.3%, on average, under Kou’s model when fixing option contract

04/21 - 09/21  XI’AN JIAOTONG-LIVERPOOL UNIVERSITY  Suzhou, China
Subsurface Flow Simulation via Machine Learning (Python)
  ● Implemented physics-informed neural network (PINN) to solve Laplacian equation with Dirichlet boundary conditions numerically
  ● Investigated scenarios with regular blocks and irregular cracks, in which Laplacian coefficients were heterogeneous within computational domain

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, MATLAB, SQL, Java
Languages: English (fluent), Mandarin (native)
Honors & Awards: National Scholarship in 2022, Provincial Outstanding Student in 2022, Meritorious Winner in Interdisciplinary Contest in Modeling in 2021
SICHENG (TONY) WANG
(201) 241-9193 // wang.sicheng@nyu.edu // linkedin.com/in/sc-tony-wang

EDUCATION

Expected 12/24
NEW YORK UNIVERSITY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
  ● Expected Coursework: Black-Scholes, Fama-French, Monte Carlo simulation, portfolio optimization, data structure, Ito’s lemma, risk-neutral valuation, risk management

09/19 - 06/23
THE CHINESE UNIVERSITY OF HONG KONG
B.S. in Financial Mathematics
  ● Coursework: linear algebra, real analysis, numerical analysis, probability theorem, stochastic calculation, data structure, econometrics, derivative pricing, portfolio optimization
  ● Honors/Awards: Dean’s List Honor (2021-2022); Academic Performance Scholarship (top 2%)

EXPERIENCE

06/22 - 08/22
SHENZHEN CAPITAL GROUP
(Institutional Investment Fund Intern (Python)
  ● Analyzed millions of datasets of property rental trends across different regions in Shenzhen with PCA; constructed model that forecasts prices of properties with 86% accuracy
  ● Evaluated market value of industry companies’ portfolios with models; worked with balance sheet; provided investment leaders with insights on choosing REITs partners

01/22 - 03/22
SHENZHEN ORIENTAL FORTUNE CAPITAL
(Hard Technology Fund Intern (Python)
  ● Conducted research and authored parts of industry report focusing on market analysis and future prospects of Chinese vehicle-mounted chips for automatic driving, for internal circulation
  ● Gathered data and crafted segments of annual report for 1 VC fund

06/21 - 08/21
SHENZHEN STOCK EXCHANGE
(International Department Intern (Excel)
  ● Acquired GDR information from overseas stock exchange for reference; collaborated on R&D of GDR on SZSE; contributed to 1 proposal for public consultation
  ● Drafted reports highlighting SZSE’s commitment to ESG principles that were published

PROJECTS

04/22 - 06/22
LOAN DEFAULT DETECTION (Python)
  ● Cleansed millions of datasets; constructed baseline models, with techniques like logistic regression and SVM optimization, to predict probability of debt defaults
  ● Implemented recursion algorithms; enhanced performance of designed model by 16% over baseline model (to 70%)

12/21 - 01/22
THE CHINESE UNIVERSITY OF HONG KONG, SHENZHEN
(Mathematics Modeling Project (MATLAB)
  ● Designed time-dependent models simulating impacts of wearing masks, vaccine coverage, and social distance during COVID-19; conducted sensitivity analysis
  ● Forecasted trajectory of COVID-19 infections and associated fatalities

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, C++, MATLAB, R, STATA
Languages: English (fluent), Mandarin (native)
Certification: FRM Part 1
Interest: Established student club that helped 60+ members pass CFA and FRM
YUHENG (FITZ) WANG
(201) 551-9481 // yuheng.wang@nyu.edu // linkedin.com/in/yuheng-w

EDUCATION

Expected 12/24 NEW YORK UNIVERSITY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- Expected coursework: OOP and data structure, stochastic calculus, derivatives pricing, risk and portfolio management, linear regression, SVM, deep neural networks, numerical computing, optimization, algorithmic trading, market microstructure, arbitrage trading, time series analysis

08/18 - 06/22 SOUTHEAST UNIVERSITY
B.Econ. in Financial Engineering
- Coursework: multivariable calculus, statistics and probability, stochastic process, linear algebra, ordinary and partial differential equations, Black-Scholes, database system, machine learning

EXPERIENCE

07/22 - 11/22 KAFANG TECHNOLOGY
Shanghai, China
(Top-tier Chinese high-frequency prop trading firm)
Quantitative Research Intern – High Frequency Trading
- Constructed high-frequency factors based on volume and price data from limit order books; improved 2- and 5-second price dynamic predictions by 1% more than XGBoost benchmark
- Created data processing tools that received and cleaned backtesting system’s tick-level daily exchange data; generated information about main contracts for all Chinese commodity exchanges

09/21 - 01/22 CAUSIS INVESTMENT
Wuhan, China
(Commodity-trading-advisor hedge fund with $300M AUM)
Quantitative Research Intern – Commodity Trading Advisor
- Developed new trend trading strategy with volume-price data from steel and chemical future contracts; backtested strategy, resulting in 45% annualized return and Sharpe ratio of 2.1
- Have generated profit for portfolio, since January 2022, based on new trend trading strategy
- Built minute-level strategy based on whole commodities market; backtesting resulted in Sharpe ratio of 1.3

06/21 - 09/21 HUATAI SECURITIES
Shanghai, China
Quantitative Research Intern – Stock Trading Strategy
- Predicted log-return on CSI 300 Financials constituent stocks using generative adversarial networks (GAN) with over 70% direction prediction and low RMSE
- Used Fama-MacBeth regression, PCA, and lasso to portfolio that mimicked 3 macro factors with major asset classes or Citic Industry Index constituent stocks
- Replicated index performance; selected stocks with more than 0.8 correlation compared to actual index return according to Citic High-Dividend Strategy Index compiling method

PROJECTS

SOUTHEAST UNIVERSITY
Nanjing, China

01/22 - 11/22 Valuation of Basket Options Under Stochastic Interest Rate and Volatility Smile
- Developed analytical formula for pricing basket options with stochastic interest rate and volatility smile assumptions; results were consistent with those of Monte Carlo simulations

11/21 - 06/22 First Passage Time (FPT) and Its Application in Finance
- Deduced closed-form solution for FPT of one-dimension, time-homogeneous diffusion process
- Built commodity strategy by modeling asset price dynamics via exponential O-U (Ornstein–Uhlenbeck) process; attained annualized return of 25% and Sharpe ratio of 1.0

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, C++, MATLAB, SQL
Languages: English (fluent), Mandarin (native)
Certifications: Machine Learning A (UCLA Extension), Object-Oriented Data Structure in C++ (UIUC Coursera)
XIAOXI (SUSIE) XU
(732) 772-3268 // xiaoxi.xu@nyu.edu // linkedin.com/in/xiaoxi-xu

EDUCATION

<table>
<thead>
<tr>
<th>Date</th>
<th>Institution</th>
<th>Location</th>
<th>Degree</th>
<th>Field</th>
<th>Coursework</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected</td>
<td>NEW YORK UNIVERSITY</td>
<td>New York, NY</td>
<td>M.S. in Mathematics in Finance</td>
<td>Algorithmic and high-frequency trading, optimization, stochastic calculus, equity derivatives, time series analysis, risk and portfolio management</td>
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</tr>
<tr>
<td>09/15-06/18</td>
<td>FUDAN UNIVERSITY</td>
<td>Shanghai, China</td>
<td>M.S. in Economics</td>
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<tr>
<td>09/11-06/15</td>
<td>FUDAN UNIVERSITY</td>
<td>Shanghai, China</td>
<td>B.S. in Economics</td>
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</tbody>
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EXPERIENCE

<table>
<thead>
<tr>
<th>Date</th>
<th>Company</th>
<th>Location</th>
<th>Position</th>
<th>Tools/Technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>06/21-07/23</td>
<td>GALOIS ASSET MANAGEMENT (Quantitative hedge fund with $20M AUM)</td>
<td>Shanghai, China</td>
<td>Quantitative Portfolio Manager (Python)</td>
<td>Managed stocks and futures portfolio; achieved 35% annualized excess returns with Sharpe ratio of 3.5 during 2-year period</td>
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<td>Applied machine learning models (neural networks, GBDT, GNN) to construct trading strategies; programmed with PyTorch and TensorFlow</td>
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<td>Designed genetic programming algorithms, generating &gt;1M alpha factors; used financially meaningful operators to reduce overfitting by 90%</td>
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<td>Identified arbitrage opportunities by calibrating option implied volatility surfaces (i.e., SVI) and applying them to corresponding market making strategies for Chinese listed option markets</td>
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<td>Built backtesting system, maintained MySQL database, designed data ETL pipeline, and streamlined factor management procedures</td>
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<td>Supervised Fudan University interns in financial engineering projects</td>
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<tr>
<td>08/19-05/21</td>
<td>CHINA CONSTRUCTION BANK</td>
<td>Shanghai, China</td>
<td>Quant Developer (Java, Python)</td>
<td>Constructed machine learning based trading strategies (SVM, GBDT) for FX market</td>
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<td>Developed backend interfaces for foreign exchange and interest rate derivatives pricing system</td>
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<td>Applied tension spline to calibrating interest rate yield curve; achieved better results than when using cubic spline</td>
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<td>Predicted future cash flows for 6 types of ABS underlying asset pools, using Bayesian update</td>
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<td>Created waterfall representation method, which accommodated complex ABS structures (e.g., multi-tranche products with payouts based on triggers)</td>
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<td>Simulated tranches’ cash flows using expected asset pool cash flows and waterfall structure data; calibrated ABS yield curves using smoothing filters and spline methods</td>
</tr>
<tr>
<td>07/18-08/19</td>
<td>ELECTRIFAI (Formerly OPERA SOLUTIONS)</td>
<td>Shanghai, China</td>
<td>Junior Data Scientist (Java, Python, MySQL)</td>
<td>Developed portfolio analysis platform for asset management firms</td>
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<td>Applied machine learning algorithms to time series data and built predictive models</td>
</tr>
</tbody>
</table>

COMPUTATIONAL SKILLS / OTHER

*Programming Languages:* Python, Java, C++, SQL
*Languages:* English (fluent), Mandarin (native)
*Certification:* Passed CFA Level III Exam
EDUCATION

Expected 12/24
NEW YORK UNIVERSITY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- *Expected Coursework:* penalized regression, decision trees, Fama-French, Black-Scholes, stochastic processes, Hull-White model, linear regression, machine learning

09/18 - 09/22
WASEDA UNIVERSITY
School of Political Science and Economics
B.A. in Economics
- *Coursework:* linear algebra, calculus, real analysis, entrepreneurial finance, statistical analysis
- *Honors:* Monbukagakusho Honors Scholarship for privately financed international students

08/21 - 05/22
PURDUE UNIVERSITY
Study Abroad
- *Coursework:* OOP (Java), ODE & PDE, Markov chain, probability, time series models
- *Honors:* Dean's List and Semester Honors both semesters

EXPERIENCE

02/23 - 03/23
SHENZHEN CAPITAL GROUP CO. LTD.
(2nd largest venture capital company in China, with $65B AUM) Shenzhen, China
Data Analyst Intern (Python)
- Sorted invested firms’ historical financial data and cleaned out irrelevant information
- Improved machine learning model; predicted 2 years' revenues for 37 firms in portfolio

11/22 - 01/23
BOSERA ASSET MANAGEMENT CO. LTD.
(3rd largest asset management company in China, with more than $200B AUM) Shenzhen, China
Quantitative Research Intern (R, MATLAB)
- Constructed dual thrust CTA strategies based on stock index futures, proving their invalidity in Chinese market
- Backtested CTA strategies with historical data to validate their performance (e.g., rate of return)
- Derived signal indicator by applying ARIMA and GARCH to historical rate of return, verifying suitable parameters for trading

08/22 - 10/22
GUOTAI JUNAN SECURITIES CO. LTD.
(Top 10 investment bank in China) Shenzhen, China
Quantitative Research Intern (Python, Wind)
- Extracted CSI300 stocks from database; used model to clean and sort data (e.g., by EV/EBITDA)
- Grouped stocks; calculated 6-7 variables for each one; visualized net profit curve with Matplotlib
- Crafted and co-edited weekly financial quantitative research reports for Chinese A-share stocks

PROJECT

04/23 - 06/23
BARUCH COLLEGE, CUNY New York, NY
Options Pricing System and Computation of Greeks (C++)
- Constructed OOP C++ class using Boost and STL libraries to price European and American perpetual options based on Black-Scholes formula; calculated their Greeks
- Applied Monte Carlo method to price various options
- Implemented finite difference method to price options; determined value of mesh size to define inaccuracy level

COMPUTATIONAL SKILLS / OTHER

*Programming Languages:* C++ (STL, boost), Java, Python (pandas, numpy, matplotlib), R, LaTeX, MATLAB
*Languages:* English (fluent), Japanese (near-native), Mandarin (native), Cantonese (conversational)
*QuantNet Certifications:* C++ Programming for Financial Engineering; An Intuition-Based Options Primer for Financial Engineering (with Distinction)
*Activities:* Math for Economics I Recitation Leader at NYU Courant
CHENYE YUAN
+1 (917) 935-7198 // chenye.yuan@nyu.edu // linkedin.com/in/chenye-yuan/

EDUCATION

Expected 12/24
NEW YORK UNIVERSITY
The Courant Institute of Mathematical Sciences
New York, NY
M.S. in Mathematics in Finance

- **Coursework:** stochastic calculus, securities and derivatives, risk and portfolio management, dynamic asset pricing, machine learning, data-driven modeling, convex optimization

01/20 - 05/23
NEW YORK UNIVERSITY
New York, NY
B.A. in Mathematics and Economics (Double Major), Minor in Computer Science

- **Coursework:** differential equations, probability, statistics, econometrics, financial economics
- **Honors/Awards:** Honors Degree, Magna Cum Laude, Dean’s List every semester
- **Thesis:** An Empirical Study from the Perspective of Buy-side Credit Ratings Relevance

EXPERIENCE

07/23 - 09/23
CHINA SECURITIES
Beijing, China
FICC Intern Assistant – Fixed Income Department Multi-Assets Group (R)

- Formulated stock indices / Treasury futures strategy based on relative risk premium and momentum indicators; achieved 26.5% backtested return and 1.28 Sharpe ratio
- Developed interest rate / exchange rate correlation model using various TTM windows; employed linear mapping approach for trend visualization and under/overvaluation heat map
- Constructed automated TD indicators warning system on FX securities with customized rules

06/23 - 07/23
CHINA GALAXY SECURITIES
Beijing, China
Credit Derivatives Intern Assistant – Fixed Income Department (Python)

- Developed quantitative sector rotation trading strategy with crowdedness indicators
- Designed and implemented chips indicator on major Chinese stock indices
- Reproduced time-series-cross-section double momentum market timing strategy
- Collaborated on derivative trading arrangements; contributed to critical investment decisions

06/22 - 09/22
UBS SDIC FUND MANAGEMENT
Shanghai, China
Credit Analyst Intern – Fixed Income Department

- Developed quantitative credit rating model for airport industry using machine learning algorithm, incorporating multiple factors of company and external supports, targeting CBR implied ratings
- Evaluated 2 published companies' credit; wrote full initial credit rating reports; updated semi-annual reports for 88 transferable bonds, and independently wrote brief reports

09/21 - 06/22
ORBITS VENTURE
Scarsdale, NY
Analyst Intern – Option CTA and Equity Research

- Researched general market trends and reported updates to S&P 500 option CTAs
- Performed bottom-up fundamental analysis and valuation of Qualcomm, Rivian and ZIM's equities; presented stock pitches, with ZIM selected into portfolio; generated 32% return

PROJECTS

NEW YORK UNIVERSITY
The Courant Institute of Mathematical Sciences
New York, NY

03/23 - 05/23
Trading Strategy Back Test System (Python)

- Led team of 7 in developing backtesting system for stock trading strategies in Python
- Deviced system requirements, tracked project progress, and solved development issues

11/22 - 12/22
Interest Rate and Stock Index Exotic European Option Pricing (Python)

- Designed Monte Carlo pricing model for option (LIBOR and Nikkei225 as underlying assets)
- Calibrated volatility for two-factor model and discounted with riskless numeraire to get price

COMPUTATIONAL SKILLS / OTHER

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

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

Expected 12/24  
NEW YORK UNIVERSITY  
The Courant Institute of Mathematical Sciences  
M.S. in Mathematics in Finance  
- Forthcoming Coursework: stochastic calculus, algorithmic trading, data-driven modeling, statistical inference, derivatives pricing

09/18 - 06/22  
SICHUAN UNIVERSITY  
B.Econ. in Financial Engineering  
- Coursework: time series analysis, financial stochastic processes, machine learning, OOP in Java, data structure and algorithms in C++, database system, numerical methods, econometrics

EXPERIENCE

09/21 - 01/22  
SHANGHAI KAFANG INFORMATION TECHNOLOGY  
Quantitative Research Intern  
- Constructed high-frequency CTA signals (e.g., step order imbalance ratio and mid-price basis) using fundamental analysis, technical analysis and deep learning models like CNN and LSTM  
- Developed high-frequency CTA market-making strategies based on LGBM, incorporating high-frequency signals with low-frequency signals  
- Backtested strategies on 50+ types of commodity futures and obtained annualized return over 30% with max drawdown < 5%, winning ratio of 70% and Sharpe ratio of nearly 3  
- Calculated fill rate of algorithmic trading orders and futures’ price receiving time lags to optimize strategies

07/21 - 08/21  
SHENYIN & WANGUO FUTURES  
Quantitative Research Intern  
- Calculated delay of every second between local and exchange servers with linear regression model  
- Predicted probability of stock prices declining from surged limit with technical analysis and machine learning models (e.g., neural networks, decision trees), achieving 80% accuracy  
- Constructed timing strategy by predicting half-month stock returns based on decision trees, with annualized alpha return reaching 20% and max drawdown of 10% in bear markets

PROJECTS

10/21 - 02/23  
SICHUAN UNIVERSITY  
Enhanced Index Tracking Based on Kernel Search  
- Modeled enhanced index tracking as mixed integer linear programming (MILP) problem and solved it by applying heuristic kernel search, using YALMIP tool  
- Improved kernel search algorithm by dividing time span into multiple periods, reducing out-of-sample RMSE from 1.5 to 0.3, according to backtests on China’s CSI 300 index

10/20 - 09/21  
SICHUAN UNIVERSITY  
Portfolio Management Based on Random Matrix Theory  
- Filtered covariance matrix of portfolio returns with random matrix theory  
- Calculated minimal risk portfolio and efficient frontier in Markowitz’s theory using filtered covariance matrix, reducing out-sample risk by 2/3 on China’s CSI 300 index

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, Java, C/C++, MATLAB, SQL  
Languages: English (Fluent), Mandarin (Native)
TAOYING ZHAO
(702) 403-4914 // Taoying.Zhao@nyu.edu // linkedin.com/in/taoyingzhao/

EDUCATION

Expected 12/24
NEW YORK UNIVERSITY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- Expected Coursework: risk and portfolio management, stochastic calculus, Fama-French, Black-Scholes, Hull-White model, portfolio optimization, algorithmic trading, penalized regression, Ito’s lemma, risk-neutral valuation

08/18 - 06/23
UNIVERSITY OF CALIFORNIA, SAN DIEGO
La Jolla, CA
Bachelor of Science in Mathematics, Bachelor of Science in Psychology/Social Psychology
- Undergraduate Coursework: Discrete mathematics, abstract algebra, algebraic topology, ODE analysis, probability, stochastic process
- Graduate Coursework: Real analysis (abstract measure and integration theory; linear functionals; Lebesgue spaces; Fourier analysis); PDE analysis (heat equations; Hamilton-Jacobi theory; linear elliptic, parabolic, hyperbolic equations; Monge-Ampère equation)
- Psychology Coursework: judgment and decision-making, game theory, behavioral economics, social cognition
- Computer Science Coursework: OO programming (Java), algorithms, data structures, computer organization and systems programming

EXPERIENCE

09/21 - 06/23
DEPARTMENT OF MATHEMATICS, UCSD
La Jolla, CA
Teaching Assistant and Grader
- Reinforced students’ learning of fundamental knowledge and problem solving skills for multivariable calculus through weekly discussion sessions and office hours
- Built strong working relationships with 100 students (as TA, rated 10 of 10 by 2 professors)
- Provided timely and detailed feedback on homework for honors multivariable calculus, honors linear algebra, and abstract algebra (as grader, rated 10 of 10 by 3 professors)

07/19 - 08/19
CHINA CITIC BANK
Chengdu, Sichuan China
Information Technology Intern (Java, SQL Server, HTML)
- Collaborated on web projects’ entire development cycles; developed over 1K lines of code
- Constructed SQL server database, designing tables that suited management system requirements and MyBaits structure, transferring necessary data from other databases
- Implemented back-end with SQL read and write in Java
- Constructed verification code function with bank SMS service on sign-up page

PROJECTS

04/22 - Present
UCSD COGNITIVE DEVELOPMENT LAB
La Jolla, CA
PLEaSE - Probability Learning in Social Environments (Python, JavaScript)
- Led PLeaSE project team; designed and trained avatars’ strategies for experiment, using reinforcement learning model via Python for avatars to simulate real-people actions
- Maintained project’s online platform in JavaScript; standardizing source code

10/20 - 03/21
Analysis of Redistribution Trends of California (R)
La Jolla, CA
- Collected and cleaned data about redistribution, including GINI coefficients and all propositions’ yearly results for all California counties
- Implemented models via principal component analysis and linear regression, exploring multiple factors influencing propositions’ votes; visualized result of models

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Java, Python, C, MATLAB; SQL server; R; Bash Shell Script, Java Script, HTML
Languages: English (fluent), Mandarin (native)
KAIWEN (KAI) ZHOU
(917) 497-9701 // kaiwen.zhou@nyu.edu // linkedin.com/in/kaiwen-zhou // https://github.com/kaiwen-zhou

EDUCATION

Expected 05/25
NEW YORK UNIVERSITY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
  ● Expected Coursework: time series analysis, alternative data, fixed income, BARRA-style Implicit Risk-Factor Model, EM algorithm, Hidden Markov Models (HMMs), Gibbs Sampling

09/19 - 05/23
NEW YORK UNIVERSITY
The Courant Institute of Mathematical Sciences
B.A. Honors in Mathematics, Minor in Computer Science
  ● Undergraduate Coursework: probability, bayesian statistics, SVD, PCA, differential equations, numerical methods, linear & non-linear optimization, regression, ensembling, clustering, CNN
  ● Graduate Coursework: portfolio theory, Ito’s Lemma, Black-Scholes, Hull-White model, Monte Carlo, PDE implicit scheme, local volatility, VaR, GARCH, Feature Map Regression, AdaBoost
  ● Honors/Awards: Dean’s List (2019-2023), Magna Cum Laude, Phi Beta Kappa

PROJECTS

NYU COURANT
01/23 - 05/23
Analysis of Portfolio Allocation Schemes (Python)
  ● Analyzed CAPM theory, mean-variance optimization, APT model and Black-Litterman model and summarized findings in report
  ● Adopted and implemented Attilio Meucci’s mean-variance optimization (MVO) framework proposed in his book Risk and Portfolio Allocation
  ● Applied APT model that generated views for latent factors and used that to predict mean and variance of return via Bayesian scheme
  ● Backtested and compared performance of different MVO and Black-Litterman-APT allocation schemes using 10 years’ weekly data; derived insightful findings

01/22 - 05/22
Pricing an Exotic Option Using Hull-White Model (Python)
  ● Developed an object-oriented programming (OOP) framework for efficient data collection and web-scraping, incorporating data such as Nikkei-225 index and US Treasury yield curve
  ● Calibrated Hull-White model parameters using cubic splines to determine key values and dynamics for essential calibration
  ● Generated final price approximation for Quanto Option using Monte-Carlo simulation

09/22 - 12/22
Prediction of a 4-Fingered Robot Hand Given RGB+Depth Images (Python)
  ● Designed and implemented convolutional neural network (CNN) model to predict finger positions from RGBD images, achieving an RMSE error of less than 0.00414
  ● Explored various neural network structures and fine-tuned hyperparameters through grid search to construct an optimized model

01/23 - 05/23
Image Recovering and Line Fitting With Different Machine Learning Techniques (Python)
  ● Evaluated performance of random forest, gradient boosting, and feature map regressors with amplified data or regularization using 5-fold grid search cross-validation
  ● Compared performance of exponential and B-spline feature maps on regression tasks involving polynomial and periodic datasets

01/23 - 05/23
LSA-based Recommender (Python)
  ● Implemented prediction model for generating top-5 closest tweets to a given tweet using tfidf_vectorizer and TruncatedSVD, as well as nltk package for lemmatization

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, LaTeX, Java
Languages: English (fluent), Mandarin (native)
EDUCATION

Expected 12/24  NEW YORK UNIVERSITY  New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
● Coursework: object-oriented programming, data structures and algorithms, Black-Scholes,
  machine learning, data science, stochastic calculus

09/19 - 06/23  ZHEJIANG UNIVERSITY  Hangzhou, China
B.Econ., Concentration in Finance
● Coursework: calculus, linear algebra, probability & statistics, ODE and PDE, stochastic process,
  real analysis, computational methods, linear regression, time series models, data analysis
  (Python), corporate finance, asset pricing
● Honors/Awards: Outstanding Graduate of Zhejiang University

EXPERIENCE

09/21 - 10/21  ZHEJIANG ZHEQI INDUSTRIAL CO.  Hangzhou, China
(A leading Chinese market maker)
Financial Engineer Intern (Python, MySQL)
● Read and summarized industry articles and reports about quantitative finance
● Collected options transaction data and used cubic spline interpolation to fit options prices
● Estimated implied volatility through Newton-Raphson and bisection methods using GitHub to
  support team projects

PROJECTS

11/21 - 06/23  ZHEJIANG UNIVERSITY  Hangzhou, China
In Search of Latent Factors in Commodity Markets (Python, MATLAB)
● Conducted main empirical research as co-author of paper; presented it at 2 international
  academic conferences
● Cleaned data of 32 US commodities, constructed continuous price series, returns, and
  characteristics, and applied risk-premium PCA (RP-PCA) as primary method
● Evaluated 4 models’ in- and out-of-sample performance, and conducted statistical tests to
  compare models’ performance
● Used factor selection procedure proposed by Harvey and Liu (2021), factor spanning tests, and
  Fama-MacBeth regressions to confirm new factors’ pricing power
● Improved static strategy by combining RP-PCA with factor timing strategies; result: reached SR
  of 0.62, information ratio of 0.74, and expected utility of 0.41 in out-of-sample case

12/20 - 01/21  ZHEJIANG UNIVERSITY  Hangzhou, China
Sentiment Analysis of Twitter Text (Python)
● Applied Naive Bayes Classifier to analyze probability of positive emotions in Twitter text
● Visualized sentiment analysis results in geographic heat maps with Tableau

05/20 - 06/20  ZHEJIANG UNIVERSITY  Hangzhou, China
Visualization of COVID-19 Situation (Python)
● Acquired and cleaned pandemic data of 100+ countries, with pandas
● Visualized each country’s cumulative cases and deaths in dynamic scatterplot with Plotly; shared
  project on cloud (PythonAnywhere)

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python (NumPy, pandas), MATLAB, SQL
Languages: English (fluent), Mandarin (native)
Affiliations/Certifications: Passed Financial Risk Manager Exam, Part I (July 2021)
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