RESUME BOOK

INTERNSHIP CANDIDATES

MATHEMATICS IN FINANCE

Master of Science Program

DEAR COLLEAGUE,

We are pleased to share with you the resumes of the graduate students in NYU Courant's *M.S. in Mathematics in Finance* who are looking for summer internships.

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

Our graduate-level 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 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 computer science, machine learning and data science as they are used in the financial industry today. Our advanced electives cover cutting-edge topics in alternative data, algorithmic trading, computational statistics, derivatives pricing, financial machine learning, risk and portfolio management, and XVA. Our instructors are senior industry professionals and full-time faculty from NYU Courant, the top ranked department worldwide in applied mathematics. You can find more information about our curriculum and faculty at **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

	1ST SEMESTER	2ND SEMESTER	3RD SEMESTER
FINANCIAL THEORY, STATISTICS, AND FINANCIAL DATA SCIENCE	Financial Securities and Markets Risk and Portfolio Management Data Science and Data-Driven Modeling	Dynamic Asset Pricing Machine Learning & Computational Statistics Market Microstructure Advanced Topics In Equity Derivatives Interest Rate & Fx Models	Advanced Statistical Inference and Machine Learning Trends in Financial Data Science Time Series Analysis & Stat. Arbitrage Alternative Data in Quantitative Finance
PRACTICAL FINANCIAL APPLICATIONS		Active Portfolio Management Modeling and Risk Management of Bonds and Securitized Products Trading Energy Derivatives Algorithmic Trading & Quantitative Strategies Advanced Risk Management	Fixed Income Derivatives: Models & Strategies In Practice Trends In Sell-Side Modeling: XVA, Capital and Credit Derivatives Cryptocurrency and Blockchains: Mathematics and Technologies Project & Presentation
MATHEMATICAL TOOLS	Stochastic Calculus		
COMPUTATIONAL SKILLS	Computing in Finance Data Science and Data-Driven Modeling	Scientific Computing in Finance	

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

KAILAI CHEN

(929) 313-0966 // kailai.chen@courant.nyu.edu // linkedin.com/in/kailai-chen

EDUCATION

Expected 12/24	**NEW YORK UNIVERSITY**	New York, NY
	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, cryptocurrency 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**	New York, NY

The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- *Coursework:* Brownian motion, Ito's lemma, Black-Scholes model, Feynman-Kac formula, programming in finance(Python), linear Regression, supervised and unsupervised learning, risk management, financial asset trading, statistical inference for models, trading simulations
- *Expected Coursework:* object-oriented programming(Python), machine learning, data structures and algorithms, arbitrage pricing, fixed-income models, foreign exchange derivatives markets, interpolation with optimization methods, portfolio management, incomplete markets

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 Chinese Mathematics Competitions(CMC) of College Students, 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.**	

(One of China's largest comprehensive securities research & consulting institutions)   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
- Based on China's market, explored fund managers' timing ability with regression model, and discussed differences of conclusions between markets of China and US
- Extracted and anatomized low-cost fund data; summarized competitive advantages and background, as well as business strategies of investment companies; produced client report
- Collaborated with colleagues to analyze 10 case studies of regular dividend funds (e.g., in US, Japan) on features, purposes, and target groups to derive insights for Chinese funds
- 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

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(Pandas, Numpy, Scipy, Matplotlib), MATLAB, LaTeX, SQL, Linux
Languages: English (fluent), Mandarin (native)

CHAO (RYAN) CHENG

(201) 238-0491 // chao.c@nyu.edu // linkedin.com/in/-chao-cheng/

EDUCATION

Expected 12/24	**NEW YORK UNIVERSITY**	New York, NY

The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- *Coursework:* stochastic calculus, option pricing and hedging, machine learning and statistics, portfolio management, market microstructure, algorithmic trading, convex optimization

09/18 - 06/22	**NANJING UNIVERSITY**	Nanjing, China

B.S. in Financial Engineering
- *Coursework:* Black-Scholes model, option volatility, OOP, machine learning, data science
- *Honors:* National Scholarship (top 3%), Outstanding Student at Nanjing University (top 5%)

01/21 - 05/21	**UNIVERSITY OF CALIFORNIA, BERKELEY**	Berkeley, CA

Exchange Program

EXPERIENCE

07/22 - 06/23	**LINGJUN INVESTMENT**	
	(Top 4 hedge fund in China, $10B AUM)	Beijing, China

Exchange-Traded Option, Quantitative Researcher Intern
- Constructed 60+ temporal alpha factors of vol and spot at minute level into pool, and converted them into Cython; achieved 0.6- correlation and 1.5+ Sharpe ratio in and out of sample
- Picked features from alpha pool; built combos with random forest, XGBoost to create vol position signals; achieved 3+ SR, 20%+ AAR, 1- turnover rate, 7%- max drawdown (2015 - 2023)
- Developed arbitrage and regression strategies to achieve 2+ profit/loss and 0.7+ winning rate; connected OSIM system to KSIM system to develop OTC strategies
- Cleaned static and dynamic data and provided APIs to PM to calculate required information
- Improved OSIM system, like P&L attribution, automating reports and calculating risk ratio

11/21 - 03/22	**GUOTAI JUNAN SECURITIES**	
	(Top 10 investment bank in China)	Shanghai, China

Structured Finance, Quantitative Researcher Intern
- Designed and calculated prices and Greeks of 10+ OTC options on ETF with BS and MC
- Completed dynamic delta hedging of options to analyze different volatility risk premium

05/21 - 08/21	**SHENWAN HONGYUAN SECURITIES**	
	(Top 10 investment bank in China)	Shanghai, China

Over-the-Counter Option, Quantitative Analyst Intern
- Constructed datasets and Naive Bayesian models to classify option orders; with 80%+ accuracy
- Extracted options' key information to automate sending confirmation letters; with 70%+ accuracy

PROJECTS

08/21 - 10/21	**NANJING UNIVERSITY**	Nanjing, China

Research on Backtesting System
- Improved system to compute and visualize backtesting statistics (e.g., IC, IR, NAV); conducted long and short backtesting; completed 10+ operators to process alpha factors
- Collaborated on basic framework of automatic mining alpha factors based on genetic algorithms

11/19 - 04/20	**Research on Terrorist Financing**

- Collected and preprocessed Bitcoin address and transaction data to generate 20+ features
- Predicted terrorist financing, with 70%+ accuracy; in linear models and tree models

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python (pandas, numpy, scipy, scikit-learn, pytorch), Cython, C++, MATLAB, Linux
Certifications: C++ for Financial Engineering (QuantNet), with distinction; Deep Learning Specialization (Coursera)
Interests: Basketball (Nanjing University Business School Championship)

SICHEN (FRODO) GU

(347) 449-4983 // sichen.gu@nyu.edu // linkedin.com/in/sichen-gu/

EDUCATION

Expected 12/24 **NEW YORK UNIVERSITY**   New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- ***Expected Coursework:*** risk management, Fama-French, algorithmic trading, Black-Scholes model, VaR, covariance matrix estimation, Monte Carlo simulation, stochastic process

09/19 - 05/23 **NEW YORK UNIVERSITY**   New York, NY
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**   Shanghai, China
Investment Research Intern (Python)
- Analyzed and processed diverse dataset comprising 127 monthly variables and 1 quarterly variable (GDP) from FRED-MD / FRED-QD dataset
- Executed data transformation, including variable standardization and outlier removal, to ensure variable stationarity
- Leveraged dynamic factor models on nowcasting model to produce accurate forecasts and nowcasts of economic variables
- Enabled proactive decision-making by providing early estimates of critical economic indicators
- Initiated research on hierarchical risk parity (HRP) model, including in-depth analysis of academic papers and facilitation of plans for HRP's future implementation at firm

05/22 - 08/22 **ASTOR REALTY CAPITAL**   New York, NY
Private Equity Intern
- Conducted quantitative and qualitative due diligence for potential investments by computing net operating income, yield on cost, and waterfall structure profits
- Leveraged financial modeling techniques like discounted cash flow (DCF) analysis and pro forma modeling to assess projected cash flows and evaluate investment scenarios

PROJECTS

10/23 - 12/23 **NYU COURANT**   New York, NY
Comparative Analysis of Correlation Dynamics in Major Financial Markets (Python)
- Analyzed correlations among equity indices, currency pairs, and interest rates using EWMA and GARCH models, examining market trends and VIX's role in forecasting volatility
- Evaluated asset distribution patterns of S&P 500 and other indices by calculating rolling statistics (variance, skew, kurtosis); studied asset returns against Gaussian and alternative distributions
- Compared implied and realized distributions in financial indices; employed butterfly and kernel regression methods to analyze volatility smiles and assess statistical measures of volatility trends

03/23 - 05/23 **Quantifying Musical Evolution and Revolution (Python)**
- Developed cosine similarity and eigenvector centrality model for dataset containing 50K musicians, enabling evaluation of genre similarity and relative popularity
- Employed PCA within k-means clustering and conducted multi-class classifications of music genres using algorithms such as random forest, AdaBoost, decision trees, and neural networks
- Achieved AUC of 0.92 in predicting music genres from their features

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python (Numpy, Pandas, Scikit-learn, PyTorch), Java, R programming, MySQL
Interests: highest amateur rank in Go (chess game), Travel (251 cities in 32 countries)
Activities: Teaching Assistant, Grader, and Peer Mentor for undergraduate math majors at NYU Courant

SHENGJUN (JAMES) GUAN

(812) 223-6448 // james.guan@nyu.edu // linkedin.com/in/jamesguanshengjun

EDUCATION

Expected 12/24	**NEW YORK UNIVERSITY**	New York, NY

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:* stochastic 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**	New York, NY

The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- *coursework:* object-oriented programming, risk and portfolio management, convex optimization, stochastic calculus, machine learning and computational statistics, data science and data-driven modelling, financial securities and markets, algorithmic trading

09/21 - 06/23	**UNIVERSITY OF BIRMINGHAM**	Birmingham, UK

B.S. in Mathematics With Honours (First Class)
- *Coursework:* applied statistics (machine learning), statistics in economics, integer programming and combinatorial optimization, numerical methods and programming, differential equations, real and complex analysis, multivariable calculus, linear algebra, mathematical finance

09/19 - 06/21	**HUAZHONG UNIVERSITY OF SCIENCE AND TECHNOLOGY**	Wuhan, China

B.S. in Finance
- *Coursework:* Python programming, econometrics, microeconomics, macroeconomics, accounting, game theory, money and banking, public finance
- *Award:* Freshman Award scholarship (50% tuition)

EXPERIENCE

08/22 - 09/22	**CHINA SECURITIES CO., LTD**	Shanghai, China

Data Analyst Intern (Python)
- Backtested structured derivatives (auto-callables) historical win rates under various P/B ratios
- Mocked market-making automation mechanics, revisited delta-neutral, beta hedging, grid trading and arbitrage trading algorithms using Python
- Implemented data processing, analysis, visualization, and drafted reports in equity research
- Adjusted institutional clients' portfolios based on Sharpe models; attained significant Sharpe ratio increases (25%+ average); developed dynamic delta hedging for OTC derivatives
- Customized PB trading systems for custody, clearing, automated trading, leveraged financing, and risk management for institutional clients

PROJECTS

02/22 - 05/22	**UNIVERSITY OF BIRMINGHAM**	Birmingham, UK

Research on Potential Function of Bitcoin in Portfolio Management (Excel, Python)
- Developed multiple portfolios comprising cryptos, gold, S&P 500 index, and bonds
- Constructed 3 Sharpe optimized portfolios; backtested their performance using Excel and Python
- Analyzed different features of bitcoin in portfolios under distinct market conditions; detected that bitcoin has consistently low correlation with stocks and bonds, but higher volatility
- Published a paper and accepted by the 6th International Conference on Economic Management and Green Development (ICEMGD 2022)

02/22 - 02/22	**MATHEMATICAL CONTEST IN MODELLING (MCM) 2022**	Online

Trade-Off Between Return and Risk (Python, MATLAB)
- Constructed short-term forecasting model based on ARIMA to capture gold price trend
- Applied MPT and VaR to adjust for profit maximization and volatility dynamically
- Introduced sensitivity analysis with cross-validation on transaction fees and spot rates data to determine optimal trading frequencies and margin trading strategy size accordingly
- Backtested various strategies using Python; best-performing strategy yielded annualized returns of 20%+ and maximum drawdown of -16.24% in and out of sample

COMPUTATIONAL SKILLS / OTHER

Programming Languages & Software: Python (numpy, pandas, scikit-learn), R, MATLAB, LaTex, SQL
Affiliation/Certification: Certificates of Completion for Akuna Capital Options 101 Courses
Interests: Texas Hold'em, Soccer games statistics analysis

TIANBI HU

(929) 313-6316 // tianbi.hu@nyu.edu // www.linkedin.com/in/tianbi-hu

EDUCATION

Expected 12/24	**NEW YORK UNIVERSITY**	New York, NY

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 CRYPTOCURRENCY 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)

SOOHAN KIM

(929) 218-1873 // soo.han.kim@nyu.edu // linkedin.com/in/soohan-kim/

EDUCATION

Expected 12/24 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- ***Expected Coursework:*** data-driven modeling, portfolio management, algorithmic trading, market microstructure, computational statistics, stochastic calculus, dynamic asset pricing

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

EXPERIENCE

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

PROJECTS

09/22 - 05/23 **SUNG KYUN KWAN UNIVERSITY** Suwon, South Korea
Portfolio Optimization With Reinforcement Learning (Python)
- Built and trained AI agent that allocates weights for U.S. equities portfolio, resulting in 23.9% CAGR and 1.12 Sharpe ratio
- Used fractional differentiation to preprocess stock price data efficiently; conducted Dickey-Fuller tests, checking stationarity with minimal signal loss
- Programmed graph neural networks to learn inter-stock relationships when building state-space
- Applied adversarial inverse reinforcement learning using modern portfolio theory; calculated expert weights from past data that agent imitates and extrapolates to future data

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

07/21 - 07/22 **SUNG KYUN KWAN UNIVERSITY** Suwon, South Korea
Volatility Surface Prediction With Physics-informed Deep Learning (Python)
- Proposed and implemented physics-informed convolutional transformer network for predicting volatility surface of SPX European call options
- Wrote research paper, accepted for publication at *Quantitative Finance*, reporting mean absolute percentage error results: 4.92 (volatility prediction) and 3.85 (option price prediction)

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python (pandas, numpy, pytorch, tensorflow), C/C++, Java, Mathematica, SQL, 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)

YUQIAN (TRUDY) LI

(347) 821-0668 // yuqian.li@nyu.edu // linkedin.com/in/liyuqian/

EDUCATION

Expected 12/24	**NEW YORK UNIVERSITY**	New York, NY

The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- *Coursework:* stochastic calculus, asset pricing, OOP (Python), machine learning, risk & portfolio management, financial securities & markets, interest rate & FX models, market microstructure
- *Teaching Assistant* for: Math for Economics II, Intro to Math Modeling

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, operations research data structure & algorithms (C++), financial engineering, actuarial science, investments
- *Honors/Fellowships:* Graduate with Honors (top 3%), 5 fellowships in 3 years (top 5%)

EXPERIENCE

03/23 - 05/23, 01/22 - 03/22	**CINDA SECURITIES** (Asset management firm with $10B AUM)	Beijing, China

Investment Management Intern (Python, MATLAB)
- Investigated trends of 680+ convertible bonds from 2017 to 2022; weighted their implied volatility (IV) to monitor market IV; updated it daily for department's decision-making
- Collaborated with managers to design timing strategies based on volatility risk premium by drawing and updating IV surface of SSE 50 ETF options
- Researched 240+ bonds and REITs and wrote reports on them, supplying comprehensive analysis to senior management to inform their trading decisions

PROJECTS

09/23 - 12/23	**4 Projects in Option Hedging and Financial Assets Data Analysis (Python)**	New York, NY

- Option Hedging Simulation: Compared BM and BS model stock price paths; hedged options with self-financing portfolio and plotted P&L; calculated historical and break-even volatility
- Option Hedging with Historical Data: Hedged Apple's 6M options considering dividends; back-tested P&L; rolled by 1 day for 2 years and repeated; researched break-even volatility and skew
- Trinomial Model Construction: Hedged trinomial model by minimizing quadratic risk; compared its P&L with binomial models under equal initial endowment and equal delta conditions
- Data Analysis of Indices, Currency Pairs & Interest Rates: Computed time series and distribution of correlation and volatility; compared VIX and vol indicators modeled in EWMA and GARCH

02/23 - 05/23, 09/21 - 12/21	**Pricing of Snowball Structured Products (Python)**	Online

(Associated with Nankai University and California Institute of Technology)
- Analyzed traits, evolution, and markets, highlighting returns and risks of 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
- Improved pricing algorithm with GARCH volatility model and Monte Carlo simulation method; conducted comprehensive analysis on return scenarios, sensitivity, and Greeks

02/22 - 02/22	**Mathematical Contest in Modeling - MCM (MATLAB)**	Online

- Crafted optimal Water and Hydroelectric Power Sharing plan during drought for 2 reservoirs on Colorado River serving 4 industries across 5 states; won Finalist award - top 2% globally
- State Allocation Model: Collected data in 10+ fields; devised model with linear programming and differential equations; offered solutions considering 3 initial scenarios; predicted follow-ups
- Industry Allocation Model: Processed data using Lagrange interpolation and entropy methods; devised model with Spearman correlation coefficient and optimal approximation

COMPUTATIONAL SKILLS / OTHER

Programming Languages & Software: Python, SQL, C++, MATLAB, VBA, SPSS, Stata, EViews, Latex, MS Office
Certificates: CFA Level 1, NCRE Level 2, Machine Learning (Coursera), Python for Everybody (Coursera)

WENSHENG LIN

(631) 202-9592 // wensheng.lin@nyu.edu // linkedin.com/in/wensheng-lin

EDUCATION

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

- *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**	Stony Brook, NY

- *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** (Financial, risk, and internal management consulting firm) **Consulting Intern (Excel, Python, Visio)**	Shanghai, China

- 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** ($7.77B securities trading, asset management, and underwriting firm) **Business Development & Research Analyst Intern**	Fuzhou, China

- 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** **Applying Deep Learning in Option Pricing (Python)**	Stony Brook, NY

- 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** **Portfolio Optimization on Multivariate Normal Tempered Stable Distribution (R)**	Stony Brook, NY

- 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

NIDISH NARSIPUR

(732) 997-5092 // Nidish.Narsipur@nyu.edu // www.linkedin.com/in/nidish-narsipur

EDUCATION

Expected 12/24	**NEW YORK UNIVERSITY**	New York, NY

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**	New Brunswick, NJ

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**	New Brunswick, NJ

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**	New Brunswick, NJ

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**	New Brunswick, NJ

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)**	Remote

- 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)**	Remote

- 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

YUCONG (PATO) SHAN, FRM

(412) 980-3346 // shanyucong@nyu.edu // www.linkedin.com/in/yucongs

EDUCATION

Expected 12/24 **NEW YORK UNIVERSITY**   New York, NY
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**   Pittsburgh, PA
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**   Jinan, China
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**   Beijing, China
Asset Risk Management Intern (Python, C++)
- Applied Python to research options volatility hedging strategies using Heston model, 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**   Beijing, China
Quantitative Developer Intern, Risk Analyst (SQL, SAS, JAVA, Pyspark, Hadoop)
- Wrote SAS and Java OOP, stream, thread 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**   Beijing, China
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**   Jinan, China
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++, Java, R, MATLAB, SQL, SPSS, LaTex, Excel
Languages: Mandarin (native), English (fluent), French(basic), Cantonese(basic)
Certification: FRM, CFA Level II Candidate, NCRE Level II (Access Database, Python, Microsoft)
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, data-driven modeling, portfolio optimization and risk

09/19 - 06/23	**XI'AN JIAOTONG - LIVERPOOL UNIVERSITY**	Suzhou, China

B.S. in Applied Mathematics with Honors (First Class)
- Ranked #1/144; won Best Overall Academic Performance Award
- National Scholarship, Provincial Outstanding Student
- *Coursework:* analysis, probability & statistics, ODE & PDE, mathematical modeling, operational research, numerical analysis, risk management, Markov chain, optimization

09/19 - 06/23	**UNIVERSITY OF LIVERPOOL (DUAL DEGREE)**	

B.S. in Applied Mathematics with Honors (First Class)   Liverpool, UK

EXPERIENCE

06/22 - 09/22	**RUISHENG INVESTMENT**	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)
Award: 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**   New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- *Expected Coursework:* Black-Scholes, Monte Carlo simulation, Machine Learning, data structure, stochastic calculation, risk-neutral valuation, risk management

09/19 - 06/23 **THE CHINESE UNIVERSITY OF HONG KONG, SHENZHEN**   Shenzhen, China
B.S. in Financial Mathematics
- *Coursework:* linear algebra, real analysis, numerical analysis, probability theorem, stochastic calculation, data structure, C++, econometrics, derivative pricing, fixed income securities
- *Honors/Awards:* Dean's List Honor (2021-2022); Academic Performance Scholarship (top 2%)

EXPERIENCE

06/22 - 08/22 **SHENZHEN CAPITAL GROUP**
(2nd biggest VC in China)   Shenzhen, China
Institutional Investment Fund Intern (Python)
- Analyzed datasets of property rental trends across different regions in Shenzhen with PCA
- Compared performance of Linear, Lasso, Ridge, and Random Forest Regression; constructed model that forecasts prices of properties with 86% accuracy
- Evaluated market value of industry companies' portfolios with balance sheet; figured out Sharpe ratio and VaR; provided investment leaders with insights on choosing REITs partners

01/22 - 03/22 **SHENZHEN ORIENTAL FORTUNE CAPITAL**
(Top 10 PE in China)   Shenzhen, China
Hard Technology Fund Intern (Excel)
- 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**   Shenzhen, China
International Department Intern (Word)
- 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

05/23 - 07/23 **LOAN DEFAULT DETECTION (Python)**   Shenzhen, China
- 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**   Shenzhen, China
Improve SIR Model To Forecast COVID-19 Situation (MATLAB)
- Simulated impacts of factors with multi-linear regression models; Designed 100 Monte Carlo trials forecasting trajectory of infections and associated fatalities; Conducted sensitivity analysis
- Explored rule of government quarantine policy's change and simulated to find out corresponding effect; Implemented antithetic variable technique to decrease test variance by 60%

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

WEI (OLIVIA) WANG

(201) 686-1801 // weiwang@nyu.edu // 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)

YUHENG (FITZ) WANG

(201) 551-9481 // yuheng.wang@nyu.edu // linkedin.com/in/yuheng-w

EDUCATION

Expected 12/24	**NEW YORK UNIVERSITY**	New York, NY

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**	Nanjing, China

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)

RUI YANG

New York, NY // (551) 220-7333 // r.yang@nyu.edu // www.linkedin.com/in/rui-yang-riona

EDUCATION

Expected 12/24	**NEW YORK UNIVERSITY**	New York, US

The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- ***Expected Coursework:*** dynamic asset pricing, Monte Carlo simulation, data-driven models, penalized regression, decision trees, Fama-French, Black-Scholes, stochastic processes, Hull-White model

09/20 - 06/23	**UNIVERSITY COLLEGE LONDON**	London, UK

B.Sc in Mathematics
- ***Coursework:*** complex analysis, stochastic process, linear algebra, computational methods, financial mathematics
- ***Honors/Awards:*** First-Class Honors Degree (Top 5%)

EXPERIENCE

06/23 - 08/23	**CITIC SECURITIES NATIONAL INVESTMENT BANK**	Beijing, China

Quantitative Research Intern (Python, Windy)
- Extracted industry fund data and summarized strategies of tech firm clients to create detailed profit reports for IPOs
- Gathered product data from 120 funds through web crawling, contributing valuable information to build strategic allocations from Shanghai STAR Board (science, technology, and innovation)
- Researched and compiled specific STAR stocks' volatility to determine stability for client investment recommendations; quantitatively calculated volatility variations and related factors

04/21 - 07/21	**BYTEDANCE**	Hangzhou, China

Data Operations Intern (SQL, Python, Excel)
- Built SKU system for 9K products for pre-sales pages collaboratively; debugged coding, resulting in expedited sales process for new EdTech division
- Traced and counted QA conversion rate for AB testing and completed data distribution analysis weekly; liaised with data analyst team
- Contributed to speeding up rollout time of app by 1 month by continuously improving its functionality, based on customer feedback

12/20 - 01/21	**TENCENT**	Online (China)

Product Operations Intern (SQL)
- Communicated with new social media app users to solicit their UX feedback; liaised with data analyst colleagues to increase app's number of clicks

PROJECTS

06/20 - 07/20	**NYU COURANT**	New York, NY

Discovery of Main Asset Classes' Performance Trends and Volatility Distribution (Python)
- Performed linear regression on top 50 market cap stocks on S&P 500 using rolling statistics; displayed time series of R^2, other select statistics, and slope (i.e., beta) for 5 underlying assets
- Forecasted that VIX was 86% accurate predictor of future realized volatility in long run by comparing it with SPX; quantitatively computed histograms of historical distribution

06/20 - 07/20	**UNIVERSITY COLLEGE LONDON**	London, UK

2nd Year Algebra / Number Theory / Combinatorics Projects (R)
- Led team to compile and analyze reference materials based on Artin's primitive root conjecture
- Applied equations and modeling graphs that team derived from conjectures to determine whether conclusion was true

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, R, SPSS, SQL, C++
Languages: English (fluent), Mandarin (native), German (beginner)

ZEHAO YANG

(929) 302-9838 // zehao.yang@nyu.edu // linkedin.com/in/zehaoyang/

EDUCATION

Expected 12/24 **NEW YORK UNIVERSITY**   New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- ***Expected Coursework:*** penalized regression, decision tree, Fama-French models, Feynman-Kac formula, Black-Scholes, Hull-White models, Ornstein-Uhlenbeck, Monte Carlo method

09/18 - 09/22 **WASEDA UNIVERSITY**   Tokyo, Japan
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**   West Lafayette, IN
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 Scientist Intern (Python, SQL)
- Developed machine learning model using **logistic regression** with **PCA** to forecast corporate financial fraud in publicly listed Chinese companies
- Applied **lasso regression** for industry-specific feature optimization in predictive modeling, identifying key factors influencing corporate financial fraud
- Adjusted **penalty coefficient C**, based on industry characteristics; employed F1-score to assess model's performance; achieved 0.92

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 (Python, R, MATLAB)
- Developed average true range (ATR) trading strategies for Chinese stock index futures; proved ineffectiveness of ATR strategy
- Backtested ATR strategy across various asset classes, achieving annual returns of 28.12% to 37.44% for 50 types of commodity futures (e.g., steel, soybean, and gasoline)
- Identified limitations of ATR strategy by confirming low annual returns, of 9.01% to 11.08%, when applied to specific stock index futures (e.g., CSI300)

PROJECT

09/23 - 12/23 **NEW YORK UNIVERSITY**   New York, NY
Hedge Fund Performance Forecasting Analysis
- Applied **penalized regression** to hedge fund returns on Fama-French Factor 5 model
- Implemented **elastic net regularization** to enhance OLS performance; calculated its MSEs

Dynamic Options Hedging Strategy Based on BlackScholes Model
- Created dynamic options hedging strategy based on Black-Scholes with S&P 500 data
- Analyzed **hedging errors** for options portfolios to optimize hedging strategies; developed statistical visualizations, including histograms, to depict hedging error distribution

COMPUTATIONAL SKILLS / OTHER

Programming Languages: C++ (STL, boost), Java, Python (pandas, numpy, matplotlib, scikit-learn, PyTorch), R, SQL
Languages: English (fluent), Japanese (fluent), Mandarin (native), Cantonese (conversational)
QuantNet Certifications: C++ Programming for Financial Engineering; An Intuition-Based Options Primer for Financial Engineering (with Distinction)
Activities: Math Finance 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** New York, NY
The Courant Institute of Mathematical Sciences
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 New York, NY
The Courant Institute of Mathematical Sciences
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)

MENG YUAN

(551) 359-0254 // meng.yuan@nyu.edu // linkedin.com/in/yuanm

EDUCATION

Expected 12/24	**NEW YORK UNIVERSITY**	New York, NY

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**	Chengdu, China

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	Shanghai, China

- 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	Chengdu, China

- 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**	Chengdu, China

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**	Chengdu, China

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)

KAIWEN (KAI) ZHOU

(917) 497-9701 // kaiwen.zhou@nyu.edu // linkedin.com/in/kaiwen-zhou // https://github.com/kaiwen-zhou

EDUCATION

Expected 12/24	**NEW YORK UNIVERSITY**	New York, NY

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**	New York, NY

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, Feature Map Regression, AdaBoost
- *Honors/Awards:* Dean's List (2019-2023), Magna Cum Laude, Phi Beta Kappa

PROJECTS

NYU COURANT   New York, NY

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)

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