NYU | COURANT INSTITUTE OF MATHEMATICAL SCIENCES

MARCH 2026

RESUME BOOK

FULL-TIME 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 on the job market and looking for full-time positions.

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

Leif Anderson
INDUSTRY ADVISOR

New York University
Courant Institute of Mathematical Sciences
MS in Mathematics in Finance

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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.

SHUNWEI (DAVID) DU

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EDUCATION

Expected 12/25 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- ***Coursework:*** stochastic calculus, time series analysis, scientific computing, risk and portfolio management, dynamic asset pricing, algorithmic trading, equity derivatives, deep learning

09/20 - 05/24 **NEW YORK UNIVERSITY** New York, NY
B.A. With Honors in Computer Science and Mathematics (Cum Laude)
- ***Coursework:*** linear algebra, probability & statistics, ordinary differential equations, real analysis, numerical analysis, data structures, algorithms, machine learning, data management and analysis

EXPERIENCE

06/25 - 08/25 **PANAGORA ASSET MANAGEMENT** Boston, MA
Quantitative Research Intern (Python, LLM, NLP)
- Built large language model (LLM)-driven pipelines that convert earnings-call transcripts into sentiment factors across global and domestic universes; created micro and macro-level signals
- Preprocessed raw transcripts into 512-token chunks with BERT-tokenizer; used few-shot prompting with GPT API to build labeled training datasets for fine-tuning locally-hosted LLMs
- Fine-tuned various BERT classification models; optimized hyperparameters via Optuna; resolved class imbalance with stratified batching and focal loss, and improved out-of-sample F1 by 0.40
- Engineered monthly factors with IR 1.7 (t-stat over 4); validated macro relevance with strong correlation; cut signal runtime 6.1x using batched GPU inference and parallel computing

06/24 - 08/24 **QILIN INVESTMENT** Shanghai, China
Quantitative Research Intern (Python, Algo Trading)
- Generated alpha factors by structuring alternative datasets, including sell-side analyst estimates and market news, to develop composite signal algorithms; achieved 1.5 information ratio
- Developed index rebalance trading strategy based on semiannual rebalancing of CSI 300 and CSI 500 Indexes, incorporating market cap and trading volume criteria; achieved Sharpe ratio of 1.96
- Designed algorithmic trading strategy using natural language processing (NLP) on alternative datasets from due diligence reports; achieved 16.31% annualized excess return

06/23 - 08/23 **LONGQI INVESTMENT** Hangzhou, China
Quantitative Research Intern (Python, Market Timing)
- Constructed market-timing signals that captured factor exposures using in-house Barra-based risk models; managed portfolio risk and increased Sharpe ratio by 8.37%
- Analyzed minute-level order-book depth and trading data from institutional investors to extract order-flow imbalance; produced long/short selection signals that increased return by 13.68%
- Created more than 10 alpha signals by processing 1-minute intraday data and statistical techniques like regression to model market behavior, each achieving information ratio of 1.6

PROJECTS

08/24 - 12/24 **NEW YORK UNIVERSITY** New York, NY
Fit-finder Application Development (Python, Full Stack)
- Utilized PyTorch and FashionCLIP for classification of garment data from Farfetch; developed search engine with vector encoding of images and text to ensure accurate outfit matches
- Designed web application to provide outfit recommendations based on restaurant dress codes

01/24 - 05/24 **Evaluation of Vision-Language Models for Radiology (Python, LLM)**
- Built radiology VLM evaluation framework with BERTScore, LLM rubric scoring, and CheXpert labels; reduced data leakage with few-shot prompted pseudo-labeled test sets

COMPUTATIONAL SKILLS / OTHER

Programming Languages and Tools: Python, Java, C/C++, SQL, PyTorch, CUDA, Polars, Azure ML, Git, Flask, R
Activities: President of NYU Zen Buddhism Club, Teaching Assistant of Calculus at NYU, Skiing, Meditation, Poker

MINGBAO (MICHAEL) HE

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EDUCATION

Expected 12/25 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance

09/20 - 06/24 **UNIVERSITY OF TORONTO** Toronto, Canada
Bachelor of Science in Mathematics and Its Applications (Probability Stats)

EXPERIENCE

08/25 - now **STRATIFI SOLUTIONS** New York, NY
Quantitative Research Analyst(Python)

- Built a Sharpe-optimized S&P 500 portfolio across sectors/commodities; beat benchmark (SR 1.62 vs 0.55)
- Analyzed crisis behavior (avg drawdown ~15%); identified structural downside from higher avg pairwise corr (~0.4 vs ~0.1 in normal periods)
- Designed a dynamic allocator between the baseline portfolio and 2Y bond with ML-predicted weights; improved SR 1.62→1.81 and max drawdown 17.1%→8.2%
- Hardened the process: 12→1-month rolling fit, higher rebalance with position-change penalty; compared models (linear kernel, RF, XGBoost) and used SHAP for attribution

06/25 - 09/25 **SHANXI SECURITIES** Shanghai, China
Quantitative Researcher (Python)

- Researched 50ETF/300ETF ATM-call IV gap mean reversion; derived entry/exit rules from historical σ; captured 65–70% post-open reversion in 20–45 min; delivered a tradeable intraday signal (sizing, stops, close-out)
- Designed and benchmarked an EOD Δ-neutral futures hedge (band trigger near close; least-squares Δ match) vs no-hedge; reduced EOD |Δ| 22–30% and overnight PnL volatility 10–15% with modest turnover impact (+3–5%)
- Defined and backtested market-abnormality entry rules: open gap >0.8% or >1.5σ, first-30-min realized vol >95th percentile, ETF–futures basis |z|>2; reduced gross exposure 10–15% with a 5–8% false-positive rate.
- Built a Python Monte Carlo pricer (log-space GBM, fixed steps); estimated Greeks via bump-and-revalue with path-count convergence checks; vectorized/preallocated for speed; delivered a reproducible price/Greeks pipeline with tests and desk examples

06/23 - 09/23 **ALLIANZ LIFE INSURANCE** Shanghai, China
Leadership Development Intern

- Designed a blended corn-futures overlay to diversify return drivers and stabilize income; implemented governance and execution controls (position/margin guardrails,banded re-hedges)
- Built a vectorized Python backtest on public DCE data (180-day rolling, pre-cost); versus single-leg baselines, reduced volatility 15–25% and max drawdown 10–20%; delivered KPI panels (rolling volatility, max drawdown, ES(95%))
- Performed scenario stresses for the 2020 Covid shock and 2022–2023 Fed-hike regime; peak-to-trough −14–−18% with 2–4-month recoveries; delivered decision-ready dashboards and automated risk reports

PROJECTS

09/24 - 12/24 **NYU COURANT** New York, NY
Performance Analysis of Hedge Fund Returns using Linear Regression (Python)

- Conducted regression analysis on hedge fund returns using Fama-French 5-Factor model
- Enhanced predictive accuracy by implementing Elastic Net regularization

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, R, SQL, LaTeX

PRANAM HEGDE

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EDUCATION

Expected 12/25 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- ***Coursework:*** algorithmic trading, portfolio optimization, alternate data, stochastic calculus

08/19 - 05/24 **BITS PILANI** Pilani, India
Dual Major in Electronics & Instrumentation, and Economics
- ***Coursework:*** econometrics, probability & statistics, calculus, linear algebra, deep learning
- ***Honors/Awards:*** Best Trader of the Outgoing Batch
- ***Publication:*** *"***Predicting Multibagger Stocks by placing a greater emphasis on Income Statement"**

EXPERIENCE

06/25 - 08/25 **CENTIVA CAPITAL** New York, US
Quant Research Intern - Equity Vol Desk (Python)
- Researched **mid-freq equity vol signals**; vectorized backtests; productionized pipeline
- Engineered IV skew/term/curvature, and vega/gamma-crowding features; YAML-driven
- Built daily options optimizer, scanning **1.6M** combos for proprietary objective; outputs top trades
- Created ETF dividend forecaster; plugged into pricers; reduced bias, improving alpha signal

07/23 - 06/24 **JP MORGAN** Mumbai, India
Quantitative Researcher (Python) - Equity Derivatives
- Managed equity derivatives portfolio, constructing positions & intraday rebalances
- Enhanced existing **quantitative models** by redefining conditions, thereby boosting compliance
- Designed and backtested multi-factor equity alpha models integrating **sector-specific signals**
- Fine-tuned **BERT** on 10-K filings to extract sentiment/ratios; integrated text features into models

06/21 - 07/21 **FUTURES FIRST (**Prop Trading Firm) Gurgaon, India
Quantitative Research Intern - Statistical Arbitrage Desk (Python)
- Designed **pricing models** for swing trading strategies that beat market by **7%** on average
- Developed proprietary models to generate **alphas** by using **large datasets** and parameters
- Applied Random Forest and XGBoost on oil futures to generate alpha trading signals
- Improved speed of existing models by 10%, thus saving the organization upwards of $100k

PROJECTS

12/22 - 05/23 **BITS PILANI** Pilani, India
Sentiment Analysis of Trading Groups on Reddit and Telegram (Python)
- Used **NLP** techniques, including **tokenization** and **stemming**, to extract and process trading data from groups for analysis
- Implemented **VADER** and **TextBlob** to assess sentiments and identify trading opportunities.

05/22 - 08/22 **BITS PILANI** Pilani, India
Volatility Surfaces for Pharma Stocks Post-Earnings: Analysis & Modeling (Python)
- Developed PDE-based volatility surfaces for pharma, integrating advanced option Greeks and NLP signals
- Enhanced forecast accuracy with SABR calibrations using MSE, RMSE and R^2 metrics for alpha generation

COMPUTATIONAL SKILLS / OTHER

Programming Languages: C++, Python
Languages: English (Native), Hindi (Native), Kannada (Working) Tulu (Native)
Certifications: Deep Learning (Coursera)

ANDRES HSIAO

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EDUCATION

Expected 12/25 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- ***Coursework:*** object-oriented programming, stochastic calculus, market microstructure, mean field games, game theory, price impact models, numerical methods, time series analysis

09/16 - 06/20 **NATIONAL TSING HUA UNIVERSITY** Hsinchu, Taiwan
B.A. in Economics
- ***Coursework:*** econometrics, derivatives market, differential equations, macroeconomics

EXPERIENCE

OPTIONMETRICS New York, NY

06/25 - 08/25 **Quantitative Research Intern (Python, SQL)**
- Designed and trained deep learning models to improve computation for implied volatility, accelerating solver convergence by 50% and improving numerical stability in production
- Developed spread-adjusted pricing method for implied dividends, reducing variance by 25% across SPX constituents and integrating outputs into backtester for dividend arbitrage strategies
- Built options backtester with transaction cost modeling, execution simulation, and walk-forward performance evaluation, used to showcase trading strategies under realistic market conditions

NOMURA ASSET MANAGEMENT Taipei, Taiwan

04/23 - 06/24 **Quantitative Risk Manager (Python, SQL)**
- Led team of 2 to develop ML models forecasting large client redemptions, collaborating with portfolio managers to refine strategies and enhance portfolio resilience under market stress
- Constructed dynamic dashboards with Python/SQL to visualize risk exposures and portfolio performance, translating complex analytics to actionable insights for investment teams
- Designed and built scalable SQL database for storing and analyzing large-scale financial data, enhancing data quality and supporting firm-wide portfolio analysis

05/21 - 03/23 **Quantitative Risk Analyst (Python, SQL, VBA)**
- Conducted performance and attribution analysis on multi-asset portfolios, hosting weekly meetings with senior executives and portfolio managers to present findings and guide discussions
- Implemented Monte Carlo simulations to model portfolio P&L and VaR across diverse market scenarios, supporting stress-test frameworks and allocation strategy decisions
- Engineered ETL pipelines integrating multi-source datasets with automated testing and cleansing, reducing reporting time by 80% and improving data quality for analytics

PROJECTS

NYU COURANT New York, NY

01/25 - 02/25 **Market Regime Clustering using K-Means, WK-Means, and Hidden Markov Models (Python)**
- Developed market regime clustering models using K-Means, Wasserstein K-Means, and Hidden Markov Models to classify market states from hourly SPY data (2008–2024)
- Built and Validated feature sets with rolling windows, applying maximum mean discrepancy to benchmark clustering and showing Wasserstein distance improved regime separation

COMPUTATIONAL SKILLS / OTHER

Programming Languages & Tools: Python (NumPy, Pandas, scikit-learn, TensorFlow), SQL, R, VBA, Git
Languages: English (Fluent), Mandarin (Native), Spanish (Intermediate)
Certificates: Mathematics for Machine Learning (Imperial College London), C/C++ Programming (NTU)

YIMING JI

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EDUCATION

Expected 12/25 **NEW YORK UNIVERSITY** **New York, NY**
The Courant Institute of Mathematical Sciences
Master of Science in Mathematics in Finance
- ***Coursework:*** fixed income derivatives, interest rate & FX models, algorithmic trading & quantitative strategies, risk & portfolio management, Black-Scholes model, supervised learning, regression, stochastic calculus, Bayesian statistics, time series analysis

09/21 - 12/24 **NEW YORK UNIVERSITY** **New York, NY**
Bachelor of Arts in Mathematics and Computer Science
- ***Coursework:*** probability & statistics, numerical analysis, PDE & ODE, linear algebra, algebra, oop, data structure, multivariable calculus, algorithms, machine learning, data analysis, OS
- ***Activities:*** Courant Recitation Leader (Calculus II for 1 year), Grader (3 years)

EXPERIENCE

06/25 - 08/25 **DEUTSCHE BANK** **New York, NY**
E-Trading Quant Intern, Rates and Credit Desks (Python)
- Upgraded UST option desk risk dashboard by extracting weights that mapped mid-curve swaps to anchor tenors with linear regression & PCA, cutting RMSE from 5 bp to 0.1 bp
- Built live net-basis monitor tracking history and intraday shifts across deliverable baskets; cut price discovery process to under 2 seconds
- Created a curve-scenario engine (bear/bull steepen & flatten) to forecast Cheapest-to-deliver switches across contracts
- Benchmarked sweep sessions against TRACE to identify missed fills and competitor trades; designed routing logic to better balance hit rate and P&L, reducing missed trades by 30%
- Regressed desk alpha on Tradeweb/Algo-Mid, quantifying alpha bleeds with 5-min intervals, and triggering model recalibration

05/23 - 08/23 **EVERBRIGHT SECURITIES** **Shanghai, China**
Equity Derivative Trading Intern, Swap Desk (Python)
- Implemented Python-driven automation tools independently for optimized ledger operations and comprehensive daily bond order aggregation, expediting regular reporting workflows by 30%
- Spearheaded futures contract rollover strategy using CSI 500 index data, achieving seamless position maintenance, and identifying key factors influencing basis and spread
- Used time series analysis for optimal trading days, reducing operational expenses by 9%
- Conducted Black-Scholes model-based scenario analysis; actively analyzed counterparty risk

PROJECTS

04/24 - 05/24 **NEW YORK UNIVERSITY** **New York, NY**
Deep Reinforcement Learning Capstone Project
- Developed deep reinforcement learning model on OpenAI Gym platform, achieving 230% increase in agent rewards through iterative tuning
- Used convolutional neural networks to reduce training loss by 35% over 4M episodes

05/21 - 03/22 **Genetic Data Analysis of Multiple Synostoses Syndrome**
- Conducted data analysis with chi-squared tests for multiple synostoses syndrome family
- Co-authored "Clinical observation and genetic analysis of a SYNS1 family caused by novel NOG gene mutation" on family genetic analysis caused by gene mutation

COMPUTATIONAL SKILLS

Programming Languages: Python, Julia, R, Matlab, SQL, C/C++, Java, kdb+, ML, Microsoft Office, LaTeX, Excel
Languages: English (Fluent), Mandarin (Native)

RUNDONG LIU

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EDUCATION

Expected 12/25 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- ***Coursework:*** financial security and markets, risk and portfolio management, machine learning, asset pricing, rates and fx, time series analysis

09/20 - 06/24 **UNIVERSITY OF WASHINGTON** Seattle, WA
College of Arts and Sciences
B.S. in Computational Finance and Risk Management
- ***Coursework:*** financial markets, fixed income, risk management, machine learning, linear algebra, numerical analysis, data structures and algorithms

EXPERIENCE

06/25 - 08/25 **ING Financial Services LLC** New York, US
Trading Risk Management Intern (Python, Excel, Murex)
- Developed SACCR and SIMM engines, automating regulatory capital and initial margin calculations for non-cleared OTC portfolios, reducing manual computation time by 50%
- Addressed the overestimation of risk by researching three different VaR models and backtesting on three years' commodity trade data
- Produced daily PnL and risk reports, parsing raw trade and market data to quantify PnL contributions acrossFX spot, rates, communicating with front office for alignment

07/24 - 08/24 **CHINA POST SECURITIES CO., LTD.** Beijing, China
Fixed Income Analyst Intern (Python, Excel)
- Implemented 10 portfolio duration strategies; identified best performing ones for each of 15 sectors; consolidated them into 1 portfolio consisting of >300 corporate bonds
- Evaluated multiple annual reports, conducted rigorous research on companies' financial, industrial, and state economic performance to contribute to corporate bond credit ratings

09/23 - 10/23 **CITIC SECURITIES CO., LTD.** Remote, China
Quantitative Analyst Intern (R, Python, SQL)
- Collected and analyzed historical stock data; provided suggested portfolio weights based on Markowitz optimization problem and corporate clients' risk and return preferences
- Implemented Black-Litterman model, incorporating market and investor views to refine portfolio weights; reduced their aggressiveness by 50%
- Gathered 5 years' stock market data and stored it using MySQL; implemented moving average strategy and visualized trading history

07/23 - 09/23 **SHENZHEN CAPITAL GROUP CO., LTD.** Shanghai, China
Quantitative Analyst Intern (Python)
- Built various quantitative factors, optimized their performance with different parameters using high frequency stock data; achieved industrial-level correlation with return rate
- Denoised sorted factors using different algorithms (e.g., PCA, k-means) and developed practical method to boost factor performance by 10%-20%
- Led 6 interns and ensured efficient communication between them and mentor; distributed assignments based on individual strengths

PROJECT

05/23 - 06/23 **UNIVERSITY OF WASHINGTON** Seattle, WA
Risk Report of Representative ETFs in the United States (R)
- Led team of 4 to produce risk report on 5 ETFs; explained 4-years' price trends and distribution of returns for each ETF
- Applied portfolio theory, risk analysis, and Monte Carlo forecasting process to ETFs to discover optimal portfolio weight with different risk levels

COMPUTATIONAL SKILLS / OTHERS

Programming Languages: Python, SQL, R, Excel, Java
Languages: English (fluent), Mandarin (native)

RAHUL KUMAR MANDAL

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EDUCATION

Expected 12/25 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- ***Previous Coursework:*** Python, machine learning, algorithmic trading & quantitative strategies, equity vol models, IR models, portfolio optimization, risk modeling, market microstructure
- ***Honors/Awards:*** Modeled global macroeconomic transition for Bridgewater Associates

06/18 - 02/20 **INDIAN INSTITUTE OF FOREIGN TRADE** New Delhi, India
M.B.A. in Finance, Strategy, and Marketing
- ***Coursework:*** statistics, derivatives, game theory, economics, trade economics, trade research
- ***Honors/Awards:*** National qualifier in WorldQuant trading challenge Alphathon

05/09 - 04/13 **INDIAN INSTITUTE OF ENGINEERING SCIENCE & TECHNOLOGY** Shibpur, India
B.E. in Metallurgy & Materials Engineering
- ***Coursework*:** Linear algebra, differential and integral calculus, PDEs, optimization, kinetics
- ***Honors/Awards*:** Ranked 36 in all-India National Mathematics Olympiad

EXPERIENCE

01/25 - 05/2025 **NYU COURANT - Department of Mathematics in Finance**
Teaching Assistant New York, NY
- Graded undergraduate coursework for Mathematics in Finance program

05/24 - 11/2024 **WORLDQUANT**
Brain User (Quantitative Research) (Fast Expression Language, Python, R) Remote
- Built equity strategies for US and China with sharpness of 4.38, fitness of 6.13, RoMaD 11.08

04/19 - 10/19 **Quantitative Research Consultant (Fast Expression Language, Python, R)** New Delhi, India
- Built equity strategies for US and China with sharpness of 3.06, fitness of 1.34, RoMaD of 3.09

04/23 - Present **ETARK SOCIAL** Kolkata, India
Founder (Python, Firebase, MongoDB, Azure)
- Launched world's 1st messaging app to provide full spam control in chats by implementing GTM strategy validated by Bass model that led to 9.8K users within 2 months at zero CAC

11/21 - 04/23 **EY** Kolkata, India
Senior Consultant - Quantitative Research, Strategy, Product, M&A, GTM (Python, R, Tableau)
- Built risk management model for global automobile manufacturer based on advanced statistical causal research which generated drop in payment defaults by 42% in 1 quarter

04/20 - 11/21 **ETARK** Kolkata, India
Head of Product & Business (Python, R, MongoDB, AWS)
- Built an earliest form of LLM on algorithmic law that analyzed consumer complaints in less than 1 min; optimized DAU/MAU more than 30%; GTM to achieve 10% growth at zero CAC

01/15 - 06/18 **STEEL AUTHORITY OF INDIA LIMITED** Durgapur, India
Operations, Planning, Business Development Manager (Excel, Linux)
- Increased production by 30% ($215K) by optimizing logistics with waiting line models

PROJECTS

06/22 - Present **CAUSAL AI ALGORITHM**
- Found cause-effect relationships, validated over 2.5 years, reducing model errors by factor of 1K

05/24 - 09/24 **INDIAN INSTITUTE OF ENGINEERING SCIENCE & TECHNOLOGY** Shibpur, India
Dynamics of Financial Market Liquidity
- Studied liquidity takers and providers using Lotka Volterra Prey-Predation model and variants

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, R, Tableau, Linux, MySQL, Cpp
Languages: English (fluent), Hindi (fluent), Bengali (native)

GREGORY (GREG) SHARMA

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EDUCATION

Expected 12/25 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- ***Coursework:*** model selection, Lasso, ridge, and elastic net regressions, PCA, SVD, risk models, stochastic processes, SDEs, PDEs

09/20 - 05/24 **NEW YORK UNIVERSITY** New York, NY
The Leonard N. Stern School of Business
B.S. in Business and Political Economy, Minor in French
- ***Coursework:*** time series forecasting, equity factor models, political economics, international economics, corporate finance, debt instruments
- ***Award:*** 2023 William Lowell Putnam Mathematical Competition (scored 20; top 20%)

EXPERIENCE

11/24 - 5/25 (PT) **BLACK CREEK DIGITAL**
5/25 - 9/25 (FT) (Holding company with businesses in bitcoin mining, energy, and computing) New York, NY
9/25 - Present (PT) **Quantitative Research Intern (Python, Clickhouse, AWS S3, Cron, CSP, NautilusTrader)**
- Identified and ranked statistical arbitrage opportunities across equity sectors, spot crypto/FX, and energy derivatives by capacity and turnover
- Engineered daily data pipeline, downsampling and split-adjusting raw NBBO ticks across 2K equities into ClickHouse with S3-backed storage
- Developed linear Gaussian state-space model with robust variance estimation; implemented in NautilusTrader as live equity strategy, now in production on Interactive Brokers
- Implemented fee- and slippage-aware execution algorithm under immediacy constraints
- Accelerated Kalman filtering and backtests using Point72's CSP and low-level optimizations (Cython and Rust), facilitating discovery of new instruments to extend strategy
- Built Grafana dashboards for backtests and live strategies (latency, fill quality, slippage, PnL attribution, risk/margin utilization), with alerting for connectivity and performance
- Investigated and reconciled backtest-live discrepancies arising from sampling frequency, market microstructure, and slippage/impact; added diagnostics comparing broker quotes to NBBO

05/23 - 08/23 **TRANSMARKET GROUP LLC**
(Privately held proprietary global markets trading firm) Chicago, IL
Quantitative Trading Intern (Python, SQL, Excel)
- Collaborated with relative value market-making strategy on off-the-run Treasury desk, focusing on long-end sector (20- and 30-year on-the-runs, ZB and UB CTDs)
- Introduced novel duration spacing measure for improved yield curve risk management, smoothing spline fits through noisy coupon premia and anomalies between liquidity points
- Wrote script to calculate yields' settle for residual cheapness and richness, creating daily reports

PROJECTS

04/24 - 05/24 **NYU STERN** New York, NY
Effect of Presidential Election on S&P 500 Volatility and Equity Returns (Python, MATLAB)
- Reconstructed 2020 U.S. presidential election win probability using PCA on equity returns
- Found electoral data significant as exogenous predictor of next-day S&P realized variance

05/21 - 05/23 **Dynamic Asset Pricing Research (Python)**
- Collaborated with team to develop volatility model for exotic assets (crypto, commodities)

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python (Pandas, PyTorch, TensorFlow, scikit-learn, HuggingFace), SQL, R, C++, MATLAB
Languages: English (native), French (fluent)
Interests: Transaction-based volatility measures, natural language processing of financial news (text classification)

AARUSHI SINGH

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EDUCATION

Expected 12/25 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- ***Coursework:*** market microstructure, scientific computing, portfolio optimization, derivatives pricing, time series analysis, stochastic calculus, computational statistics, algorithmic trading

08/20 - 12/23 **PURDUE UNIVERSITY** West Lafayette, IN
B.S. in Computer Science
- ***Coursework:*** object-oriented programming, software testing, data structures, algorithms, systems programming, data mining, machine learning, linear algebra, probability
- ***Honors:*** FactSet Research Systems Scholarship 2021, Entrepreneurship & Innovation Certificate

EXPERIENCE

06/25 - 08/25 **AMAZON** Seattle, WA
Software Development Engineer Intern (Java, AWS)
- Built high-throughput data pipeline for Google Ads metrics, reducing acquisition latency by 42%
- Engineered parallel stream processing system to enable real-time analysis of financial ad metrics
- Developed translation logic for 100K Google ad reports, improving bidding strategies by 22%
- Architected fault-tolerant workflow with AWS Step Functions, improving reliability by 87%

10/23 - 08/24 **EXCELLENT REALM** Cupertino, CA
Software Engineer (Java, React, Python, LangChain)
- Integrated LLM-based AI tutoring system via LangChain, improving learning outcomes by 23%
- Measured performance variance between students and school benchmarks to acquire 80 clients
- Created responsive React/Node.js tutoring platform with REST API supporting 100 users

06/22 - 08/22 **PUBLICIS SAPIENT** Boston, MA
Financial Services Software Engineer Intern (Python, SQL, React Native)
- Designed PostgreSQL database to reduce query latency by 65% for stock trading operations
- Connected React Native frontend with RESTful backend APIs for trading dashboard
- Implemented table partitioning and custom indexing for high-frequency transaction data
- Analyzed competitive trading platforms to identify strategic market positioning opportunities

08/21 - 05/22 **THE DATA MINE** West Lafayette, IN
Data Science Researcher (R, SQL)
- Partnered with CliftonLarsonAllen financial services to develop dynamic pricing model
- Optimized service profitability by 12% while maintaining competitive market position
- Processed employee performance metrics including billable hours, region, and experience
- Applied multivariate regression with p-values less than 0.05 and cluster analysis to price services

PROJECT

10/24 - 12/24 **NYU COURANT** New York, NY
Customer Spending Alternative Data for Trading (Python)
- Utilized k-means clustering on credit card transaction data to identify spending patterns
- Formulated forecasting model using L-BFGS-B constrained optimization with L2 regularization
- Generated revenue forecasts from consumer spending patterns with 32.16% MAPE accuracy

1/23 - 05/23 **PURDUE UNIVERSITY** West Lafayette, IN
Job Application Tracker (SQL, Databases, OpenAI API)
- Constructed SQL-backed web app to analyze Gmail inboxes and track job application updates
- Automated data extraction to update app's database and candidates, using AI and Google API

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python (NumPy, Pandas, Scikit-learn, SciPy, Statsmodels), Java, C/C++, R, and SQL
Technologies: AWS, React/React Native, PostgreSQL, Git, Financial APIs, OpenAI/LangChain, Excel, LaTeX
Activities: Linear Algebra Teaching Assistant, GSAS Student Council Marketing Director, Fundraising Caller (Top 5%)

SITENG WU

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EDUCATION

Expected 12/25 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- ***Coursework:*** Black-Scholes, Monte Carlo simulation, stochastic processes, machine learning, portfolio management, algorithmic trading, interest rate modeling, econometrics

08/20 - 05/24 **NEW YORK UNIVERSITY SHANGHAI** Shanghai, China
B.S. in Finance, B.S. in Data Science
- ***Coursework:*** derivatives pricing, equity valuation, fixed income securities, probability theory
- ***Honors/Awards:*** Magna Cum Laude, Business & Economics Honors Program, Dean's List

EXPERIENCE

06/25 - 08/25 **PING AN ASSET MANAGEMENT**
(Asset management fund with $800B AUM) Shanghai, China
Quantitative Research Intern (Python)
- Built end-to-end forecast model framework in PyTorch, integrating ResNet, GRU, and attention; unified daily/weekly/monthly pipelines for automated alpha research
- Developed tree-based dynamic factor-weighting model on predicted signals that improved annualized return by 4.72% and Sharpe ratio by 0.17 relative to equal-weight baseline
- Designed CSI 1000 index-enhancement strategy via CVXPY-based constrained optimization

05/24 - 08/24 **IFUND ASSET MANAGEMENT**
(Hedge fund with $1.2B AUM)
Quantitative Research Intern (Python) Shanghai, China
- Conducted deep review of 400 sell-side reports, refining and extending methodologies into 50 implementable fundamental alpha signals validated in cost-aware backtests
- Reconstructed growth/valuation signals via quantile YoY normalization, acceleration features, stability metrics, and OLS residuals to improve monotonicity and cross-sectional prediction

12/23 - 03/24 **SHENWAN HONGYUAN SECURITIES**
(Top 10 Chinese securities firm)
Quantitative Research Intern (Python) Shanghai, China
- Developed backtesting model for A-share market, integrating price limit constraints, special treatment stock handling, and next-day retry balancing strategies for robustness and accuracy
- Replicated and extended alpha signals across capital flows, price–volume structure, and intraday microstructure from sell-side research reports

PROJECTS

03/25 - 05/25 **NYU COURANT** New York, NY
Portfolio Selection with Higher Moments (Python)
- Built higher-moment portfolio optimizer that fits multivariate skew-normal, derived predictive mean/covariance/coskewness, and maximized third-order expected utility
- Backtested 2020–2024 on US tech and multi-asset ETFs; achieved higher expected utility than mean-variance with positive-skew tilts

09/23 - 05/24 **VOLATILITY INSTITUTE AT NEW YORK UNIVERSITY SHANGHAI** Shanghai, China
Predictive Power and Trading Strategies of Northbound Capital (Python)
- Analyzed northbound (Hong Kong to Shanghai) funds' A-share stock selections using phase-wise OLS, suggesting long-term preference for large-cap, high ROE firms
- Identified post-2023 regime shift with weaker price impact and reduced stock-selection efficacy

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python (PyTorch, CVXPY, scikit-learn, NumPy), SQL, R, Git, Bloomberg, Wind
Certifications: Bloomberg Market Concepts, WorldQuant Challenge Gold Level

ZHANTAO (CHRIS) XU

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EDUCATION

NEW YORK UNIVERSITY New York, NY
The Courant Institute of Mathematical Sciences Expected 12/25
M.S. in Mathematics in Finance

- ***Coursework:*** object-oriented programming (Java), penalized regression, decision trees, risk management of securitized products, linear regression, Fama-French, Black-Scholes, stochastic processes, Hull-White model

UNIVERSITY OF CALIFORNIA SAN DIEGO San Diego, CA
B.S. in Mathematics and Computer Science (Minor in Business and Economics) 09/20 - 03/24

- ***Coursework:*** vector calculus, linear algebra, probability, stochastic calculus, data structures, system programming, data science, microeconomics, macroeconomics, accounting, project management

EXPERIENCE

New York Life Investment New York, NY
Data Analytics Intern (SQL, Python) 06/25 - 09/25

- Engineered and validated ETL pipelines on AWS platform, transforming raw FactSet datasets into production-ready fund reporting tables; automated ingestion and quality checks on more than 100K daily records
- Applied time-series analysis on fund return datasets to evaluate factor exposures and identify performance drivers
- Ran stress-tests on mutual funds' risk stats (beta, alpha), boosting shock-resilience analysis efficiency by 20%

HAITONG SECURITIES Shenzhen, China
Research Analyst Intern (SQL, Python, Excel) 07/22 - 10/22

- Built regression and predictive models to project cost-reduction dynamics in solar energy sector
- Performed segmentation and predictive modeling of client data (e.g., risk profiles, total capital) in SQL; partnered with sales team to interpret results; boosted client engagement by 20% across 4 roadshows
- Developed web scraping tool using Python, which automated extraction and consolidation of financial statements onto Excel spreadsheets; improved efficiency in identifying viable investment opportunities by 10%

CITIC FUTURES CO., LTD. Kunming, China
Quantitative Futures Analyst Intern (Excel) 03/21 - 06/21

- Analyzed futures market trends using time-series and predictive models and used insights to collaborate with sales team, identifying optimal timing for new client outreach; resulted in about 8% increase in client conversion rate
- Conducted competitive analysis of trading profit, fees, volumes; acquired and retained more clients by closing gaps
- Increased quarter profit 10% by modeling client risk and trading behavior to recommend tailored futures contracts

PROJECTS

UNIVERSITY OF CALIFORNIA SAN DIEGO San Diego, CA
NYC Parking Ticket Database Using Internal Computer Memory (C) 01/23 - 03/23

- Implemented complex system to manage NYC parking ticket database using pointers and self-referential structure
- Managed memory with dynamic allocation and deallocation; debugged with Valgrind for memory leaks
- Designed system with hash tables and 2-dimensional linked lists for efficiency, which enabled users to locate any specific vehicle's ticket information directly while saving 50% of memory

NYU COURANT New York, NY
Magnificent 7 Concentration Analysis (Python, Statistical Modeling) 01/25 - 03/25

- Used OLS regression to show that 7 mega-cap stocks contributed 51% of S&P 500's total beta, highlighting significant concentration risk and challenging traditional beta models
- Identified correlation (Pearson 0.72) between MAG 7 and broader market volatility (VIX), driving systematic increases in SPX implied volatility skews and elevating option premiums by approximately 2%
- Designed beta-neutral strategies (long small-cap, short adjusted large-cap index) to mitigate risks of MAG 7 concentration, resulting in 60% lower volatility and 44% higher Sharpe ratio relative to traditional approaches

COMPUTATIONAL SKILLS / OTHER

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