Rohan Malhotra

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Education

New York University, Courant Institute — **New York, NY**
B.S. in Mathematics and Computer Science — *August 2024 - May 2027*

- **GPA:** 3.75/4.00 (Accelerated 3 Year Graduate)
- **Coursework:** Algorithms, Operating Systems, Multivariable Calculus, Linear Algebra, Probability, Statistics, Numerical Methods
- **Graduate Coursework:** Mathematical Techniques for CS Applications

Work Experience

Kalshi — **New York, NY**
Quantitative Developer Intern — *Feb 2026 – May 2026*

- Built a C++ prediction-market hedging engine converting prices (cents ↔ implied probability ↔ bps) into real-time exposure.
- Implemented Kelly-based position sizing (fractional Kelly + max allocation caps) to output recommended stake %s.
- Architected a websocket-ready market data pipeline to ingest quotes/trades and drive live pricing + buy/sell/hedge signals.

Aress Software — **New York, NY**
Machine Learning Intern — *Jun 2025 – Aug 2025*

- Trained and deployed PyTorch ML models on 500k+ multimodal records across Azure and AWS cloud environments.
- Designed NoSQL pipelines unifying 10+ data sources into a single analytics layer and optimized SQL queries for faster retrieval.
- Developed Power BI dashboards surfacing 20+ real-time KPIs for global operations teams and managed associated JIRA workflow.

Hume Center for National Security and Technology — **Blacksburg, VA**
Systems Engineering Intern — *Nov 2024 – May 2025*

- Contributed to the design and testing of ContentCube, a CubeSat deployed from the ISS Space Station into low Earth orbit in 2025.
- Built concurrent C++ imaging modules using multithreading and synchronization for reliable autonomous in-orbit photography.
- Engineered a testing environment to simulate concurrent imaging workloads, resolving race conditions and memory safety issues.

Y-Axis Overseas Careers — **Chatham, NJ**
Data Engineering Intern — *May 2024 – Aug 2024*

- Cleaned and standardized 20k+ SQL records through schema fixes and data validation, reducing prep time by 15%.
- Engineered 12 predictive features with dataset analysis, feature transformations, and improved model accuracy by 10%.
- Built interactive Excel dashboards with automated logic and dynamic filtering, enabling faster eligibility reviews.

Research Experience

Virginia Tech (VTechWorks) — **Blacksburg, VA**
Quantitative Finance Researcher | Publication: https://hdl.handle.net/10919/124730 — *Jan 2025 – May 2025*

- Co-authored a published paper analyzing Reddit posts on r/wallstreetbets and correlating sentiment to price movements.
- Analyzed the relationship between online sentiment spikes and market volatility using statistical modeling in Python.
- Implemented natural language processing and regression models in Python to quantify sentiment impact on equity returns.

Virginia Tech (VTechWorks)
Quantitative Finance Researcher | Publication: https://hdl.handle.net/10919/124871 — *Aug 2024 – Dec 2024*

- Authored a research paper applying the Kelly Criterion to investment risk management and long-term capital growth.
- Explored implications for insurance, betting, and investment portfolios, demonstrating capital efficiency.
- Built Python Monte Carlo tests and backtests comparing full vs. fractional Kelly under drawdowns and transaction costs.

PIVOT (AMP Lab) — **Blacksburg, VA**
Project Lead & Lead Software Engineer | vtpivot.org — *Feb 2024 – Dec 2025*

- Founded and led a multi-university physics research group conducting quantitative financial modeling and computational research.
- Developed a physics-based trading model and implemented a C++ signal engine and automated execution on Raspberry Pi.
- Led development of an electric-field–induced condensation system, designing high-voltage circuitry for moisture extraction.

Projects

Refrax | refrax.io — *Jun 2025 – Feb 2026*

- Built Refrax, a quantitative research and backtesting platform for systematic financial data analysis with 3D visualization.
- Designed low-latency REST/WebSocket pipelines to stream market data into a PostgreSQL-backed research environment.
- Implemented C++ risk engines (Greeks, P&L simulation, portfolio exposure) optimized for low-latency parallel execution.

Technical Skills

- **Programming Languages:** C/C++, Python, Rust, Java, SQL
- **Quant & Numerical:** NumPy, Pandas, SciPy, statsmodels, MATLAB
- **Infrastructure & Systems:** Linux, PostgreSQL, Docker, Kubernetes, WebSockets, REST APIs