Rohan Malhotra

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New York Metropolitan Area

Education

New York University — New York, NY
B.A. Computer Science and Economics — *Expected: May 2028*

- **Combined GPA: 3.75**
- Relevant Coursework: Data Structures and Algorithms, Micro-Macro Economics, Statistics I, Calculus I–II, Linear Algebra, Software Engineering I–II, Engineering Principles I–II, Discrete Mathematics, Computer Organization

Virginia Tech College of Engineering — Blacksburg VA
B.S. Computer Engineering — *Transferred Aug 2025*

Experience

Machine Learning Intern — June 2025 – Aug 2025
ARESS Software — *Chatham NJ*

- Analyzed stock indicators (**MACD, SMA, RSI**) to forecast market trends.
- Built **LASSO/Ridge Regression models** and developed web scrapers to automate data collection.
- Enhanced data visualization and reporting in **Excel** for actionable insights for senior leadership on data usage statistics.

Co-President — Sept 2024 – Present
PIVOT At VT — *Blacksburg VA*

- Leading a team of 12 coders, I coordinate tasks, **manage GitHub commits**, oversee the integration of complex algorithms, and ensure strategic progress to deliver effective financial innovations.
- My primary project involves developing a **Raspberry Pi-powered** automated financial trading bot, integrating real-time market data, Python scripting, and **physics-inspired models**, achieving up to **75 % predictive accuracy** using the Alpaca Trading API.

Undergraduate Research Assistant — Aug 2024 – May 2025
Hume Center for National Security and Technology — *Blacksburg VA*

- Researched advanced **imaging** and **signal** processing for space-based and defense applications, including ocean monitoring and space observation.
- Utilized **Python** and satellite communication protocols to ensure efficient data transmission from the CubeSat's imaging system.
- Contributed to a proposal submission for **NASA's CubeSat Launch Initiative**, focusing on integrating autonomous imaging and communication systems for nanosatellite operations.

Projects and Publications

Machine Learning RSI Predictor Using Starbucks Coffee Sales Data | *Python, Random Forest, Pandas, NumPy* — Sept 2024 – Jan 2025

- Developed a **Random Forest** based model to predict **RSI** for SPY using yearly Starbucks coffee sales data, yielding insights on sales performance.
- Engineered features like **SMA**, **MACD**, **RSI**, and **Volume** to enhance prediction accuracy.
- Evaluated multiple algorithms to determine the optimal approach.

Quantum Oscillating Physics Stock Model | *Python, Google API, Polygon API, NumPy, Matplotlib* — Feb 2025 – June 2025

- Automated data collection using **Web Scraping** for SPY and QQQ with **Google API** and **Polygon API**.
- Developed a screening model to identify overvalued stocks using oscillatory motion concepts.
- Incorporated cyclical analysis to model price fluctuations over daily periods.

Reddit Data in Quantitative Financial Models | Published at VTechWorks — Feb 2025

- Co-authored a paper analyzing Reddit-driven retail sentiment and its impact on market volatility.
- Examined post-GameStop and AMC dynamics, addressing both predictive potential and ethical concerns.
- Included an extended analysis on how online sentiment correlates with market fluctuations.
- Available at: hdl.handle.net/10919/124871

An Economic Approach to Optimize Capital Allocation | Published at VTechWorks — Nov 2024

- Explores the use of the Kelly Criterion to determine the optimal fraction of capital to risk.
- Presents a systematic framework for maximizing long-term capital growth via logarithmic utility.
- Discusses risk-adjusted return strategies and capital growth optimization.
- Available at: hdl.handle.net/10919/124730

Skills

Languages: Python, Java, C++, SQL, C, R, HTML/CSS, MATLAB, JavaScript, LaTeX
Technologies: Git, Linux, GitHub, Alpaca API, Polygon API, Google API, Node
Frameworks/Libraries: Pandas, NumPy, Matplotlib, Quandl, statsmodels, PyAlgoTrade, SciPy, QuantLib, Node.js, Next.js, AngularJS, React