Aditya Saxena

Master's student with expertise in machine learning and quantitative research, proficient in Python programming.

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EDUCATION

Harvard University **Cambridge, MA**
Masters in Data Science Aug 2024 - Dec 2025

- **Relevant Coursework:** Linear Models, Machine Learning, Time Series, Sequential Decision Making, Applied Linear Algebra and Big Data, Advanced Topics in Data Science, Random High Dimensional Optimization, Game Theory, Capital Markets

Massachusetts Institute of Technology **Cambridge, MA**
Research Thesis (Laboratory for Information and Decision Systems) Jan 2025 - Dec 2025

- **Thesis Topic:** Covariance Prediction for Financial Factor Returns: A Comparative Analysis of CM-IEWMA and MGARCH
- **Advisor:** Dr Roy E. Welsch

Birla Institute of Technology and Science (BITS) Pilani **INDIA**
Bachelor of Engineering in Computer Science (Distinction) Jun 2019 - Jun 2023

- **CGPA & Honors: 9.62/10**, Merit Scholarship (Top 1%), National Undergraduate Research Awardee (2021, 2022), BITS Mantra Research & Innovation Awardee (1/1000)
- **Relevant Coursework:** Data Structures and Algorithms, Object Oriented Programming, Theory of Computation, Probability and Statistics, Mathematics (I, II, III), Discrete Mathematics, Data Mining, Deep Learning

WORK EXPERIENCE

Engineers Gate (Quantitative Hedge Fund) **New York City, New York**
Quantitative Researcher Intern May 2025 – Aug 2025

- Generated mid-frequency long/short equity alpha signals on 1,500 + U.S. large-/mid-cap stocks, steering an $800 M book to > 5 % annualized excess return in live simulation.
- Architected and deployed a production-grade ML pipeline that cut research-to-production latency 15 % while enforcing weight caps, smoothing, and Barra-factor hedging on every signal.
- Engineered forward-return target signals with linear & non-linear models, delivering Sharpe > 1.2, max drawdown < 5 %, and correlation < 40 % across a 10-year out-of-sample back-test.
- Rolled out adaptive alpha suites (classic factors and dynamic OLS/PLS signals), expanding signal breadth 25 % and raising portfolio-level ensemble Sharpe by 0.15.
- Leveraged LLM-driven prompt engineering to create 1,300 + second & third-order interaction features spanning technical, fundamental, ownership, earnings, and flow data, growing the research feature library > 10x.

WorldQuant BRAIN **Remote**
Quant Research Consultant Jun 2024 - Aug 2024

- Conducted quantitative research and back-tested trading signals based on momentum, reversal, and volatility to predict global equity performance across various international markets.
- Automated factor-code extraction for 1,000 + research reports via retrieval-augmented generation (RAG), cutting review time from hours to minutes and multiplying analyst productivity.
- Hired after Gold Level in WorldQuant Challenge & qualified for Stage 2 International Quant Championship, 2024 (Top 5%).

Rostrum Grand Asset Management **Mumbai, India**
Machine Learning & Data Engineer Jan 2023 – May 2024

- Built OLS-based predictive model with Adjusted R-squared valued >85% using 10+ years of historical and real-time data.
- Optimized fund forecasting performances using analysis of 150+ financial metrics across the portfolio.
- Employed Python scripts with pandas for data cleaning, reducing processing time by 33% and rectifying data quality issues.
- Received the highest performance rating given to top-quartile interns and was offered a full-time role during internship.

RESEARCH EXPERIENCE

Simple Rules for Algorithmic Trading: A Comparative Analysis of Quadrant Strategies, *Main Author* **April 2025**
Research Advisor: Dr Alexander Young – ***Springer Nature*** *(Best Paper Presentation Award)* **[PDF]**

- Designed and evaluated adaptive quadrant-based trading strategies that delivered consistent risk-adjusted returns and robust performance across diverse asset classes

Predicting Institutional Investment Trends from SEC Form 13F Filings Using ML, *Main Author* **June 2025**
Research Advisor: Dr Alexander Young – ***IEEE Xplore*** **[PDF]**

- Developed an ensemble-learning pipeline that infers quarterly institutional portfolio weights from 13F disclosures, raising predictive R^2 to 0.63 and revealing non-linear flow patterns that precede sector rotations.