Aakash Gupta

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Profile

- **Quantitative Researcher and Analyst** with interests in Data Analytics and Economic Modelling
- Technical: Java, C#/C++ (Proficient), Python - NumPy, SciPy, Pandas, Transformers, Scikit-Learn, PyTorch, Seaborn; R, SAS (Proficient); Office 365 – Word, Excel, PowerPoint (Intermediate), SQL (Basic); Databases
- Skills: Research Design, Game Theory, Economic Modeling, Data Cleaning, Big Data Analysis, Economic Forecasting, Applied Econometrics, Machine Learning, NLP, Data Visualization, Reporting, Strategy
- Languages: English (Native), Hindi (Intermediate), Spanish (Basic)
- Courses: Empirical Analysis, Economic Design, Money and Banking, Causal Inference, International Trade and Foreign Markets

Education

University of Chicago, Master of Arts in the Social Sciences in Economics — Sept 2024 – June 2025
Coursework: Current Courses: Empirical Analysis, Social Science Analysis, International Trade: Banking & Capital Markets, Machine Learning for Finance, Money & Banking, Econometrics & Machine Learning, Causal Inference
University of Illinois at Urbana-Champaign, Bachelor of Science in Statistics — Aug 2020 – May 2024
Double Major in Economics and Statistics, Minor in Computer Science — GPA: 3.94

Work Experience

Market Sentiment Project, University of Chicago, Chicago, Illinois — Jan 2025 – Mar 2025
Financial Forecaster

- Aggregated and processed a large corpus of over 70,000 New York Times news articles (2015–2020) along with corresponding S&P 500 stock price data to create a comprehensive dataset.
- Leveraged a specialized BERT transformer (ProsusAI) to quantify negative sentiment in financial news and integrated it into a modified GARCH model to test the impact of bad news on volatility.
- Built an LSTM network using a constructed sparse matrix of high-dimensional textual features alongside lagged volatility inputs.
- Achieved a 300% increase in accuracy in MSE against the conventional AR(2) model.

AI in Society, UIUC, Champaign, Illinois — Jan 2024 - May 2024
Trends Analyst

- Processed and analyzed 2TB+ of New York Times articles and user comments to examine public perception of AI over time.
- Applied BERT-based sentiment analysis and topic modeling to extract key trends in AI discussions.
- Identified major themes influencing AI discourse, including privacy, automation, and geopolitical concerns.

University of Illinois at Urbana-Champaign – Champaign, IL — Dec 2023 – Mar 2024
Research Assistant

- Conducted advanced data analysis and statistical modeling in R to study Giffen good behavior in economic experiments.
- Utilized Maximum Likelihood Estimation (MLE) and Method of Moments (MOM) to estimate key economic parameters.
- Collaborated with a professor on modeling consumer behavior, contributing to research in economic theory.

TalentSavvy – New York City May 2023 – Aug 2023
Software Engineer Intern

- Designed and implemented a Rules Engine to measure IT team productivity, improving workforce evaluation.
- Identified and integrated an external software solution, reducing development time by two weeks.
- Developed 15+ customizable rules for assessing team effectiveness and optimized workflow automation.
- Led client-facing proof-of-concept demonstrations, showcasing prototype functionality to potential customers.

Illinois Data Science, UIUC, Champaign, Illinois Feb 2023 - Apr 2023
Project Lead

- Led a team in analyzing 4,000+ hotel reservations, predicting cancellation probabilities using Random Forest and Lasso regression.
- Optimized hyperparameters using bootstrap techniques and cross-validation to enhance predictive accuracy.
- Developed a logistic regression model to minimize false positives, improving cost-efficiency in hotel operations.
- Stepped up as team lead, coordinating presentations and ensuring project completion despite team attrition.

University of Hyderabad - Telengana May 2022 – Aug 2022
Independent Researcher

- Investigated and synthesized pandemic models (SIR models), focusing on their economic implications.
- Authored a comprehensive literature review evaluating different model assumptions, methodologies, and limitations..
- Developed data cleaning algorithms to detect anomalies in datasets, ensuring accuracy in economic simulations.