

SIDDHANT SHAH

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EDUCATION

Boston University | *Master of Science (MS)* | Boston, MA, USA May 2024

- Analytics and Data Visualization with R; Data Science with Python
- Advanced Machine Learning; Big Data Analytics; Data Mining; Web Mining & Graph Analytics

Chennai Mathematical Institute | *Bachelor of Science (Honors)* | Chennai, TN, India Sep 2021 - Jul 2024

- Linear algebra, Exterior & Tensor algebra; Analysis of multi-variate real-valued functions, Fourier Analysis; Differential Equations; Probability Theory & Statistics; Stochastic Processes; Statistical Inference; Data Structures and Algorithms.
- Applied Machine Learning (Machine Learning Development with CI and CD).
- Financial Modelling with Python - Valuation of Different Cashflows, Assets and Portfolios; Economics.

University of Pennsylvania | *Finance & Quantitative Modeling for Analysts* Jan 2024

- Interpreted and prepared financial statements for multiple case studies; Conducted fundamental equity research and made appropriate investment strategies.

DeepLearning.ai with OpenAI and LangChain | *Building LLM Applications* Jan 2024

- Developed AI-powered chatbots and document retrieval systems using tools like LangChain, OpenAI API, and Retrieval-Augmented Generation (RAG) while mastering prompt engineering best practices.
- Implemented advanced concepts such as vector stores, dynamic agents, and multi-step, multi-chain workflows, integrating knowledge extraction and APIs into functional systems, with a chatbot user interface.

EXPERIENCE

Boston University, Department of Computer Science | *Research Assistant* | Boston, MA, USA Oct 2024 - Present

- Second author on a research paper with Professor Eugene Pinsky, investigating ensemble machine learning methods, specifically deriving expressions for number of weak learners needed to achieve target accuracy.
- Investigating the effect of using Mean Absolute Deviation (MAD) as the loss function for Markowitz Portfolio Construction. Developing efficient libraries for fast computation of the absolute norm to facilitate real-time trading.

Raising A Mathematician (RAM) Foundation | *Program Operations Intern* | Mumbai, MH, India July 2024 – Aug 2024

- Analyzed applicant data to identify most viable locations for initial chapters.
- Spearheaded the establishment and start of the Maths Circle Initiative in Chennai; Designed, implemented and standardized a Scrum project management system using Jira and Confluence, streamlining workflows and enhancing team collaboration.
- Lead a team of problem setters, created question papers for various RAM Examinations.

Fino Payments Bank | *Data Analytics Intern* | Navi Mumbai, MH, India May 2023 - Jul 2023

- Prepared a database of over 6000 active government-sponsored schemes, distributing over INR 20,000,000,000 to facilitate data analysis; Identified potential revenue streams using Spark, could double revenue in upcoming years.
- Performed a cost-to-benefit analysis, drafted a proposal for a nation-wide marketing plan to promote government-sponsored-scheme-related services offered.

ACADEMIC PROJECTS

Quantitative Research in Formula 1 | <https://github.com/SidShah2953/F1-Telemetry-Analysis> Sep 2024 - Dec 2024

- Designed and implemented a machine learning pipeline in Python to conduct advanced statistical analyses and develop predictive models for lap time, incorporating features such as track geometry, weather conditions, driver performance metrics, and telemetry data from 2023 season, achieving R-squared of 0.9478.
- Analyzed driving styles of Max Verstappen and Lando Norris in R, successfully quantifying differences in driving styles.

LEADERSHIP & ACTIVITIES

Tessellate, Chennai Mathematical Institute | *Overall Coordinator* | Chennai, TN, India Oct 2023 - May 2024

- Drafted and presented budgets, created marketing strategies, and designed merch.
- Coordinating with vendors, sponsors and management and handling all income streams to ensure smooth operation.

KVPY Fellowship Award (INSPIRE) | Department of Science & Technology, Government of India Sep 2019

- Secured an All-India Rank 328 in the Kishore Vaigyanic Protsahan Yojana Aptitude Test 2019 and Interview 2020.

SKILLS

Business Analytics & Data Analytics; Feature engineering, Data preprocessing, and Comparative Analysis; Python (NumPy, Pandas, PySpark, PyTorch, Matplotlib, Seaborn, PyGWalker, Flask, Django), **R** (Plotly, GGPlot), **C**, **Java**, **Relational Database Management Systems (RDBMS) with SQL**; **Code Version Control** (Git) with **Continuous Development and Continuous Integration** (CI-CD with Hooks and Docker), **Data Version Control (DVC)**; **PowerBI & Microsoft Office Suite** (Advanced Excel, Word, PowerPoint); **JavaScript** (Astro, Node.JS, React.JS), **HTML & CSS** - Sass & Tailwind; Figma; Adobe Suite.