

# ARYAN SHAH

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## EDUCATION

<b>University of Southern California</b> <b>Master's of Science Computer Science (Artificial Intelligence)</b>	Los Angeles, California, USA January 2025-Present
<b>Mukesh Patel School of Technology Management and Engineering</b> <b>Bachelors of Technology Data Science</b> • GPA : 3.64 / 4.0	Mumbai, Maharashtra, India August 2020-July 2024

## SKILLS

- **Languages:** Python, HTML, SQL, Java, JavaScript, Node.js, R
- **Frameworks:** Windows, Linux, NumPy, TensorFlow, Pytorch, Scikit-learn, JSON, Requests, Docker, Pandas, Pytest, Seaborn, Matplotlib, OpenCV, Keras, Plotly, BeautifulSoup, Dash, Datetime, Statsmodels, Pulp, Clean Architecture, Ngrok, Langchain, REST APIs, Postman, Browse AI, Amazon S3, Git, Bash, Version Control, DigitalOcean, MLflow, Jenkins
- **Technical Skills:** Deep Learning, Machine Learning, Reinforcement Learning, Natural Language Processing, Large Language Models (LLM), Computer Vision, Time Series, Regression, Supply Chain, Data Structures, DBMS, Tableau, Prompt Engineering, Data Engineering, Data Analytics, Data Visualization, Data Wrangling, Data Mining, Statistics, Mathematics

## PROFESSIONAL EXPERIENCE

<b>Elixir Equities Pvt. Ltd</b> <b>NLP Engineer</b>	Mumbai, Maharashtra, India July 2024-November 2024
<ul style="list-style-type: none"><li>• Served in a team to create initial prototype of chatbot core engine via prompt engineering and leveraging Open AI's LLM.</li><li>• Managed chatbot database operating MongoDB and SQL alike, deploying CI/CD pipelines and performed sentiment analysis models on 100 real time text messages from database, exposing servers via safe tunnels using ngrok.</li><li>• Contextualized user query by maintaining conversation summaries and entities for every user in dedicated user profiles, and feeding LLM incremental summaries and entities for a new message in a user session for over 100 message conversations.</li><li>• Organized Postman flows to implement visual testing of chatbot API responses for 150 scenarios and operated field specific assertions to assert effectiveness of responses improving bug identification and resolution by over 100%.</li><li>• Utilized LLM to optimize chat history summariser for a user session via prompt engineering and string slicing techniques, optimizing summary length by 35% and boosting user engagement by personalized context preservation.</li><li>• Built a synthetic dataset of product specific user journeys (over 5000 user messages) for evaluation of minimum viable product, fine tuning and training of custom LLMs tailored to chatbot, and saving 20% overall cost from OpenAI's API calls.</li><li>• Functioned as team lead for development of an automated end-to-end integration testing framework, which was benchmark for product launch, utilizing dataset by querying journey specific data to chatbot's API, recording latency, fluency, accuracy, and relevance to ground truth responses, while saving failure reports to AWS S3.</li></ul>	
<b>Data Science Intern</b>	January 2023-June 2024
<ul style="list-style-type: none"><li>• Led initiative to scrape over 10 years of bond yield data from CBIL Bond Index, RBI website. Pre-processed and cleaned it using data wrangling and mining techniques, and condensed frequencies of secondly data points to aggregate frequencies of monthly data points to accommodate a broader timeline, showcasing leadership, adaptability and problem-solving.</li><li>• Performed exploratory data analysis to visualize and plot yield movements and its relationship with various independent variables such as benchmark index rates, inflation rates, etc. for communication about project significance.</li><li>• Simulated mean reversion to predict rate of return and direction of Nifty 50 financial market index in Excel.</li><li>• Developed and deployed consolidated dashboard on Indian debt market, using plotly as frontend, Browse AI for automated data scraping from websites into csv files.</li></ul>	

## PROJECTS

<b>EXPRESSION BASED MUSIC SYSTEM</b>	March 2023
<ul style="list-style-type: none"><li>• Fine-tuned pre trained CNN models, by freezing hidden and enhancing output layers, to train on over 50000 augmented face images and classify into 7 emotions, playing music based on detected emotion.</li><li>• Chose best performing model with highest test accuracy of 83%, f1 score of 0.84 and deployed it on Gradio.</li></ul>	
<b>LITTLE GO PLAYER</b>	April 2025
<ul style="list-style-type: none"><li>• Built and trained reinforcement learning (q-learning) and optimization (minimax with pruning) based agents, using a custom reward heuristic, built by self-improvement and trial and error, to play game of little go on a 5x5 board against other agents that played using greedy, random, etc. strategies.</li><li>• Achieved win rate of 100% with white and 90% with black for minimax agent.</li></ul>	