Varun Jhaveri

(732) 558-5686 | vjhaveri@umass.edu | Portfolio Website | Github | LinkedIn

Education

University of Massachusetts Amherst **May 2025**
Bachelor of Science Computer Science and Mathematics **GPA 3.74/4.00**
Coursework: Data Structures and Algorithms, Computer Networks, Databases, Operating Systems, Software Design Principles, Web Programming, Machine Learning, Information Retrieval, Natural Language Processing

Experience

NASA Greenbelt, MD
Software Engineer Intern Jun 2024 – Aug 2024

- Developed a **Python framework** that ingests **90 M+** forecast points and computes four statistical error tests, replacing a patchwork of notebooks that ran for two days, it is now used by two teams.
- Implemented an **interactive web dashboard** in **Plotly Dash** with live heat maps, allowing GMAO scientists to inspect model error hot spots in minutes and eliminating the need for manual plotting scripts.
- Optimised the data ingestion and inference pipeline with **Dask** parallel chunking which cut runtime from **4h to 30 min** and made **two HPC** nodes idle per day for other experiments.
- Proposed an **ensemble algorithm** that aggregates predictions from five model folds, giving a more comprehensive evaluation across data subsets and cutting mean-squared error by **18%**.
- Collaborated with **two atmospheric research scientists** in weekly meetings, refining features based on their feedback and deploying the toolkit on GMAO's shared cluster.

Dream11 Mumbai, India
Software Engineer Intern Jun 2023 – Aug 2023

- Created a full stack internal web tool with **10+** features using **Spring Boot**, **React** and **TypeScript** to stream live fantasy point predictions during cricket matches.
- Addressed the challenge of unauthorised database edits by adding role based access and an automatic audit log; the tool now safeguards scoring tables relied on by **3 engineering teams**.
- Built a reusable React frontend (table + filters + forms) for managing **5K+** player records and published it internally, which let other teams drop in the same functionality without rewriting code.
- Accelerated the Kafka to API data feed by writing a **Python batch consumer** that read messages in batches and stored each batch with one database write, reducing live feed lag by **80%**.
- Worked with the data science team through weekly demos, successfully shipping the tool to production in **9 weeks**.

Projects

SpecLens : RAG based API Manual | FastAPI, React, Pinecone, Langchain

- Built a strict RAG tool that ingests OpenAPI specs, embeds vectors in Pinecone, and delivers hallucination free keyword searches through a FastAPI backend and React UI for API developers. (Source Code)

CollabCursor : Real time annotation whiteboard | Spring Boot, Next.js, PostgreSQL

- Implemented a Spring Boot WebSocket backend with a Next.js front end that lets multiple users annotate PDFs in real time, stores stroke data in PostgreSQL, and provides one click GPT meeting summaries. (Source Code)

MaxFlow : Network flow analyser | Spring Boot, Next.js, PostgreSQL

- Engineered a Spring Boot service running Edmonds Karp max flow algorithm on uploaded json graphs with a Next.js UI visualising saturated links in real time, storing graphs and run metrics in PostgreSQL. (Source Code)

Skills

Languages: Python, Java, Javascript/TypeScript, SQL
Frameworks: Spring Boot, FastAPI, Next.js, React, Node.js, Langchain, Pytorch
Databases: PostgreSQL, Redis, Pinecone
Tools: Docker, Git, Linux, Postman