

Harsh Rana

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EDUCATION

B.Tech - Artificial Intelligence and Data Science (CGPI - 9.46) May 2020 - June 2024
Thakur College of Engineering and Technology, University of Mumbai Mumbai, India

EXPERIENCE

Tata Consultancy Services Dec 2024 - Present
Systems Engineer (Artificial Intelligence Engineer) Mumbai

- Led **Generative AI** adoption across the **SDLC** by embedding **LLM** capabilities to drive **automation, rapid prototyping, and enterprise innovation**.
- Designed a **RAG** chatbot that scrapes government portals, stores data in **ChromaDB**, and uses **OpenAI** embeddings with **LangChain** to deliver accurate scholarship info via **Streamlit**.
- Created a privacy-focused internal code assistant using **DeepSeek Coder v2** deployed via **Ollama**, enabling secure, offline developer support across **client infrastructure**.
- Developed a **CLIP**-based product image classifier that performs **zero-shot categorization** of electronics (e.g., mobiles, laptops) using **image-text embedding** alignment and **cosine similarity**.

Dytel Technology Group May 2023 – June 2024
Intern (Data Engineer) Mumbai

- Leveraged **Airbyte Opensource** and **Talend Open Studio** to gather data from various client servers.
- Engineered a data pipeline using **Postgres SQL**, reducing processing time by **30%**.
- Applied **PySpark** for **advanced ML**, including predictive modeling and statistical analysis.
- Utilized **Metabase Opensource** tool to generate **interactive visualizations**, such as charts and graphs, and embedded these **visual elements** into the application to enhance user experience.

PROJECTS

Scholarship Chatbot (Python, OpenAI, LangChain, ChromaDB, CUDA)

- Built a **RAG**-based AI chatbot to help students discover Indian government scholarships.
- **Scraped scholarship data** from official websites, structured it into **JSON**, and generated **vector embeddings** using **OpenAI API** with **CUDA** acceleration.
- Used **ChromaDB** for semantic retrieval and **Mistral LLM** via **LangChain** for accurate, context-aware responses.
- Deployed a responsive **Streamlit** UI for real-time scholarship query and insights.

Dynamic Healthcare Analysis: Utilizing real-time data processing and analytics (Python, SQL, PySpark, Kafka)

- Developed a real-time data analysis pipeline using **GenAI** to create synthetic datasets and **PySpark** with **Kafka** for **streaming analytics**.
- Built **RESTful APIs** to support **dynamic database management** and seamless data integration.
- Designed **interactive dashboards** and visualizations using **Tableau** for actionable business insights.

Generative AI using RNN (Python, Flask, Ollama)

- Built a content generation model using **GRU** and **Simple RNN**, followed by evaluation on **accuracy** and **complexity**.
- Performed **sentiment analysis** and generated automated textual summaries from input data.

SKILLS

Programming Languages	Python, SQL, Java
Data Tools	Databricks, AWS, Azure, GCP, Talend, MS SQL, PostgreSQL
Web Frameworks	Django, Flask, REST APIs, HTML/CSS, JavaScript
Generative AI & LLMs	LangChain, LlamaIndex, RAG systems, Ollama

PUBLICATIONS

- Healthcare Data Analytics and Visualization Tools and Application [Taylor & Francis journal – **Scopus Indexed**]