# ARYAN KATOCH

AI/ML Engineer

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## Experience

### TMotions Global Limited
Mohali,India

Associate Software Engineer AI/ML
07/2025 - Present

Company Description

- Currently contributing to AI-based enterprise solutions by building LLM-powered chatbots, text classification tools, and AI agents for HR automation and internal systems. Applied machine learning and deep learning models such as ARIMA, SVM, RNN, and LSTM for time series forecasting, intent recognition, and predictive analytics. Collaborating with cross-functional teams to integrate these models into scalable, secure full-stack environments using FastAPI, React, and SQL.

### Tmotions Global Limited
Mohali,India

Intern
01/2025 - 06/2025

Company Description

- Built and tested LLM-based applications using LangChain and LangGraph, improving response accuracy by 30% through refined conversational flows. Enhanced system understanding with vector-based search and embeddings, increasing relevant output by 25%. Reduced LLM hallucinations via prompt engineering, achieving a 35% boost in task-specific accuracy. Applied time series models like ARIMA and SARIMAX to support internal data analysis and forecasting. Collaborated using Git and APIs to ensure smooth tool integration and timely sprint deliveries.

## Education

### Guru Nanak Dev University
B.Tech in Electronics and Computers
2021 - 2025

### Mount Carmel School (ICSE)
10th and 12th

## Skills

Languages: Python · SQL · FastAPI · React · Git · Power BI · Java

AI/ML: LangChain · LangGraph · RAG · LLMs · ARIMA · RNN · LSTM · SVM · SARIMA · Ollama

Databases: Chroma · Faiss · Vector DB · SQL Server

Libraries:Keras · StatsModels · Pandas · Jupyter · Pytorch

## Projects

### Intranet HRMS Chatbot
04/2025 - Present

- **Built a generative AI chatbot** for internal HR operations using **Gemini LLM**, **RAG**, and **vector search**, reducing repetitive queries by over **50%**.
- **Enabled secure natural language access** to employee data via a **SQL Agent**, converting queries into role-filtered SQL using **FastAPI + MS SQL Server**.
- **Automated leave workflows** (apply, cancel, status) through intent recognition and **action-on-command modules**, improving HR task efficiency.
- **Collaborated with cross-functional teams** on chatbot architecture, session management, and API integration, gaining hands-on experience in deploying real-world AI solutions in enterprise environments.

### Agentic RAG - for Health Supplement QA, Personal Project (GitHub)

- **Developed an agent-based RAG system** for intelligent document Q&A using **LangChain**, **LangGraph**, and **FAISS** , achieving high-accuracy answers from PDF datasets on gym/health supplements.
- **Reduced hallucination and boosted output relevance** by building a multi-node agent workflow (retriever, grader, rewriter, generator), orchestrated via LangGraph.
- **Built and optimized a semantic vector search** engine with **Ollama embeddings** and FAISS, enabling instant, context-aware query responses from scientific documents.
- **Designed an end-to-end notebook-based pipeline** for embedding, indexing, querying, and live agent interaction, making the system modular and easily extensible.

## Projects

### LangGraph SQL Agent – Natural Language to SQL Translator

- **Built an intelligent SQL Agent** that interprets natural language queries and executes live SQL commands using **LangGraph**, enabling real-time interaction with relational databases.
- **Improved query accuracy and modularity** by implementing a stateful graph with dedicated nodes for LLM interpretation, SQL generation, and execution.
- **Integrated error handling and logging** to ensure robust query flow and made the system easily extensible to support multiple databases like **MySQL** and **PostgreSQL**.

### Time Series Analysis Playground

- **Explored classical and deep learning models** (ARIMA, SARIMA, VAR, RNNs) for time-series forecasting across real-world datasets including $CO_2$ levels, airline passengers, and economic indicators.
- **Built, trained, and evaluated models** in Jupyter using **Keras**, **StatsModels**, and **pandas**, improving forecasting accuracy through hyperparameter tuning and feature engineering.
- **Visualized trends and model outputs** to analyze seasonality, stationarity, and autocorrelation, while documenting experiments across modular, well-organized notebooks.