Amit Kumar

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Education

Maulana Azad National Institute of Technology , Bhopal, **Aug 2023 – July 2025**
Master of Technology in Artificial Intelligence

Institute of Engineering and Technology, Bundelkhand University, Jhansi, **Aug 2018 – July 2022**
Bachelor of Technology in Computer Science and Engineering

Internship Experience

Full Stack Developer Intern
[Wabtec Corporation], Onsite
Sep 2024 – Aug 2025

Projects

AI-Powered Customer Support Agent **August 2025**

- Built a **LangChain + LangGraph AI agent with Groq LLM** to autonomously handle FAQs, order DB queries, Jira tickets, and automated emails. Preprocessed and merged movie metadata for comprehensive feature extraction.
- **Automated ~65% of customer queries**, reducing human escalations from ~70% → ~25%, with **<2s average response time**.
- Deployed as a **FastAPI REST service** with **Docker**, supporting 100+ concurrent users.
- Integrated **RAG pipeline (Pinecone/FAISS)**, full **monitoring/logging (Prometheus/Grafana.**

NL2SQL Chatbot **July 2025**

- Developed a LLM-powered SQL Query Generator using Python, Streamlit, and SQLite.
- Converted **100+** natural language prompts into optimized SQL queries with real-time tabular visualization.
- Implemented memory-efficient prompt handling to reduce latency and improve system responsiveness.
- Designed validation pipelines to catch malformed queries and mitigate SQL injection & adversarial attacks.
- Achieved **80%** improvement in query accuracy and **60%** reduction in execution errors through prompt engineering and validation.

CloudSmart Optimizer **June 2025**

- **Engineered** a cloud cost optimization tool leveraging **AWS Cost Explorer & CloudWatch APIs** to track 30-day service-level spend and EC2 utilization..
- **Automated** detection of **underutilized EC2 instances (<20% CPU)** and **recommended right-sizing/stopping strategies** for cost savings.
- **Optimized** cloud resource usage, demonstrating **15–20% potential cost reduction** through actionable insights and data visualization.

Movie Mentor **Feb 2024**

- Developed a content-based Movie Recommender System using Python, Pandas, and Scikit-learn.
- Preprocessed and merged movie metadata for comprehensive feature extraction.
- Utilized Count Vectorizer and cosine similarity to compute movie recommendations.
- Deployed the recommendation system using Streamlit for real-time user interaction.

Technical Skills

- **Languages:** Python, C++
- **Deep Learning / Machine Learning Techniques:** CNN, RNN, NLP, Transfer Learning, LLMs
- **Deep Learning / Machine Learning Libraries:** Scikit-learn, TensorFlow, Pandas, NumPy, Matplotlib
- **Frameworks / Tools:** ReactJS, LangChain, Streamlit, FastAPI, LangGraph, Boto3
- **DevOps:** GitLab, Docker, Github
- **Database :** PostgreSQL, DBMS concepts, Chroma (Vector DB), FAISS (Vector DB)
- **Cloud:** AWS (S3, Lambda, EC2, Bedrock, CloudWatch, Cost Explorer, Vector DB)