MUCHUKUNTLA BRAHMANAIDU

+91 8688084974 | bramanaidu2172@gmail.com | LinkedIn | GitHub | Portfolio | Bangalore, India

Education

Jawaharlal Nehru Technological University Anantapur — **Dec 2021 – Apr 2025**
Bachelor of Technology in Computer Science — CGPA : 7.9

TECHNICAL SKILLS

- **Programming**: Python, SQL, Linux, Shell Scripting
- **Core Data Science**: Pandas, NumPy, Statistical Analysis, Feature Engineering, Scikit-learn, XGBoost, Model Evaluation
- **Data Analytics & Visualization:** Matplotlib, Seaborn, Power BI, Time Series Forecasting (Prophet)
- **AI & LLM Technologies:** PyTorch, TensorFlow, Large Language Models (LLMs), Retrieval-Augmented Generation (RAG), LLM Fine-Tuning, Prompt Engineering, BERT, Hugging Face Transformers, Transfer Learning
- **GenAI & NLP Tooling**: LangChain, LangGraph, spaCy, NLTK
- **ML Engineering & Deployment**: FastAPI, Docker, MLflow, REST APIs, Model Optimization
- **Databases & Vector Search:** PostgreSQL, MongoDB, Pinecone, FAISS
- **Cloud & Development:** Git, GitHub, AWS (Intermediate), Azure (Basic)

Experience

Machine Learning Engineer Intern | *Zithara.AI (Propel5000)* — **Jan 2025 – Apr 2025**

- Visual Search Engine: Built a 'Search-by-Image' feature for a MERN-stack e-commerce app, enabling users to find similar jewellery from a 5,000+ SKU catalog
- Computer Vision: Developed a PyTorch (ResNet50) pipeline to generate vector embeddings, capturing complex gold textures for accurate retrieval.
- Performance & Integration: Implemented FAISS for similarity search (<200ms latency) and integrated the Python microservice with Node.js/React for real-time inference.

Projects

Advanced Fraud Detection using Graph Neural Networks (GNN) | Repo | Demo

- Engineered a graph-based fraud detection system using DeepGraph (DGL) and PyTorch Geometric to identify suspicious transaction patterns in connected financial networks
- Modeled transactions as a multi-modal graph (nodes as users/cards, edges as payments), allowing the model to capture "guilt-by-association" features that traditional ML models miss.
- Improved detection of sophisticated money-laundering rings by 25% compared to standard XGBoost baselines by utilizing Graph Sage and message-passing layers.

Automated Churn MLOps Pipeline for Model Lifecycle Management | Repo | Demo

- Built a scalable ML microservice automating the full data lifecycle from ingestion to real-time inference using Python and MLflow.
- Containerized the application with Docker ensuring consistent environments and deployed high-performance endpoints via FastAPI.
- Implemented production-grade logging and monitoring to track system health and ensure API reliability under heavy load

LLM-Powered Intelligent Assistant with RAG | Repo | Demo

- Developed a Generative AI application using LangChain and OpenAI to query custom knowledge bases, cutting retrieval time by 40%.
- Designed robust prompt guardrails to minimize hallucinations, ensuring 95%+ factual consistency in generated responses.
- Optimized semantic search accuracy by implementing hybrid retrieval strategies using the Pinecone vector database.