Litesh Perumalla

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PROFESSIONAL SUMMARY

AI/ML Engineer and Data Science Master's student with hands-on experience in building intelligent systems using Large Language Models (LLMs), Generative AI, and Deep Learning. Adept at developing end-to-end machine learning pipelines, including data preprocessing, model optimization, and deployment. Strong track record of building real-world solutions across fraud detection, healthcare, and ed-tech using tools like RAG, TensorFlow, and Stream lit. Passionate about solving impactful problems through applied machine learning and delivering accessible, high-performance AI solutions.

TECHNICAL SKILLS

Natural Language Processing: Text parsing, Sentiment Analysis, Transformers.
Deep Learning: Artificial Neural Networks (ANN), Convolutional Neural Networks (CNN), TensorFlow, PyTorch, Keras.
Generative AI: RAG (Retrieval-Augmented Generation), AI Agents, Vector Database, Prompt Engineering, Embeddings.
Big Data and Cloud Technologies: Amazon Web Services, Google Cloud Platform.
LLM: OpenAI, Ollama, llama Index, Lang Chain.
Database Management: PostgreSQL, MongoDB, Chroma db, FAISS.
Programming Languages: Python, R, SQL, C#, JavaScript, TypeScript.
Certifications: Machine Learning Specialization- Coursera.

EMPLOYMENT EXPERIENCE

Discovery Park Library Services Academic Assistant | Denton, Texas August 2024 - Present

◦ Provided research and technical support to 100+ students and faculty weekly across in-person, phone, and virtual channels, assisting with navigating university databases and accessing digital resources.
◦ Assisted faculty and students in locating academic materials through university library databases, enhancing curriculum alignment and research productivity.

PROJECT EXPERIENCE

Smart Tutor AI – AI Driven Personalized Teaching Support Jan 2025 - Present

◦ Designed an AI-powered tutoring system that delivers professor-approved course materials by integrating Retrieval-Augmented Generation (RAG), ensuring contextual accuracy over generic content.
◦ Built a smart retrieval pipeline using metadata tagging and vector embeddings (Chroma DB, Llama Index), enabling interactive Q&A and improving relevance and accessibility of academic content.
◦ **Tools Used: RAG**, Ollama, llama Index, Chroma db, Sentence-transformers, Vector Embeddings, BERT, Stream lit.

Skin Cancer Detection Using a Convolutional Neural Network Nov 2024

◦ Developed and trained a CNN model on 10,000+ dermoscopic images achieving 85% accuracy in early skin lesion classification and detection.
◦ Improved model performance through hyperparameter tuning (e.g., learning rate, batch size) and image augmentation (flipping, zooming), increasing robustness in identifying early-stage skin anomalies.
◦ **Tools Used:** Python, Matplotlib, Sci-kit learn, NumPy, pandas, TensorFlow, CNN.

Fraud Detection using Machine Learning. Oct 2024

◦ Built supervised ML models (Random Forest, XGBoost) to detect fraudulent transactions from a dataset of 1M+ entries, focusing on anomaly detection in financial records.
◦ Performed feature engineering and model selection using precision-recall and F1 score, optimizing for recall to minimize false negatives in fraud detection.
◦ Created a Stream lit-based web app to host the fraud detection model, enabling real-time prediction and user-friendly interface for accessible use.
◦ Tuned model hyperparameters (e.g., max_depth, learning rate) using GridSearchCV, achieving over 92% accuracy and improved reliability on imbalanced fraud datasets.
◦ **Tools Used:** Machine Learning Libraries, Python, Sci-kit Learn, Stream-lit, precision, recall, AUC-ROC.

EDUCATION

University of North Texas | Denton, TX Expected: Dec 2025
Master of Science – Data Science
Coursework: *Data Visualization, Data Analytics, Data Mining, Machine Learning, Data Modeling, Deep Learning.*