Harshit Tiwari

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Summary

Passionate AI/ML Engineer skilled in Generative AI, LLMs (GPT, Gemini, LLaMA), RAG pipelines, and Agent-based systems. Proficient in Python, TensorFlow, PyTorch, and ML for NLP, computer vision, and multimodal AI. Experienced in prompt engineering, fine-tuning, and scalable production deployment

Technical Skills

Programming Languages : Python , C++ .

Machine and Deep Learning Frameworks : Supervised Learning (Regression, Classification), Unsupervised Learning (Clustering, Dimensionality Reduction), Data Preprocessing (Missing Values, Normalization, Encoding), Prompt Engineering (Zero-shot, Few-shot, Chain-of-thought), RAG, Agent-based Systems.

Libraries & Tools : NumPy, Pandas, Scikit-learn, OpenCV, TensorFlow, PyTorch, Flask, NLTK, LangChain, ChromaDB, Google Generative AI.

Projects

Intelligent Legal Document Analysis and Summarization System
Technologies used:LangChain,Gemini Pro, ChromaDB, RAG, Prompt Engineering, Agent-based Tools (SerpAPI)
• Built an AI system that analyze complex legal documents, extract key facts and generating context-aware summaries with argumentative questioning.
• Implemented a RAG pipeline by chunking, embeddings, and storing them in ChromaDB for precise search.
• Designed modular architecture separating LLM reasoning, vector storage, and agent orchestration for scalability.
• Integrated follow-up questioning logic to automatically generate context-relevant queries.
• Enhanced accuracy through multi-step reasoning, prompt engineering, and fact verification from agent driven.
• Achieved sub-second semantic retrieval for 1,000+ pages via embedding compression & query optimization

Plant Disease Detection & Fertilizer Recommendation
Technologies used: TensorFlow, Flask, Python, Google Colab
• Performed data augmentation (rotation, flipping, zooming) and resized leaf images to 256x256 pixels for model.
• Built a CNN architecture with dropout and batch normalization to reduce overfitting during training.
• Trained model to classify 15+ plant diseases & map predictions to fertilizer recommendation via rule-based logic.
• Deployed with the Flask with a simple upload interface tailored for farmers.

Mask and Facial Expression Detection
Technologies used: Python, TensorFlow, OpenCV, Flask
• Collected and resized face image data; removed blurry or incomplete entries for consistency.
• Applied OpenCV-based face detection and trained a CNN to classify emotions (angry, sad, neutral, surprised).
• Integrated the model into a Flask web app for real-time prediction.
• Monitored model performance metrics such as precision, recall, and F1-score for each emotion class.

Education

VIT Bhopal University, Bhopal, Madhya Pradesh	May 2023-27
BTech in Computer Science, Cumulative GPA: 8.16	
Singhania Educational Institute, Sitapur, Uttar Pradesh	July 2021-23
12th Standard (CBSE), Percentage: 84.6%	
Singhania Educational Institute, Sitapur, Uttar Pradesh	July 2019-21
10th Standard (CBSE), Percentage: 73%	

Certifications

Prompt Engineering (Deepearning.AI), Computer Vision (Kaggle), Intro to Deep Learning (Kaggle), Generative AI Foundations (Infosys), Intro to Generative AI (Coursera), Machine Learning, Python and ChatGPT (Udemy).