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Praharsha Surampudi

Summary

AI Engineer with hands-on experience in Machine Learning, Generative AI, and applied ML systems. Proven ability to build and deploy Real-time conversational AI applications, RAG pipelines and multimodal ML models using Python-based stacks. Strong focus on practical implementation, model evaluation, and production-ready APIs.

Education

Indian Institution of Technology, Madras — Chennai.
***Bsc** in Data Science and Applications* | *Virtual Degree* — 2022 - 2026

Ramaiah University of Applied Sciences — Bangalore
***BTech** in Artificial Intelligence and Machine Learning* | *CGPA: 9.00* — 2021 - 2025

Achievements

1. **Industry:** Built a Gen AI supported ERP Web Application for TDH Group, one of India's fastest-growing brands 2024-25 (Asian Business Social Forum).
2. **Academics:** Directed a team & developed a Conversational AI project, earning a **10.0 CGPA** in final project evaluation.
3. **Research:** Co-authored and published a technical paper accepted at **NIT Surathkal**.
4. **Leadership:** Led an IITM student society of **500+ members** with a core team of **30+.**

Projects

Real-Time Speech-to-Speech Conversational AI Assistant |
- Tech: OpenAI API (Whisper + GPT + TTS), LangChain, FastAPI, Firebase Auth, Firebase Firestore, React (Vite)
- Built a real-time voice assistant using OpenAI for speech-to-text, GPT models via LangChain, and TTS for natural audio output.
- Implemented user authentication with Firebase Auth and persisted conversation data in Firebase Firestore, with FastAPI serving as the secure backend API.

Production RAG Text Knowledge Agent |
- Tech: LangChain, ChromaDB, Llama 3 (Ollama), Flask, PyPDF, BeautifulSoup
- Built a Retrieval-Augmented Generation (RAG) system indexing 2,000+ documents using hybrid dense and BM25 retrieval, with prompt and retriever tuning to reduce hallucinations.
- Deployed a Flask API with structured logging and offline evaluation to monitor retrieval quality and system performance.

Image-Based Risk Analysis and Prediction using ML |
- Tech: Python, SQL, Pandas, NumPy, PyTorch, Scikit-learn
- Extracted image embeddings using pretrained models and combined them with structured data for analysis and feature engineering.
- Built and evaluated classification models to predict risk using image-derived features, measured with ROC-AUC and recall.

Skills

Programming & Data: Python, SQL, Pandas, NumPy
Machine Learning: Scikit-learn, PyTorch, Classification, Model Evaluation
Generative AI: LLM APIs, LangChain, RAG Pipeline, Prompt Engineering
Backend & Frontend: FastAPI, Flask, Firebase (Authentication Firestore), React (Vite)