Atiq Ur Rehman

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Professional Experience

AI ML Engineer Intern Horizon Tech Services (NUST) Pvt Ltd Islamabad.

January 2025 – March
Islamabad, Pakistan

A. Full Voice Based RAG: Link

- Developed a real-time AI voice assistant using LiveKit, supporting natural conversations with speech-to-text (Deepgram), text-to-speech (ElevenLabs), voice activity detection, and multilingual turn detection.
- Implemented a Retrieval-Augmented Generation (RAG) system using FastAPI, LangChain, and OpenAI, enabling accurate question answering strictly from user-uploaded documents.
- Built a secure document ingestion pipeline supporting PDF, TXT, DOC, and DOCX files with automatic loading, chunking, metadata tagging, and vector embedding generation.
- Designed a scalable vector search layer with ChromaDB, using MMR retrieval and metadata filtering to ensure responses are sourced only from the correct uploaded document.
- Enforced strict tool-based response control, ensuring document-related answers are returned verbatim from the RAG pipeline without hallucination or modification.
- Integrated asynchronous HTTP-based communication between the voice agent and backend API for document upload, health checks, and query execution.
- Enhanced user experience with interruptible voice interactions, noise cancellation, and a friendly conversational flow suitable for real-time enterprise or customer-support use cases.

B. Voice Based Appointment Booking Automation Agent : Link

- Built a real-time voice-based AI assistant using LiveKit Agents with end-to-end audio streaming and low-latency interaction.
- Integrated Deepgram STT (nova-3) and TTS (aura-2-luna-en) for natural speech recognition and human-like voice responses.
- Implemented GPT-4o-mini (OpenAI) to manage conversation logic, intent detection, and appointment-booking dialogues.
- Engineered a structured workflow to collect user details (name, email, day, time, purpose) through multi-turn conversational flow.
- Added noise cancellation, VAD, and multilingual turn detection for smooth, interruption-aware conversational handling.

C. Ticket Resolution Agent With Multi step Reviewer : Link

- I engineered an end-to-end intelligent ticket processing system using LangGraph,GroqLLMs,andRetrieval-Augmented Generation
- I built a strict classification pipeline with confidence scoring and fallback handling for ambiguous or vague tickets
- I implemented content chunking and integrated Chroma vector databases with Hugging Face embeddings for scalable semantic search.
- I designed context-aware response generation that leverages similarity retrieval from stored tickets.
- I added automated validation and workflow orchestration to ensure professional, accurate, and consistent ticket responses.
- I structured the system for modularity and future extensibility, enabling easy updates and category expansion
- The system was built using Python, LangChain, LangGraph, ChromaDB, Hugging Face embeddings, Groq LLMs, and dotenv for environment configuration

D. Expense Tracker | Google Drive | Manim | Weather Updates MCP SERVERs : Link

- Developed a modular backend server using FastMCP to integrate multiple services including Expense Tracker,File Manager, Manim, Google Drive, and Weather Updates.
- Built and connected PostgreSQL databases for secure data storage and dynamic expense tracking with real-time updates
- Integrated Claude-Desktop on the client side to enable interactive AI-assisted features and seamless user interaction
- Designed REST-like MCP tools for efficient communication between client and server modules, ensuring scalability and modularity.

Education

Computer Science: University of Science and Technology, Bannu CGPA: 3.23

2020 – 2024
Bannu, Pakistan

Cloud Computing AWS,Docker and Python

Skills

Generative AI: (LLMs),(RAGs),Vector DataBases (ChromaDB,FAISS,Pincone) APIs(OpenAI,Gemini,Anthropic)

Automation: n8n,Voice Platforms (Deepgram, ElevenLabs, OpenAi, Livekit ,MCP)

Machine Learning: Linear Regression, Logistic Regression, K-Nearest Neighbour, Support Vector Machine, Random Forest, Decision Tree, Gradient Boosting, XGBoost.

Deep Learning: ANN,CNNs,RNNs,LSTMs,GRUs,Transformers Models, Hugging Face.
Frameworks and APIs: Scikit-Learn, TensorFlow, Keras, PyTorch, LangChain,LangGraph FastAPI

Data Analytics and Visualization: Pandas, Numpy, Matplotlib, Seaborn, Plotly, SQL

Projects

Google Chrome Plugin for YouTube Comments Sentiment Analysis (FYP)

- Trained model with an accuracy of 96% for three sentiments using BERT and Deep Neural
- Integrate the trained model into a Chrome extension that allows users to visualize YouTube
- comments as Positive, Negative, or Neutral.
- Dockerized and Deploy on AWS EC2 instance.
- TechStack:Python, Numpy, Pandas, Matplotlib, NLP, DistilBert, Bert, Deep Neural Networks, Flask