Fadhil Hussain

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Summary

Enthusiastic ML engineer with strong knowledge of core algorithms, NLP (vectorization, Word2Vec, embeddings), and deep learning (RNN, LSTM, GRU, attention, Transformers). Experienced in building retrieval-based AI applications using LangChain, FAISS, and ChromaDB, including RAG pipelines. Skilled in designing **multi-agent routing systems**, conversational history management, and SQL agents for natural language database interaction

Projects

HealthSphere – Multi-Agent Medical Assistant

- Designed and deployed a **multi-agent medical bot** using **LangChain**, where a **router** dynamically selects specialized agents for medical Q&A and medicine information retrieval.
- Implemented **semantic search with FAISS + Sentence Transformers** over medical datasets.
- Integrated **real-time retrieval** via Google, medical resources, and Wikipedia to enhance medical knowledge coverage.
- Developed an interactive **Streamlit-based web application** with a **conversational memory (history-aware prompting)** to maintain context in multi-turn dialogues.
- Applied **prompt engineering** techniques to improve response accuracy and reliability in medical queries.
- **Live Demo**: healthsphere.streamlit.app
- **Code Repository**: GitHub – HealthSphere

ZakathMate : An AI-powered assistant to learn about Zakath using RAG architecture

- Developed a Retrieval-Augmented Generation (RAG) application to help users understand the concept of Zakath.
- Used a **pretrained DeepSeek Light model** for generating answers based on user queries.
- Performed **text embedding using Cohere's embedding model** to convert custom Islamic knowledge into searchable vector format.
- Integrated LangChain framework and **FAISS** for efficient vector search and retrieval.
- Aimed to make learning about religious obligations accessible through modern AI tools.

SQLBot – AI-Powered SQL Query Assistant

Developed an intelligent SQL query assistant using **LangChain agents** and **SQLDatabaseToolkit** to interpret natural language questions and retrieve database insights without exposing SQL queries. Integrated:

- **Speech-to-Text** with OpenAI Whisper for voice query input.
- **Frontend:** HTML, CSS, JavaScript.
- **Backend:** Flask (Python).
- Dynamic query execution on structured databases .

Skills

Machine Learning, Data Science, Python, Deep Learning, Statistical Analysis, TensorFlow, Keras, EDA, Programming, HTML 5, Flask, Streamlit, Docker, Linux, GitHub, FAISS, Vector Database, Langchain, RAG

Education

Master Of Computer Application

Institute of Distance Education University of Madras, Tamil Nadu
11/2025

Bachelor Of Computer Application

GCT Thalassery , Kannur, Kerala
07/2023

HSC_Computer Science

GVHSS - Kadirur, Kadirur, Thalassery
04/2020

Languages

Malayalam, English, Arabic