UDARA HERATH

AI ENGINEER (Internship)

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https://my-portfolio-nine-theta-59.vercel.app/

Skills

- **Programming:** python, java, c++
- **ML and DL:** Scikit learn, Keras, TensorFlow, PyTorch
- **Generative AI & NLP:** LangChain, Hugging Face Transformers, GPT, RAG Architecture, Prompt Engineering
- **LLMs**
- **Computer Vision:** CNNs, ViT
- **Agentic AI:** Autonomous agents, n8n, LangGraph
- **Web & API Development:** Streamlit, FastAPI
- **Data Handling:** numpy, pandas, matplotlib
- **Tools & Platforms:** GitHub, Google colab, HuggingFace
- **Databases:** MongoDB, MySQL
- **Vector Databases:** ChromaDB, Pinecone, Faiss
- **Web Development:** HTML, CSS, JavaScript, React
- **Others**: MATLAB and Simulink
- MS word, MS Excel, MS Power point
- Arduino

- **Soft Skills**: Problem solving, Critical thinking, Quick learner, continuous learning, Team Work, Time management, Leadership, Creativity and innovation

About Me

Aspiring AI Engineer and BSc Computer Engineering undergraduate (final year) with a strong focus on Machine Learning, Deep Learning, Generative AI, and Agentic AI systems. Passionate about building intelligent systems that combine vision and language models, with hands on experience in multi modal AI, LLM integration and chatbot development. Skilled in Python, TensorFlow,PyTorch, and familiar with tools like FastAPI, LangChain and n8n for deploying practical AI applications. Actively involved in projects ranging in AI powered study tools, showcasing a commitment to innovation and real world impact.

Education

B.Sc. (Hons) Computer Engineering — 2022 - Present
University of Jaffna

Projects

Medical-Chatbot - Developed a medical AI chatbot using FastAPI and Groq's vision language models to analyze medical images and patient symptoms, providing intelligent diagnostic insights through a web interface.

EyeDoc - A Conversational RAG chatbot to provide answers to ophthalmology related queries based on Kanski's Clinical Ophthalmology book. It uses LangChain, OpenAI's LLM and ChromaDB for embedding based retrieval.

RAG-Based-PDF-Chatbot - Built a web based AI assistant that allows users to upload PDF documents and interact with them via natural language queries. Integrated Streamlit, LangChain, FAISS, HuggingFace embeddings, and Groq's LLaMA 3 to enable semantic search and accurate Q&A over document content.

Eye-Disease-Classification-With-Integrated-Chatbot -
Research Project (ongoing)

Developed an AI based diagnostic system that classifies eye diseases specifically Glaucoma, Diabetic Retinopathy, Cataract, and Normal using OCT images and patient reported symptoms. Combined a Vision Transformer (ViT) for image analysis with a Large Language Model (LLM) for natural language processing. Integrated a chatbot interface to enable user friendly input, explanation of predictions and next step guidance. The system utilizes multimodal fusion and agentic AI to enhance diagnostic accuracy and provide transparent, conversational health insights

Gemini-Powered-PDF-Chatbot-with-Retrieval-Chat-History - (ongoing)
This project is a custom chatbot powered by Google Gemini, built to answer questions based on a PDF document. It will supports multi session conversations, remembers past queries, and saves its state (including chat history and vector database).

MultiModal-RAG -

- MultiModal_Video_Processing
- RAG_with_MongoDB_and_Google_Gemma
- MultiModal_Sumerizer

Currently working on multi modal RAG systems (text, image, table extraction from PDFs with vector DBs) still building confidence, but consistently learning and improving through hands on practice.

Certifications

- Ai Agents Fundamentals - Hugging Face
- Ai Agents Completion- Hugging Face (ongoing)
- AI/ML Engineer Stage 1 - SLIIT
- AI/ML Engineer Stage 2 - SLIIT
- Python for Beginners - UOM
- Python Programming (2) - UOM (ongoing)
- Web Design for Beginners - UOM
- Introduction to AI - Simplilearn
- MoraXtreme - Coding Competition
- ALGOXPLORE - Coding Competition
- SPIRITX - Web Development Competition

Interests

- Generative AI
- Agentic AI
- Machine Learning
- Deep Learning
- Web development
- Electronics
- Database Management
- Computer Vision
- Natural Language Processing
- Multi modal Ai
- Model deployment
- LLms

Language

- English
- Sinhala

References

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Agentic AI (Learning in Progress)

- Retriever_AI_Agent
- chatbot_LangGraph

Building simple AI agents using LangGraph to understand concepts like state transitions and tool usage. Actively learning more about autonomous agent workflows.

Deep Learning

Bitcoin-Price-Predictor - Developed a Bitcoin price prediction system using an LSTM based deep learning model trained on historical price data with user friendly Flask web application.

Dog_Cat_Classifier - Built a CNN based binary image classifier using TensorFlow to accurately distinguish cats and dogs from a balanced dataset of 10,000 images.

Image-Caption-Generator - Built an image captioning model using InceptionV3 for image feature extraction and an LSTM network for generating captions. Preprocessed a dataset of 8,000+ images with multiple captions, including normalization and tokenization.

Machine Learning

Laptop-Price-Predictor - Developed a machine learning model to predict laptop prices based on user selected specifications such as Laptop brand, CPU, GPU, OS and more. Integrated the model into a user friendly Flask based web application.

sentiment_analysis_project - Developed a sentiment analysis system that uses natural language processing techniques for text preprocessing and a machine learning model to classify product reviews as positive or negative with real time feedback tracking.

Parkinson-s-Disease-Predict - Built a supervised machine learning pipeline that analyzes biomedical data to detect Parkinson's Disease. Trained with K Nearest Neighbors, Decision Tree, and SVM classifiers.

Company-Customer-Churn-machine-learning-model - Built and evaluated classification model to identify customers likely to churn, using the Telco Customer Churn dataset.

Data Base Systems

student_attendance_management_project - A role based web application developed using PHP and MySQL to attendance tracking for university students. The system includes separate interfaces for Admin, Lecturer, and Student roles, enabling user registration, lecture scheduling, attendance marking, and real time access to records.

Embedded Systems

Smart-Railway-Gate-Control-System-with-GPS-Tracking- Developed an embedded safety system using ESP32, GPS, and servo motors to automate railway gate control. Integrated real time tracking, mobile alerts and emergency override features. (Group Project)

Future Plans

I am passionate about continuously enhancing my skills and exploring emerging technologies. My upcoming goals include:

- Creating a personal portfolio website to showcase my projects and skills.
- Building a personal AI agent to assist with daily tasks and automate workflows.
- Learning deployment techniques for deploying machine learning and web applications.
- Studying Large Language Model (LLM) fine tuning to adapt models for specific tasks and domains.
- Deepening knowledge in Agentic AI to develop intelligent, autonomous systems.