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HuggingFace: <https://huggingface.co/UdaraChamidu> | Portfolio: <https://udara-chamidu-portfolio.vercel.app>

## PROFESSIONAL SUMMARY

Final year BSc Computer Engineering undergraduate with strong experience in both AI/ML and software development. Skilled in designing and deploying intelligent applications that combine modern web technologies and advanced machine learning. Proficient in Python, FastAPI, React, TensorFlow, LangChain, n8n and Hugging Face, with practical experience in Generative AI, RAG systems and agentic AI architectures. Experienced in building scalable full stack applications using the MERN stack and cloud platforms such as AWS and Firebase. Passionate about developing innovative, real world solutions that merge AI intelligence with robust software engineering to deliver impactful user experiences.

## EDUCATION

B.Sc. (Hons) Computer Engineering (2022 – Present),  
University of Jaffna

## PROJECTS

**Eye Disease Classification With Integrated Chatbot** - Ongoing Research Project ([GitHub](#)) | *ViT, LLMs, RAG, Hugging Face, Python, FAISS, InceptionV3, CNN, Streamlit*

- Designed an AI eye disease diagnostic system using 3 model combination. (CNN, RAG and image+text model).
- Combined OCT image analysis (ViT) with symptom based NLP (LLMs + RAG) for multimodal accuracy.
- RAG pipeline is created for text data with Gemini 2.5 flash and FAISS vector database
- Integrated chatbot interface to allow patients/doctors to query the model in natural language.

**AI Trip Planner Agent** ([GitHub](#)) | *FastAPI, Streamlit, GPT-4o, LangGraph, Tool APIs*,

- Built an intelligent travel assistant that creates personalized trip plans with GPT-4o and LangGraph.
- Integrated weather, exchange rates and search APIs, supporting session history, chat deletion and PDF export.
- Trying to deploy with LLMops, improving performance and enabling scalability for real users.

**AskBot Chatbot** ([Live Demo](#)) | *React, FastAPI, Gemini 2.5 Flash API, LangGraph, Vercel, Railway*

- Designed a ChatGPT like interface with React frontend and FastAPI backend.
- Integrated Gemini 2.5 Flash API + LangGraph to manage conversational flows efficiently.
- Deployed frontend on Vercel and backend on Railway, ensuring seamless real time interaction.

**N8N AI Assistant** ([GitHub](#)) | *n8n, GPT-4o, Telegram Bot API, Google API, Python, Weather API*,

- Developed a Telegram integrated AI assistant capable of handling text, voice, images and PDF queries.
- Automated emails, calendar events, weather/crypto price checks and Python code execution.
- Leveraged n8n workflows + GPT-4o to demonstrate practical agentic AI for personal productivity.

**MERN Stack Web Application** ([GitHub](#)) | *MongoDB, Express, React, Node.js, AWS EC2*

- Developed a full-stack web application using MongoDB, Express.js, React.js and Node.js, featuring a React based frontend and scalable backend architecture.
- Designed and implemented RESTful APIs for CRUD operations, modular controllers and robust routing, with automated dependency management and comprehensive documentation.
- Deployed the solution to AWS EC2, configuring cloud infrastructure and enabling secure, remote access for real users.

**Real-Time Waste Detection App** ([GitHub](#)) | *Python, Flask, YOLOv8, OpenCV, TensorFlow, HTML, CSS, JS*

- Built a real time waste classification web app using YOLOv8 to detect and classify waste from camera input.
- Integrated Flask backend with live video streaming and deep learning model inference for instant predictions.
- Designed a responsive UI with result visualization and waste category suggestions.

### **Legal Document Explainer** ([Live Demo](#)) | *Python, FastAPI, Hugging Face Transformers, LangChain, Streamlit*

- Built an AI powered platform to simplify legal contracts and lease agreements.
- Highlights key clauses and risks while supporting natural language Q&A for contextual understanding.
- Enhanced accessibility for non lawyers by combining LLMs + legal text analysis.

### **Portfolio Chatbot + Automate Blogging** ([Live Demo](#)) | *React, FastAPI, RAG, FAISS, Vercel, Railway, GitHub Actions*

- Created intelligent portfolio featuring RAG powered chatbot for visitor interaction and automated AI blog generation
- Implemented CI/CD pipeline generating daily AI/ML news summaries, combining news APIs with AI summarization
- Implemented a RAG pipeline with FAISS vector database, enabling contextual responses from stored data.

### **Video Chatty** - Ongoing ([GitHub](#)) | *Streamlit, Python, Gemini AI, Docker, AWS*

- Built interactive video analysis tool allowing users to chat with video content using natural language processing.
- Integrated YouTube transcript extraction and local video upload capabilities with Gemini AI for intelligent responses
- Deployed Dockerized Streamlit application on AWS infrastructure with persistent chat history and real-time processing.

### **Movie Searching Web Application** ([Live Demo](#)) | *React, OMDb API, Context API*

- Built a responsive movie searching web app using React that fetches real time data from the OMDb API with dynamic search and filter functionalities.
- Implemented global state management using Context API to handle favorite movies.
- Designed clean UI components with React Router for seamless navigation and reusable component structure.

### **Student Attendance Management System** ([GitHub](#)) | *PHP, MySQL, HTML, CSS, JavaScript, XAMPP*

- Built a role based attendance management system with dedicated Admin, Lecturer and Student panels for university.
- Implemented features for lecture scheduling, subject allocation, attendance tracking and more with MySQL backend.
- Designed a scalable digital solution replacing manual registers, improving accuracy and real time data access.

### **Smart Railway Gate Control System** ([GitHub](#)) | *Firebase, ESP32, Neo-6M GPS, Servo Motors, Kotlin, MQTT*

- Implemented a smart railway gate system that automates gate operations using GPS based real time train tracking.
- Developed a mobile app (Kotlin + Firebase) providing real time alerts, manual override and emergency notifications.
- Built a low cost, scalable safety solution with ESP32, servo controlled gates, audio visual alerts and IoT communication

### **Laptop Price Predictor - ML Web App** ([Live Demo](#)) | *Flask, Sk-Learn, Random Forest, Pandas, HTML/CSS, HuggingFace*

- Built a ML model to predict laptop prices using Kaggle dataset with preprocessing, feature engineering and normalizing.
- Trained and compared several models and selected the Random Forest algorithm with 82% accuracy.
- Developed and deployed a Flask web app with HTML/CSS frontend on Hugging Face, enabling users to input specifications and receive live predictions.

### **RAG With n8n + Voice Agent** - Ongoing ([GitHub](#))

### **Real time People Detection and Counting** - Ongoing ([GitHub](#))

## **SKILLS AND ABILITIES**

- Programming Languages: Python, Java, C++
- MERN Stack: MongoDB, React.js, Node.js, Express.js
- ML and DL Frameworks: Scikit-learn, TensorFlow, Keras, Random Forest, Regression Models
- Generative AI & NLP: LLMs, LangChain, Transformers, RAG, Prompt Engineering, Gemini, Groq, GPT models
- Agentic AI & Automation: Agents, LangGraph, n8n
- Web & API Development: FastAPI, Streamlit, Flask, React, REST APIs
- Databases & Vector Databases: MongoDB, MySQL, ChromaDB, FAISS
- DevOps & Tools: Google Colab, Hugging Face, Vercel, Railway, LLMops, Docker, AWS EC2

## **REFERENCES**

- Dr. Pratheeba Jeyanathan, Head of the department, Dept. of Computer Engineering Faculty of Engineering, University of Jaffna, pratheeba@eng.jfn.ac.lk, +94778448679
- Dr. Jananie Jarachanthan, Senior Lecturer, Dept. of Computer Engineering Faculty of Engineering, University of Jaffna, jananie@eng.jfn.ac.lk, +94764904957