MUHAMMAD USMAN KHALIL

AI ENGINEER / WEB DEVELOPER

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Experienced in AI, machine learning, neural networks, and agentic AI using Python, TensorFlow, and Keras. Proficient in deploying production-ready API solutions with React, Django, and FastAPI. Skilled in building intelligent systems including multi agentic AI chatbots with RAG and voice agents using LangGraph for real-time, context-aware interactions. Strong background in full-stack web development using PHP, SQL, Django, and React. Experienced with Power BI for data-driven decision-making and adept at data visualization to effectively communicate complex insights and drive informed strategies.

AREA OF EXPERTISE

- Machine Learning (tensorflow, pytorch)
- Neural Network(keras)
- RAG, VectorDB (pinecone, chroma)
- Multi agentic AI, n8n
- LangChain, crewai
- Data Analyst (Excel , python , PowerBI)
- Web development (django, PHP, React, FastAPI)
- Github
- Process Automation

PROFESSIONAL EXPERIENCE

- **Python/ML developer** **June 2025 - Present**
  One Machine Software
  Developed a Retrieval-Augmented Generation (RAG) pipeline using Pinecone for efficient medical data retrieval and analysis. Implemented and fine-tuned a Large Language Model (LLM) using LSTM architecture for domain-specific text understanding and prediction.
- **University Of Lahore (SGD campus)**
  Database Intern
  Developed and implemented an organizational database to oversee student assessments, including quizzes and assignments, which resulted in improved visibility of key performance metrics and enabled easier decision-making in grading at the organizational level.

PROJETS

Plant Disease Detection and Treatment (FYP)

- The project uses a Convolutional Neural Network (CNN) to analyze plant images and determine if they are healthy or diseased.
- A FastAPI-based backend handles image upload, prediction , and model inference efficiently

Liver Cancer Detection and Diagnosis using Deep Learning (Research Project)

- Developed a binary classification system using EfficientNet-B0, TinyViT, and MobileViTv2 models to detect Hepatocellular Carcinoma (HCC) from DICOM CT scan images converted to JPG format, achieving up to 98%.
- Deployed the trained models using FastAPI, enabling image upload, inference, and HCC prediction through a user-accessible web API.

AI Chatbot for Financial & Stock Market

- Developed an AI chatbot using Groq, Agno, and DeepSeek for financial and stock-related queries.
- Integrated real-time stock data using yfinance for accurate insights.

EDUCATION

Bachelor of Science in Computer Science **Oct 2021 - June 2025**

University of Lahore (Sgd Campus)

- Major in AI & ML.
- FYP on "Technological Advancements within the current Agriculture Industry".

ADDITIONAL INFORMATION

- **Languages:** English, Urdu.
- **Certifications:** Probability & Stat for ML (coursera) , Ethical Hacker Course (Cisco) , Data Analytics & AI workshop (atomcamp).
- **Awards/Activities:** First Position in speed programming competition(2024), Onboarding Project Lead in internship.

LINKS

www.linkedin.com/in/khalilusman70
https://github.com/khalilusman