

# Muhammad Umair Farooq

Machine Learning Engineer

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## SUMMARY

Engineer with hands-on experience in building and deploying intelligent systems using LLMs, RAG pipelines, and deep learning. Skilled in Python, PyTorch, LangChain, and FastAPI, with a strong focus on developing practical AI solutions such as educational chatbots, legal assistants, and EMG-based prosthetic control systems. Experienced in end-to-end model deployment, vector search (FAISS, Pinecone), and cloud-based MLOps using AWS. Passionate about creating scalable, explainable, and production-ready AI applications..

## EXPERIENCE

### Machine Learning Intern | ZAA Soft, Islamabad

June 2024 – August 2024

Built LLM-powered applications using OpenAI and Hugging Face models. Implemented FAISS and Pinecone databases for efficient retrieval and search. Contributed to end-to-end deployment of internal AI prototypes.

### Air University, Islamabad — Machine Learning Intern

Jul 2023 – Sept 2023

Completed an enriching internship in the Department of Creative Technologies at Air University, where I honed my skills of Machine Learning from July to September 2023.

### 128 Technologies, Islamabad — Backend Developer

Jul 2023 – Aug 2023

Created a management system for hospitals to keep track of their doctors' schedules and to provide appointments to patients relative to their emergencies. And gained hands-on experience in coding with python, problem-solving, and project management.

## SKILLS

**ML Frameworks:** PyTorch, TensorFlow, Keras, Scikit-learn

**LLM & RAG Tools:** LangChain, OpenAI API, Transformers (Hugging Face), FAISS, Pinecone

**Data Science & Analysis:** Data Analysis, Data Preprocessing, pandas, NumPy, Feature Engineering, Model Evaluation

**Deployment & MLOps:** FastAPI, Docker.

**Data & Databases:** MySQL, SQLite, ChromaDB

**Programming:** Python, C++, C

## PROJECTS

**Agentic Healthcare Workflow Automation System** – Built and deployed an agentic AI system that processes unstructured healthcare data (text, PDFs, scanned documents) using LLMs and OCR, validates information completeness, and executes decision-based workflows with full audit logging. [Healthcare Agentic System](#)

**Mednix – AI-Powered Drugs Information Assistant** – Built a FastAPI-based RAG system integrating OpenAI and medical databases to deliver accurate, context-aware drug information. [Mednix-Click Me](#)

**Legal AI Assistant – Law Retrieval & Analysis System**— developed a hybrid BM25 + FAISS retrieval engine with LLM summarization for intelligent legal document search and reasoning. [Legal Agent-Click Me](#)

**FYP – Neuro-Flex – EMG-Based Hand Movement Classification**— *Designed a deep learning pipeline using LSTM models to classify EMG signals and control a 3D prosthetic hand in real-time*

**Credit Enrich System – Creditworthiness Automation:** — *Automated financial document parsing and data enrichment using OCR, regex, and AI-driven validation pipelines.*

**Auto-Complete:** — *A small scaled NLP based generative model to auto complete sentences.*

## **EDUCATION**

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**Air University, Islamabad** — *BS Artificial Intelligence* — CGPA: 2.71

**Sep 2021 - July 2025**