

MUHAMMAD HASNAIN RAZA

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SUMMARY

AI Systems & Data Engineering professional with hands-on experience building **scalable distributed data pipelines, streaming architectures and ML workflows**. Skilled in **Python, Kafka, Hadoop, MongoDB, and AWS** with experience designing **ETL pipelines, data integration systems, and experiment-tracked ML pipelines**. Experienced in **LLM integration, embeddings, and vector databases**, with a focus on building **production-ready data and AI systems**.

PROFESSIONAL EXPERIENCE

AI Engineer

Feb 2025 – June 2025

DMLytics - Contract

Islamabad, Pakistan

- Processed **300+ GB** of geospatial imagery to enable accurate **orthorectification** and **spatial** analysis workflows.
- Led **Orthomosaic** module development, automating large-scale image stitching and georectification.
- Contributed to the broader **computer vision pipeline**, including image stitching, mosaicking, and metadata handling.
- Applied **OpenCV, NumPy, GDAL, Rasterio** for geometric, raster, and geospatial operations.

EDUCATION

Bachelor of Science in Data Science

Aug 2022 – Jul 2026

FAST National University of Computer and Emerging Sciences (FAST NUCES)

Islamabad

SKILLS

- **Languages & Libraries:** Python, SQL, Pandas, NumPy, Scikit-learn, TensorFlow, matplotlib, OpenCV.
- **Frameworks:** Langchain, LangGraph, LangSmith, CrewAI, OpenAI, Huggingface, LlamaIndex.
- **DataBases:** Vector Database (ChromaDB, FAISS), Supabase, SQL, MongoDB.
- **Deployment & Tools:** FAST API, Redis, Docker, Kubernetes, Airflow, MLFlow, AWS, Linux, Git/GitHub, Vercel.

PROJECTS

JobSwipe: Multi Agent System for Career development

Built a resume analysis and job recommendation platform with a Flask API backend, **Next.js** frontend, and **Supabase** authentication. Implemented NLP pipelines for resume parsing, job matching, and scraping using **Scrapling** to adapt to changing site structures, with Sentence Transformers and **FAISS** for role matching and a swipe-based UI. Leveraged **Redis** caching and background **daemon threads** to accelerate LLM parsing and enable automated job applications.

FixBot: Whatsapp Based Multi Agent Customer Service Representative

Built a WhatsApp-based CSR system for restaurants using a RAG pipeline to handle orders, manage workflows, and track inventory via **WhatsApp API**. Leveraged **FastAPI, FAISS, HuggingFace embeddings**, and **Gemini API** for retrieval and response generation, with **ngrok** endpoints and webhook integration for real-time communication and seamless order processing.

FairPlay: Automated Youtube content Auditing System.

Engineered an automated, multimodal AI pipeline that audits YouTube video ads against legal compliance frameworks using a stateful **LangGraph** agentic workflow. It extracts transcripts and **OCR** data, applies **RAG** for policy retrieval, and enforces rules using **OpenAI API** with **Groq**. Deployed as a production-ready **FastAPI** backend with end-to-end telemetry and tracing via **LangSmith**, running on **AWS** infrastructure.

FlowVoyage: Airflow Orchestrated ML Pipeline

Developed an **Airflow-orchestrated ML pipeline** for ingestion, preprocessing, training, and evaluation with **parallel tasks, conditional branching**, and modular pipeline components. Integrated **MLflow** for experiment tracking, metrics logging, and model versioning. Containerized the stack using **Docker Compose**.

RhythmRabbit: Music Streaming Engine

Built a content-based music recommender on distributed **Azure** VMs, processing **80GB+** of audio and metadata, with ETL pipelines using **Librosa** and **Pandas** and KNN-based similarity search in PySpark ML. Integrated **Kafka** for capturing user interactions and dynamic playlist updates with indexed retrieval in **MongoDB**, and enabled low-latency streaming via **Flask**, achieving **sub-200ms** response times under concurrent load.

CERTIFICATIONS & HONORS

- **Certifications:** Vector Search, MongoDB: Core, Architecture & CRUD
- **Honors:** Dean's List