

HAMZA NAWAZ

ML Engineer

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SUMMARY

AI Engineer specializing in Machine Learning, Deep Learning, Generative AI, Agentic AI, and Full-Stack AI Development. Experienced in LLMs, LangChain, RAG Pipelines, Computer Vision, Speech AI, and AI Agents. Passionate about building intelligent AI solutions that enhance decision-making, automate workflows, and drive business value. Strong background in NLP, OCR, and AI-powered automation with expertise in cloud deployment and scalable AI systems.

SKILLSET

Technical Skills

ML/DL Frameworks:

- TensorFlow
- PyTorch
- Scikit-learn

Generative AI:

- LangChain
- OpenAI
- Graph DBs
- Hugging Face
- RAG Pipelines

Agentic AI:

- Langgraph
- Crewai
- Agno AI

Deep Learning:

- ANN
- CNN
- RNN
- Transformers
- LSTM

Technologies:

- Pinecone
- FAISS
- ChromaDB
- Qdrant
- PGVector

Backend:

- Flask
- Streamlit
- Django
- FastAPI

Frontend:

- HTML
- CSS
- JavaScript

Databases:

- PostgreSQL
- MySQL
- MongoDB

Tools:

- BeautifulSoup
- Scrapy
- Selenium

AI-Powered Scraping:

- Vision-based scraping
- AI Agents

Platforms:

- AWS
- Azure
- DigitalOcean
- VPS
- Heroku
- Render

Containerization:

- Docker

WORK EXPERIENCE

Generative AI Engineer

Early Stage Studio

May 2025 – Present | Remote

- Leading development of **XAP** – an AI-powered calendar SaaS with WhatsApp integration, enabling natural language scheduling and real-time availability detection.
- Designed and implemented **Model Context Protocol (MCP)** for efficient context passing and coordination across multiple LLMs (e.g., OpenAI, Groq) within agentic systems.
- Developed **Baxter**, a multi-format document screening platform supporting intelligent filtering of PDFs, audio, video, and images.
- Built robust APIs and memory architectures for persistent user context and agent chaining in scheduling systems.

AI Engineer

XABTA Pvt Ltd

2022 – 2025 | Islamabad, Pakistan

- Built AI-powered applications for NLP, Computer Vision, and predictive analytics, deployed on scalable cloud infrastructure.
- Created a **Generative AI chatbot** using LangChain + RAG pipelines, improving response accuracy by 80%.
- Designed and deployed an **AI content moderation system** for TikTok, achieving 95% classification accuracy.
- Developed document automation tools using OCR and deep learning, reducing manual effort by 70%.

Generative AI Developer (Contract)

TSG

2024 – Present | Remote, Part-Time

- Developed **IqbalAI** – an AI-powered educational assistant platform for automated lesson planning and interactive student-teacher communication.
- Integrated **Groq LLM (LLaMA3-70B)** with LangChain for real-time QA and contextual awareness.
- Built a full-stack system for document-based semantic search (FAISS + Sentence Transformers).
- Automated content generation from PDFs, DOCX, TXT, including lesson plans, quizzes, and FAQs.
- Implemented secure, role-based access control, session management, token usage tracking, and export features (PDF/DOCX/PPT).

Stack: Flask, SQLAlchemy, LangChain, Groq, FAISS, Docker, Nginx, Gunicorn.

Freelance AI Engineer

Fiverr & Upwork

2023 - Present | Remote, Short-Term Projects

- Delivered custom LLM, NLP, and predictive AI solutions for international clients.
- Built AI-powered video analysis app using Google Gemini + Flask, gaining over 1,000 active users.
- Developed a LinkedIn data scraping tool with OpenAI Vision, automating lead generation workflows

Backend AI Developer (Contract)

Finmetrik

07/2024 – Jan 2025 | Remote, Part-Time

- Designed and maintained **backend APIs** using **Django** and **Django REST Framework**.
- Integrated **PostgreSQL**, **Redis**, and caching strategies for performance optimization.
- Built AI-backed backend modules and automation workflows for fintech features.

EDUCATION

BS (Hons) in Artificial Intelligence

Hazara University Mansehra

CGPA: 3.80/4.00

2021 – 2025

Final Year Project:

AI MCQs Bank – Intelligent Quiz Generation System

- Developed an AI-powered MCQs generator that extracts content from books, PDFs, PPTs, DOCs, and teacher video lectures to create customized quizzes.
- Integrated OCR, NLP, and Computer Vision for extracting text from documents and videos.
- Enabled **real-time quiz-taking** with automated scoring, results visualization, and performance analytics.

Tech Stack: Python, Django, React, LangChain, PostgreSQL, FastAPI, OpenAI.

PROJECTS

1. Title: XAP – AI-Powered Calendar SaaS with WhatsApp Integration

[Link] <https://app-dev.genexai.com/>

Description:

Designed and developed XAP, a smart AI-driven calendar management SaaS platform that empowers users to effortlessly schedule, reschedule, and manage meetings through WhatsApp using natural language.

Key Features:

- Conversational AI Assistant: Built using LangChain + GPT-4o-mini for intuitive, human-like interaction
- WhatsApp Integration: Seamless messaging experience via Twilio API
- Smart Calendar Management: Google Calendar API integration with support for multiple calendars
- Automated **Functions:** Schedule, reschedule, cancel, and check meeting availability through chat

Tech Stack: Python, FastAPI, Firebase, LangChain, Twilio, Google APIs

2. Title: Baxter – AI-Powered Multi-Format Document Screening Platform (In Progress)

[Link] (<https://xaply-dev-2.web.app/>)

Description:

Built an AI-based research screening system to extract and filter relevant information from PDFs, videos, audio, and other documents using inclusion/exclusion criteria.

Key Features

- Implemented abstract screening pipeline using GPT and MongoDB for PubMed research papers
- Designed document ingestion system supporting PDFs, PPTs, videos, audio, Word, and images
- Extracted content via pdfplumber, Whisper, Tesseract, and other parsers; stored metadata in MongoDB

- Generated vector embeddings with OpenAI and stored in a namespaced Vector DB (per KB)
- Enabled unified screening via GPT across all content types with export to Excel and ZIP

Tech Stack: Python, FastAPI, LangChain, Whisper, OpenAI, MongoDB, Celery, Vector DB

3. Title: IqbalAI – AI-Powered Educational Assistant Platform

[Link] <http://iqbalai.com>

Description:

Built a full-stack AI platform to automate lesson planning and enable interactive, role-based learning for educators and students.

Key Features:

- Integrated Groq LLM (LLaMA3-70B) with LangChain for real-time chat, content generation, and context-aware responses
- Enabled document-based semantic search using FAISS and Sentence Transformers
- Automated lesson plan generation from PDFs, DOCX, TXT with objectives, quizzes, and key concepts
- Developed FAQ generator for lessons and structured AI-powered content extraction pipeline
- Built chat system with persistent history, lesson-specific context isolation, and transcript export
- Implemented role-based access control (Teacher/Student) with secure auth and email verification
- Created API key manager, session handling, CSRF protection, and token usage tracking
- Enabled file uploads, versioning, and AI-based content improvement with export to PDF/DOCX/PPT
- Developed feedback/survey system for continuous platform refinement

Tech Stack: Flask, Python, SQLAlchemy, Groq LLM, LangChain, FAISS, Docker, Nginx, Gunicorn

4. MCQs Bank – AI-Driven Assessment Generator & Evaluation System

[Link] <http://104.219.55.160>

Description:

Developed an intelligent exam preparation platform that automatically generates MCQs, fill-in-the-blank questions, and enables real-time student evaluation from uploaded educational content.

Key Features:

- Built a full-stack web application using Django (Python) for the backend and React.js for the frontend
- Enabled multi-format content upload (PDFs, videos, Word docs) with automated text extraction using PyMuPDF, Whisper, and python-docx
- Integrated LLM-based question generation for MCQs, fill-in-the-blanks, and custom assessments
- Designed real-time student testing interface with instant scoring and feedback
- Implemented marks tracking, performance analytics, and topic-wise accuracy breakdown
- Developed role-based system for teachers to upload content and generate quizzes, and students to take tests and view results
- Enabled secure user authentication, quiz timing, and question randomization

Tech Stack: Django, Python, React.js, PostgreSQL, LangChain, Whisper, PyMuPDF, python-docx

ACHIEVEMENTS

Product Development Achievements

- XAP:** AI-based calendar assistant with WhatsApp + LangChain + GPT-4o-mini.
- Baxter:** Multiformat document screening (PDF, video, audio, image).
- IqbalAI:** Educational platform with AI-generated lessons & automation tools.
 - Built MCQ generator from PDFs, docs, and lectures; enabled real-time scoring and quiz creation.
 - Created AI video analysis tool reducing manual effort by 60%, reaching 1000+ users.
 - Developed SmartAI PDF for document-based chat via RAG, FAISS & LangChain.

Professional Achievements

- Worked with **4+ organizations** across freelance, startup, and corporate settings.
- Delivered tailored **AI/ML solutions** on **Fiverr & Upwork** to international clients.
- Led **AI projects** end-to-end from research to deployment and scaling.
- Maintained **CGPA 3.80/4.00** in BS Artificial Intelligence.
- Earned **certifications** in ML, GenAI, and Python (XABTA, Dynot).
- Built **full-stack AI platforms** integrating frontend, backend, and ML models.

Innovation & Research Achievements

- Implemented efficient **RAG pipelines** using Pinecone, ChromaDB, FAISS.
- Integrated **multi-AI APIs**: OpenAI, Google Gemini, Groq for hybrid models.
- Built **agentic AI apps** with LangGraph, CrewAI for autonomous workflows.
- Created **multimodal apps** with support for text, audio, and file-based queries.
- Developed **OCR + vision** tools using OpenCV, Tesseract, and custom ML.
- Enabled **real-time AI chat** with persistent memory & contextual awareness.