

HAMZA NAWAZ

ML Engineer

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PROFILE

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.

WORK EXPERIENCE

AI Engineer | XABTA Pvt Ltd (2022 – Present, Islamabad, Pakistan)

- Developed **AI-powered applications** for NLP, Computer Vision, and Predictive Analytics.
- Created a **Generative AI chatbot** using **LangChain and RAG Pipelines**, improving response accuracy by **80%**.
- Designed and deployed **AI-based content moderation for TikTok** with **95% accuracy**.
- Implemented **computer vision models** for automated document processing, reducing manual efforts by **70%**.

Freelance AI Engineer | Fiverr & Upwork (2023 – Present, Remote)

- Delivered **custom AI/ML solutions** for international clients, focusing on NLP and predictive modeling.
- Developed an **AI-driven video analysis tool** using Google Gemini AI and Flask, gaining **1,000+ active users**.
- Built an **AI-powered LinkedIn data scraper** with OpenAI Vision, automating lead generation and market research.

Django Backend Developer | Finmetrik (2025 – Present, Remote, Part-Time)

- Developed and maintained **RESTful APIs** using **Django and Django REST Framework (DRF)**.
- Designed and optimized **backend architecture** for fintech applications.
- Integrated **PostgreSQL and caching mechanisms** to improve system performance.

EDUCATION

BS (Hons) in Artificial Intelligence

Hazara University Mansehra

CGPA: 3.80/4.00

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.

SKILLSET

Programming Languages:

- Python
- C++
- JavaScript
- HTML
- CSS

Web Development:

- Rest Framework
- Bootstrap
- APIs Development
- Restful APIs

Artificial Intelligence:

- Machine Learning
- Deep Learning
- LangGraph
- NLP
- Rag
- LLM
- GenAI

Version Control:

- Git
- GitHub

Testing:

- Unit Testing
- Integration Testing

Technical Skills

Artificial Intelligence & Machine Learning:

- ML/DL Frameworks:** TensorFlow, PyTorch, Scikit-learn
- Generative AI:** LangChain, OpenAI, Hugging Face, RAG Pipelines, Graph DBs
- Agentic AI:** Langgraph, Crewai, Agno AI
- Deep Learning:** ANN, CNN, RNN, LSTM, Transformers

Vector Databases:

- Technologies:** Pinecone, FAISS, ChromaDB, Qdrant, PGVector
- Backend:** Django, Flask, FastAPI, Streamlit
- Frontend:** HTML, CSS, JavaScript
- Databases:** PostgreSQL, MySQL, MongoDB

Web Scraping & Automation:

- Tools:** BeautifulSoup, Scrapy, Selenium
- AI-Powered Scraping:** Vision-based scraping, AI Agents

Cloud & Deployment:

- Platforms:** AWS, Azure, Heroku, DigitalOcean, Render, VPS
- Containerization:** Docker

CERTIFICATIONS

- Machine Learning** – XABTA Pvt Ltd
- Generative AI** – Dynot
- Python Programming** – XABTA Pvt Ltd

PROJECTS

1. AI Education Chatbot – Multimodal Learning Assistant

[GitHub](<https://github.com/hamza5588/educationappdockercontainer.git>)

- Built an **AI-driven education chatbot** supporting **text-to-text, speech-to-speech, and document-based interactions**.
- Integrated **real-time APIs for speech recognition & synthesis**, enabling voice conversations.
- Maintained **chat history & contextual memory**, allowing personalized learning experiences.
- Users can **upload books, PDFs, and text-based resources** for AI-driven knowledge extraction.
- **Tech Stack:** Python, Django, FastAPI, LangChain, OpenAI, Whisper API, Google Gemini AI

2. SmartAI PDF AI – AI-Powered Document Analysis

[GitHub](<https://github.com/hamza5588/SmartPdf-Ai.git>)

- Developed an **AI-powered PDF analysis system** using Django REST Framework and Google Gemini AI, enabling natural language interactions with documents.
- Implemented a **document processing pipeline** with **LangChain and FAISS vector storage**, optimizing response times through efficient text chunking and caching.
- Built a **responsive React/TypeScript interface** with **real-time chat capabilities and secure JWT authentication**.
- **Tech Stack:** Python, Django REST, React, TypeScript, LangChain, Google Gemini AI, FAISS, PostgreSQL

3. AI MCQs Bank – Intelligent Quiz Generation System

[GitHub](https://github.com/hamza5588/vision_scraping.git)

- Developed an **AI-powered MCQs generator** that extracts content from **books, PDFs, PPTs, DOCs, and teacher video lectures** to create customized quizzes.
- Allowed users to **select subjects, question types, difficulty levels, and number of questions** for automatic quiz generation.
- Implemented **OCR, NLP, and AI-based text processing** to extract and structure questions efficiently.
- Enabled real-time **quiz-taking with automated scoring, results visualization, and performance analytics**.
- **Tech Stack:** Python, Django, React, LangChain, PostgreSQL, FastAPI, OpenAI

4. AI-Powered Video Analysis Web App

[Live Demo] (<https://ai-powered-video-analysis-web-app.onrender.com>)

[GitHub](<https://github.com/hamza5588/AI-powered-Video-Analysis-Web-App/tree/master>)

- Developed a **Flask-based AI video processing tool** using Google Gemini AI.
- Enabled real-time **Q&A on uploaded videos, reducing manual analysis time by 60%**.

5. AI-Based OCR for Automated Invoice Processing

- Built an **OCR-based AI system** for extracting text from invoices and storing it in a structured database.
- Utilized **Tesseract OCR, OpenCV, and Regex** to achieve high-accuracy text recognition.
- Reduced manual data entry by **70%**, improving efficiency in financial record-keeping.

6. ERP System for Daily Expense Management

[GitHub](<https://github.com/hamza5588/AccountsystemERP>)

- Developed a Django-based web application to streamline daily expense tracking and management. The ERP system provides features for logging, categorising, and analysing expenses, enabling efficient financial oversight and reporting for businesses. Designed for scalability and user-friendly interaction to enhance operational efficiency.