

Hafiz Muhammad Usama Saleem

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Innovative and impact-driven Machine Learning Engineer specializing in **LLMs, Generative AI, and Agentic AI systems**. Proven track record in designing and deploying intelligent solutions using **RAG pipelines, LangChain, CrewAI, and scalable API frameworks**. Adept at transforming complex data challenges into real-world AI applications that enhance automation, decision-making, and user experience. Passionate about building future-ready AI systems that merge deep learning with practical business value.

EDUCATION

MSc in Data Science

FAST NUCES, 2025

Postgraduate Diploma in Data Science and Artificial Intelligence

NED University, 2024

Bachelor of Engineering in Electrical

NED University, 2020

WORK EXPERIENCE

Machine Learning Engineer at PixelEdge Solutions (Pvt.) Limited (October 2023 – Present)

Fintech Product (Data Automation & ML Integration)

- Built and deployed ML algorithms to automate data extraction workflows, significantly reducing manual effort and generating structured Excel reports from raw financial inputs.
- Applied advanced preprocessing, feature engineering, and exploratory data analysis on financial datasets to support KPI prediction and decision-making.

Sustainability / Environment-Focused Product (Intelligent Document Assistant)

- Developed a **RAG-based** conversational solution using **LangChain** to answer predefined user queries by retrieving insights from internal sustainability and policy documents..
- Integrated ChatGPT API to enhance natural language understanding, enabling accurate, human-like responses grounded in document context.
- Designed and deployed robust REST APIs using **Flask** and **FastAPI** to serve ML models and conversational agents across internal tools.

Agentic AI Systems (Cross-Domain Application)

- Built **multi-agent systems** using frameworks like **SmolAgent**, **CrewAI**, and **LangGraph** to automate complex research and data retrieval workflows.
- Developed a Gemini-powered agent to autonomously extract company insights using search-based browsing and reasoning over multi-source data.

Trainee Data Scientist at Techma Zone (January 2023-October2023)

- Performed data preprocessing, cleaning, and feature engineering on real-world datasets to prepare for analysis and modeling.
- Conducted exploratory data analysis (EDA) and visualized insights using tools like Matplotlib, Seaborn, and Plotly.

- Collaborated in cross-functional projects to apply machine learning algorithms and evaluate model performance using industry-standard metrics.

Graduate Trainee Engineer at Lucky Cement Limited (July 2021 – December 2022)

- Managed maintenance scheduling, resource allocation, and governance of LV/MV motors.
- Conducted **vibration & temperature analysis** on MV motors to optimize performance.
- Maintained distribution transformers and handled SAP PM notifications.
- Assisted in the day-to-day operations of the company and coordinated with the business development manager.

TECHNICAL SKILLS

- **GenAI:** LangChain, LLM Integration, Prompt Engineering, RAG, Vector DB(OpenSearch, FAISS,Pinecone)
- **Agentic AI Frameworks:** CrewAI, SmolAgent, LangGraph
- **Machine Learning:** Supervised & Unsupervised Learning, Transformers
- **Deep Learning:** PyTorch, TensorFlow
- **Natural Language Processing:** NLTK, spaCy
- **Programming Languages:** Python, SQL
- **Model Deployment & APIs:** Flask, FastAPI, Docker
- **Frameworks & Tools:** PyTorch, Scikit-learn, Hugging Face, Jupyter Notebook, Git
- **Data Visualization:** Matplotlib, Seaborn

PERSONAL PROJECTS

Mini AI Concierge (Guest Support Bot) [GitHub](#) | [Loom Demo](#)

Built an LLM-powered chatbot using RAG architecture to automate guest support for vacation rentals. Integrated document retrieval and fallback escalation logic using FastAPI, FAISS, and Gemini.

Agentic Travel Companion [GitHub](#) | [Loom Demo](#)

AI-powered Streamlit application that transforms travel planning into an interactive, personalized experience. Utilizes multiple specialized AI agents to assist with destination selection, budgeting, and trip itineraries using CrewAI.

Stock Price Prediction Model [GitHub](#)

Developed a logistic regression model to predict stock price movement based on financial indicators, using exploratory data analysis and feature selection techniques.

CERTIFICATION

Generative AI with LLMs | Coursera

Complete Machine Learning & Data Science Bootcamp | Udemy

100 Days of Code: The Complete Python Pro Bootcamp | Udemy

Mathematics for Machine Learning and Data Science Specialization | Coursera

CORE COMPETENCIES

Problem-Solving | Communication | Adaptability | Time Management

LANGUAGE SKILLS

English | Urdu