



Muhammad Hamza *AI / ML Engineer*

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🌐 linkedin.com/in/hamzzaz 🏠 github.com/Hamza-code-hub 🔗 Portfolio

AI Engineer specializing in LLM-powered systems, Retrieval-Augmented Generation (RAG), and agentic AI workflows. Currently developing enterprise AI solutions at CyberZeus Software Systems, including AI-driven cybersecurity systems, intelligent automation, and scalable ML pipelines. Experienced in designing end-to-end AI systems from data preprocessing and model training to deployment and backend integration. Research background in medical imaging AI and anomaly detection, with published work on deep learning for Alzheimer's disease detection.

🧠 TECHNICAL SKILLS

Programming Languages: Python, C++ (Basic)

ML & Data Libraries: NumPy, Pandas, Matplotlib (Basic), Seaborn (Basic), TensorFlow, Scikit-learn (Basic)

Frameworks & Tools: Django, Flask, Jupyter Notebook, VS Code, Github, Postman

AI/ML Expertise: Optimized Model Development, Model Training & Evaluation and Data Preprocessing,

Generative AI & LLM Systems: Large Language Models (LLMs), Retrieval-Augmented Generation (RAG), Prompt Engineering, Agentic AI Systems, LLM Application Development

🎓 EDUCATION

University of Okara, BS Software Engineering
(In Progress, 8th Semester)
Current CGPA: 3.75 / 4.00

2022 – 2026
Pakistan

💼 EXPERIENCE

AI Developer, CyberZeus Software Systems 🏠
Key Responsibilities

01/2026 – Present
Lahore, Pakistan

- Design and develop AI/ML solutions for enterprise and web applications
- Build LLM-powered applications, including RAG pipelines and agentic AI workflows using frameworks such as LangChain
- Develop AI-driven cybersecurity solutions, including anomaly detection and intelligent threat analysis models
- Train, fine-tune, and deploy machine learning and deep learning models
- Integrate AI systems into backend services, APIs, and software platforms

AI Software Engineer Intern, Efaida Software House

08/2025 – 12/2025
Okara, Pakistan

Worked on AI-driven automation tools using Zapier, n8n, Make.com and ML workflows. Assisted in building AI models for text classification, object detection, and task automation. Orchestrated five API integrations with Python-based utilities to automate data entry and report generation, saving the sales team approximately 2 hours per week by reducing manual data uploads.

AI Developer (Part-Time / Independent Projects), Remote

04/2024 – 12/2025

Worked on multiple applied AI and machine learning projects under faculty supervision with real datasets and research objectives. Developed models for medical imaging, classification systems, and deep learning architectures. Responsibilities included dataset preparation, model training, evaluation, and experimentation with different architectures.

Key contributions:

- Built deep learning models for Alzheimer's MRI classification and lung cancer detection
- Implemented data preprocessing pipelines and augmentation strategies
- Evaluated models using ROC-AUC, F1-score, and confusion matrices
- Collaborated on research projects leading to **journal publication**

Freelance Python Developer & ML Engineer, Fiverr (Remote)

2023 – Present
Remote

Fiverr Seller Level 1 Account | Completed 12+ international projects in Python automation, machine learning, and data analysis.

Composed predictive models, API-based automation tools, and custom data processing pipelines for clients.

Delivered end-to-end ML solutions including preprocessing, model training, evaluation, and deployment.

Produced automation workflows for repetitive tasks, improving client efficiency and reducing manual workload.

CERTIFICATIONS & ACHIEVEMENTS

Kaggle Notebook Expert Badge , Kaggle

- Published multiple notebooks on machine learning and deep learning projects
- Ranked **Top 2,100 out of ~60,000+ contributors** in Kaggle Notebooks
- Shared implementations of ML models, EDA pipelines, and AI experiments
- Contributed to the AI | ML community through reproducible notebooks

Data Analytics & EDA, Coursera

Python (Basic to Advanced), Coursera

Introduction to Data Analysis, IBM

PROJECTS

Agentic Cybersecurity AI Assistant (RAG + Multi-Agent System)

Designed an enterprise AI assistant for cyber security operations using agentic AI workflows and Retrieval-Augmented Generation (RAG). The system automates tasks such as vulnerability analysis, report generation, security tool orchestration, data scraping, and scheduled monitoring by integrating multiple cyber security tools and knowledge bases to support intelligent security analysis and decision-making.

Key capabilities included:

- Multi-agent orchestration for automated security workflows
- RAG-based vulnerability knowledge retrieval
- Integration with cyber security tools and APIs
- Automated PDF reporting and task scheduling

AI-Based Ticket Scalping Prevention System

Developed an AI-driven pricing and anomaly detection system to prevent automated ticket scalping on large ticketing platforms similar to Ticketmaster. Built machine learning models to detect abnormal purchasing patterns, bot activity, and high-frequency transactions. Implemented intelligent pricing adjustments and fraud detection mechanisms to ensure fair ticket distribution and platform security.

AI-Driven Intrusion Detection for Critical Systems

Designed a hybrid deep learning model (TabNet + Transformer + Cross-Attention) for intrusion detection using CIC-IDS 2017 dataset. This work demonstrates how AI techniques can strengthen cybersecurity systems, ensuring reliable detection of malicious activity.

Alzheimer's Disease Detection from 3D MRI - Deep Learning

Developed a 3D CNN model using MobiBrainNet for early-stage Alzheimer detection from MRI volumes. Implemented 3D preprocessing, augmentation, and evaluation metrics to analyze disease severity.

Chatbot for Technical Support (NLP)

Built an NLP-based chatbot for software product support using intent classification and rule-based query handling. Integrated preprocessing, tokenization, and a response-generation pipeline.

RESEARCH

Ain Shams Engineering journal

Created a 3D deep learning model (MobiBrainNet) for multi-class Alzheimer's detection using volumetric MRI data. The work enhanced classification accuracy while focusing on computational efficiency and spatial data modeling.

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