MUHAMMAD HAMZA

AI Engineer | Machine Learning Engineer | Python Developer

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PROFESSIONAL SUMMARY

Computer Science student and aspiring AI Engineer with hands-on experience building machine learning, data analytics, computer vision, retrieval-augmented generation, and full-stack web applications. Skilled in Python, SQL, React, Django, Scikit-learn, Streamlit, MySQL, PostgreSQL, and Git. Focused on developing reliable, user-centered software that converts data into practical decisions.

TECHNICAL SKILLS

Programming: Python, SQL, R, JavaScript, HTML, CSS
AI and Machine Learning: Regression, classification, feature engineering, model evaluation, NLP, sentiment analysis, forecasting, RAG
Libraries and Frameworks: Pandas, NumPy, Scikit-learn, TensorFlow/Keras, Matplotlib, Streamlit, OpenCV, React, Django, Django REST Framework
Databases and AI Tools: MySQL, PostgreSQL, ChromaDB, Ollama
Developer Tools: Git, GitHub, VS Code, Jupyter Notebook, Postman, Docker basics, Linux basics
Core Knowledge: Object-oriented programming, data structures, statistics, data visualization, REST APIs

PROJECTS

NeuraBizAI - AI-Powered Business Operating System (Final Year Project) | *Python, Django, React, PostgreSQL, XGBoost, BERT*

- Designing an integrated platform for SMEs that combines sales, inventory, marketing, HR, automated reporting, and an AI business assistant in one dashboard.
- Includes predictive sales insights, customer sentiment analysis, inventory forecasting, customer segmentation, churn analysis, and business alerts.

RAG Assistant with Local LLM | *Python, ChromaDB, Ollama, Streamlit, BeautifulSoup*

- Built a retrieval-augmented question-answering assistant that scrapes and indexes Python documentation, retrieves relevant context, and generates grounded answers with a local Llama model.
- Implemented document ingestion, embeddings, vector search, configurable top-k retrieval, and a professional Streamlit interface.

University ERP Lite | *React, Django REST Framework, MySQL, JWT, Postman*

- Developed a role-based university management system with modules for accounts, students, teachers, courses, attendance, quizzes, assignments, and results.
- Created REST APIs, custom user roles, serializers, permissions, admin dashboards, and frontend integration workflows.

Student Performance Prediction System | *Python, Pandas, Scikit-learn, Streamlit*

- Developed a regression application that predicts final marks from study hours, attendance, assignments, midterm marks, and quiz performance.
- Prepared data, trained and evaluated the model, and delivered an interactive web interface for predictions.

Web Scraping Analytics Pipeline | *Python, Requests, BeautifulSoup, MySQL, Pandas*

- Built an end-to-end pipeline to collect web data, clean and transform records, store structured results in MySQL, and perform exploratory analysis and visualization.

Python Webcam QR and Barcode Scanner | *Python, OpenCV, pyzxing, MySQL*

- Created a real-time webcam scanner for QR codes and barcodes with validation and automatic database storage.

Developer Portfolio Website | *HTML, CSS, JavaScript, GitHub Pages*

- Designed and deployed a responsive portfolio showcasing AI, machine learning, data, and web-development projects with interactive animations and project previews.

Expense Tracker Mobile Application | *Flutter, Dart*

- Created a multi-screen mobile application structure with onboarding, authentication, OTP, dashboard, transaction, and expense-management interfaces.

Line-Following Robot | *Arduino, IR Sensors, Embedded Systems*

- Built a two-sensor autonomous robot that detects and follows a track using sensor-based motor control logic.

EDUCATION

Bachelor of Science in Computer Science | Expected 2026
COMSATS University Islamabad, Sahiwal Campus

RELEVANT COURSEWORK

Artificial Intelligence, Machine Learning, Data Structures and Algorithms, Database Systems, Statistics, Computer Networks, Object-Oriented Design and Analysis