Ameer Uqba Goraya

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Education

Forman Christian College (A Chartered University) Lahore, Pakistan
BS (Hons) Computer Science; GPA 3.48 *Oct. 2021 – June 2025*

- **Relevant Courses**: *Introduction to Artificial Intelligence, Machine Learning, Data Structures and Algorithms, Design and Analysis of Algorithms, Object-Oriented Programming, Numerical Computing, Probability and Statistics, Discrete Mathematics*

Experience

Forman Christian College University Lahore, Pakistan
Teaching Assistant (Data Structures and Algorithm, Machine Learning) *Sep 2024 – Present*

- **Designed and evaluated 3 machine learning assignments**, and assessed student submissions across data structures, ensuring alignment with academic objectives and reinforcing conceptual understanding through detailed feedback.
- **Mentored 100+ students** in programming labs and project work, providing personalized support on assignments, troubleshooting code issues ensuring a strong grasp of course material through conceptual clarifications and real-time feedback.
- **Led weekly lab sessions and delivered 7 lectures** across key topics, including 4 on machine learning, 3 on data structures, enhancing student engagement and reinforcing applied understanding beyond the standard curriculum.

Projects

Crash AnalitiX (Final Year Project)

- Developed a machine learning model for real-time traffic accident detection using Python, PyTorch, CuPy, OpenCV, YOLO 12, Flask, and MongoDB.
- Achieved mAP50 of 92.8% and mAP50-95 of 74.9% for accident detection.
- Attained 47 FPS throughput and 0.019-second latency for seamless accident detection in real-time.
- Integrated models for severity assessment, license plate recognition and object identification within accidents.
- Implemented a feedback loop that reduced false positives by 23%, improving model robustness over time.
- Automated incident metadata storage in a database and generated real-time notifications to emergency services for quick response.
- Deployed the model via a web application with a React frontend and Flask backend, enabling real-time inference and user interaction through a browser interface.

Jewelry Store (Web and Blockchain-Powered E-commerce App)

- Designed user-friendly, responsive jewelry store using React and Django with product browsing, checkout, and intuitive navigation.
- Integrated Solidity smart contracts on the Sepolia testnet for transparency and decentralized payments, achieving <5s confirmation times and successfully processing 25+ fast, test transactions.

Local RAG Assistant

- Built an offline RAG system that indexes local PDFs, DOCX, Excel, and TXT files using SentenceTransformers and hnswlib for fa st semantic search, enabling private querying without exposing sensitive data.
- Integrated with LM Studio (e.g., Qwen2.5) to provide context-aware answers by querying a local LLM using retrieved document context. Deployed with React frontend and Flask backend.

AI Research Assistant (LangChain and Gemini)

- Built an AI-powered research assistant that takes a research topic as input, searches Google Scholar, extracts abstracts from relevant papers, and ranks them based on semantic relevance using embeddings and LangChain.
- Integrated Google Gemini API to analyze and summarize abstracts, providing users with concise, context-aware insights through a React frontend and Django REST API backend.

Programming Skills

- **Programming Languages:** Python, C/C++, Solidity(Blockchain)
- **Web Development:** React, Django, Flask, BeautifulSoup4, MongoDB, JavaScript
- **Machine Learning:** PyTorch, TensorFlow, scikit-learn, CuPy, NumPy, OpenCV, Ultralytics, YOLO, Matplotlib, OpenAI, LangChain, LlamaIndex, LangGraph, Hugging Face, vLLM, llama.cpp
- **Game Development:** Godot(C#)
- **Other Tools:** AWS, WSL, Bash, Docker, Git, Cursor, Google Colab, Kaggle, VirtualBox, Kali Linux, Metasploitable, Figma