

Mamoon Qayyum

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Education

- University of Hertfordshire** Sept 2025 – Present
Master's in Advanced Computer Science Hatfield, UK
 - Relevant coursework: Data Structures and Algorithms, Operating Systems, Computer Networks, Distributed Systems.
- University of Engineering & Technology** Oct 2020 – Dec 2024
Bachelor's in Computer Science Pakistan
 - Strong foundation in algorithms, systems programming concepts, and software engineering principles.

Experience

- Scholarship Journey (Remote)** Aug 2024 – Present
Technical Lead – Web & IT Systems Remote
 - Led design, development, deployment, and maintenance of server-side applications in a Linux-based environment.
 - Designed and implemented backend services and RESTful APIs with emphasis on reliability, performance, and maintainability.
 - Worked with concurrent request handling and optimized backend logic for efficient resource usage.
 - Applied algorithmic optimization techniques to reduce latency and improve system throughput.
 - Implemented Git-based version control workflows and CI-compatible development practices.
 - Deployed and monitored cloud-hosted services, ensuring uptime, fault tolerance, and system stability.
- Tesco** Dec 2025 – Jan 2025
Festive Colleague Hatfield, UK
 - Supported store operations during the festive period by assisting customers, replenishing stock, and maintaining product availability.
 - Worked collaboratively with colleagues in a fast-paced retail environment to meet customer service and operational standards.
 - Handled customer queries professionally while maintaining accuracy, efficiency, and attention to detail.
 - Developed strong communication, teamwork, and problem-solving skills through direct customer-facing responsibilities.

Projects

- Enterprise RAG Helpdesk Copilot** | *Python, OpenAI API, ChromaDB, FastAPI, NLP*
 - Developing an enterprise helpdesk copilot using Retrieval-Augmented Generation (RAG) to answer questions from internal HR, IT support, onboarding, and compliance documents.
 - Built a document-processing pipeline for PDF and DOCX extraction, text cleaning, metadata preservation, and overlapping document chunking.
 - Generated semantic embeddings using Sentence Transformers and indexed document chunks in ChromaDB for similarity-based retrieval.
 - Integrated OpenAI models with retrieved enterprise knowledge to generate grounded responses with source citations.
 - Implemented and evaluated semantic retrieval while designing safety guardrails including prompt injection detection and PII redaction.
 - Developed the backend using FastAPI with a modular architecture for enterprise knowledge retrieval and question answering.
- Geospatial Soil Characterization Using Remote Sensing** | *Python, Machine Learning, GIS, Docker*
 - Designed and implemented a scalable data-processing pipeline for large geospatial datasets.
 - Integrated satellite imagery with structured soil data for classification workflows.
 - Built efficient preprocessing and feature extraction pipelines with performance considerations.
 - Trained and evaluated models achieving **86% classification accuracy**.
 - Optimized inference workflows to reduce computational overhead.
 - Containerized the system using Docker for reproducible and portable deployment.

Technical Skills

Programming Languages: Python, C++

AI & Machine Learning: Retrieval-Augmented Generation, Large Language Models, semantic search, embeddings, NLP

Backend & Systems Development: FastAPI, REST APIs, server-side development

Computer Science Fundamentals: Data Structures, Algorithms, Object-Oriented Programming, performance awareness

Networking & Distributed Systems: Client-server architectures, foundational networking concepts

Databases & Vector Search: ChromaDB, SQLite, Redis (basic)

Cloud & Deployment: Docker, Microsoft Azure, basic AWS exposure

Tools & Libraries: Git, OpenAI API, Sentence Transformers, PyPDF, python-docx, LaTeX