

MUHAMMAD AAMIR GULZAR

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Seeking opportunities in a forward-thinking organization to leverage my skills and knowledge in computer science for personal and professional growth while making meaningful contributions to the organization.

EDUCATION

Master's in computer science

National University of Computer and Emerging Sciences - Islamabad, Pakistan

Sep 2021 – Jan 2024

- **Specialization:** Data Science and Machine Learning
- **CGPA:** 3.87/4
- **Thesis:** A lightweight image processing-based approach to extract numeric data from line charts

Bachelor's in computer science

PMAS AAUR - Rawalpindi, Pakistan

Aug 2017 – June 2021

- **Specialization:** Computer Science
- **CGPA:** 3.78/4
- **Project:** A centralized system for listing livestock using voice-based commands for a layman user

EXPERIENCE

Lecturer

National University of Computer and Emerging Sciences - Islamabad, Pakistan

Jan 2024 - Present

- **Teaching:** Conducted hands-on labs in Operating Systems, Programming, Artificial Intelligence, and Machine Learning. Delivered lectures in subjects such as Programming, Digital Logic Design, and Artificial Intelligence for Robotics, receiving positive feedback from students for engaging teaching methods and clear communication.
- **FYP Supervisor:** Supervised final year projects focused on machine learning and generative AI, guiding students from concept development through to project completion.
- **Training:** Conducted Artificial Intelligence trainings National Vocational & Technical Training Centers (NAVTTTC).

AI/ML Engineer (R&D)

API Matics – New Zealand (Remote)

Jan 2025 – May 2025

- At APIMatic, I led the development of a production-grade VSCode extension tailored for seamless API integration and intelligent project setup. I architected a reactive UI in React + Vite, embedded within the VSCode sidebar via static builds, enabling interactive API selection and configuration. On the backend, I built a FastAPI server integrated with Azure Table Storage using Entra ID authentication, orchestrated through automated BICEP scripts and deployed via Azure Pipelines. My role included optimizing project initialization workflows, mapping language-specific configurations, and triggering API Copilot instances based on retrieved identifiers.

Machine Learning Engineer

PlanetBeyond.co.uk – Islamabad, Pakistan

July 2023 – October 2024

- **Local and onDevice LLM inference and Deployment:** Conducted research and development for local and on-device inference of large language models (LLMs), deploying open-source models such as Llama, Phi, and Qwen on Android devices using Google's MediaPipe framework for offline inference. This work emphasized data privacy and secure on-device deployment for diverse use cases.
- **Realtime Human Activity Recognition:** Developed a real-time human activity recognition system using mobile sensor data (accelerometer, gyroscope). Led data collection and automated labeling processes and built LSTM and CNN models to improve accuracy and responsiveness in activity recognition.
- **RAG based QA application:** Built a RAG system for intelligent document interaction using Streamlit, ChromaDB, and Meta's Llama model. This application empowers users to ask context-aware questions with accurate answers and traceable source references. It supports multi-format ingestion including PDF, DOCX, Excel, and CSV—combined with smart chunking for tabular data and built-in translation to preprocess non-English files. The system offers detailed document summarization, maintains conversational history for multi-turn interactions, and tracks real-time performance metrics such as token usage and generation latency. .
- **Social Media Profile Analysis: Counting People with Similar Feature:** Analyzed social media profile data using Apache Hadoop MapReduce algorithms to count people with similar features. Demonstrated creativity in proposing and implementing data preprocessing and analysis tasks, gaining hands-on experience with large-scale datasets using big data tools.
- **Team Leadership & Training:** Collaborated closely with data engineers, product managers, and stakeholders to align ML solutions with business goals. Mentored and trained a team of three junior engineers, providing technical guidance and fostering a collaborative and productive environment.

Research Experience

- **Skin Disease Detection & Classification:** Conducted research on dermatological disease classification using the HAM10000 dataset, using nine classes of skin diseases. This project involved comparing traditional machine learning (ML) methods with deep learning models. Published a book chapter as a first author focusing on the comparative analysis of classical ML and deep learning techniques for medical image analysis in skin disease detection and classification.
- **Human Tissue Image Analysis Using Foundation Models in Computational Pathology:** Analyzed The Cancer Genome Atlas (TCGA) whole slide images (WSIs) to classify tumor types (MSI and MSS) using foundation models in computational pathology. Leveraged transfer learning to enhance tumor detection, contributing to personalized cancer treatment approaches. As the lead research assistant, I was responsible for designing the AI-based analysis under the AI and Complexity Research Group at Prince Sattam bin Abdulaziz University, Al-Kharj, Saudi Arabia. (Publication under progress)

- **SemiCOL (Semi-supervised learning for colorectal cancer detection):** Developed an innovative approach for colorectal cancer detection as part of my master's deep learning course project. Participated in an open challenge on Kaggle, where we applied semi-supervised learning and advanced deep learning models for accurate cancerous region detection and segmentation in medical images, gaining significant experience in medical image analysis.
- **Document Processing and Understanding:** Contributed in a project focused on digitizing handwritten medical prescriptions by developing two distinct processing pipelines: an end-to-end pipeline and a modular approach for structured data extraction and storage. This project, funded by the local government, was conducted in collaboration with the DataInsight Research Lab.

TRAINING AND CERTIFICATIONS

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| • Generative AI with Large Language Models | DeepLearning.AI |
| • AI Agents in Lang Graph | DeepLearning.AI |
| • Large Multimodal Model Prompting with Gemini | DeepLearning.AI |
| • Introduction to Generative AI | Google Cloud (Coursera) |
| • Big Data Specialization | University of California, San Diego (Coursera) |
| • Introduction to Deep Learning | MIT (Introtodeeplearning.com) |
| • Machine Learning in a Data Driven Business Environment | IEEE Xplore Library |
| • Machine Learning in the Age of Enterprise Big Data | IEEE Xplore Library |

TECHNICAL SKILLS

- **Programming languages:** C, C++, Python, Java with debugging expertise
- **Data Processing:** Pandas, NumPy, Scikit-learn, Feature Engineering, Tableau, Power BI
- **Machine Learning:** Supervised and Unsupervised Learning, Neural Networks, Decision Trees, SVM, Clustering, ML models optimizations and On-device deployment
- **Deep Learning:** TensorFlow, PyTorch, Keras, CNN, RNN, LSTM, Transformer models
- **Big Data Technologies:** Hadoop, Spark, Kafka
- **Cloud Platforms:** AWS, Microsoft Azure, Google Cloud (GCP)
- **Tools & Libraries:** Git, Docker, VSCode, Jupyter, TensorBoard
- **Databases:** MySQL, MongoDB, PostgreSQL
- **Other:** Natural Language Processing (NLP), Computer Vision, Time Series Analysis, Automatic Speech Recognition (ASR) models, LLMs fine-tuning, Prompt Engineering, Retrieval Augmented Generation (RAG) using llamaindex, langchain and Vision tasks using diffusers, etc.

PROFESSIONAL DEVELOPMENT AND VOLUNTEER EXPERIENCE

- Led two summer internship programs in the research lab, providing mentorship and supervision to machine learning interns, ensuring they gained hands-on experience and delivered quality work on lab projects.
- Entrepreneurship and Practical Outdoor Leadership Training Program Foster Learning
- PAKISTAN 100 ENTREPRENEURIAL BOOTCAMP 2021 IdeaGist
- Member of Rawalpindi Volunteer Force Commissioner's Office, Rawalpindi