

MOHAMMED AZEEZ

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PROFILE SUMMARY

MSc Computer Science (AI) student with experience developing and evaluating machine learning and deep learning models for healthcare, cybersecurity and environmental datasets. Experienced in building end-to-end ML pipelines, including applied work with LLMs. Seeking research-focused roles to contribute to model design, empirical evaluation, and clear technical reporting through papers, documentation and presentations.

EDUCATION

University of Nottingham

Master of Science in Computer Science (Artificial Intelligence)

• 2 year research based postgraduate program specializing in Machine Learning and AI.

Nottingham, England

Sept 2025 – June 2027

Presidency University

Bachelor of Technology in Computer Engineering

Bangalore, India

Aug 2020 – Nov 2024

PROFESSIONAL EXPERIENCE

AI Research Assistant – University of Tokyo (Prof Collaboration)

Remote

LLM Implementation and Edge Deployment Prototyping

Aug 2024 – Aug 2025

- Built model serving prototypes using Ollama and FastAPI, simulating edge-computing constraints on local hardware to evaluate performance before deployment.
- Conducted comparative benchmarking of Llama 3.1 models across varying RAM allocations to identify the minimum resource requirements for stable local inference.
- Analyzed API response latency and token-per-second throughput, providing data-driven recommendations for model selection in resource-constrained research environments.
- Collaborated with the lab via technical documentation and weekly reports, focusing on the feasibility of transitioning from cloud-dependent APIs to local LLM hosting.

AI Research Intern – Tunghai University (IIPP Program)

Taichung, Taiwan

NLP Pipeline Development and Project Coordination

May 2024 – Jul 2024

- Developed an automated NLP workflow using Python and the GPT-4o API to extract and categorize key entities from Cyber Threat Intelligence (CTI) reports.
- Coordinated a 13 member international research team, managing data collection schedules and ensuring consistency in the human-led validation of model outputs.
- Refined system prompts and instruction sets to improve the accuracy of extracted technical indicators, reducing manual data entry requirements by 50%.
- Collaborated with senior researchers to align AI-driven data extraction with established cybersecurity frameworks and taxonomies.

SKILLS

- **Programming:** Python (Advanced), SQL, Java, C++.
- **AI & Machine Learning:** Scikit-learn, PyTorch, TensorFlow, Statistical Modeling, Neural Networks.
- **Generative AI & NLP:** Large Language Models (LLMs), RAG (Retrieval-Augmented Generation), Prompt Engineering, HuggingFace.
- **Research Methodology:** Experiment Tracking, Literature Synthesis, Hypothesis Testing, Technical Reporting.
- **Data Engineering:** Pandas, NumPy, Matplotlib/Seaborn, Data Preprocessing, Feature Engineering.
- **Tools & MLOps:** Git/GitHub, Docker (Basics), FastAPI, Ollama, Streamlit, VS Code.

KEY RESEARCH PROJECTS

AgentForge – Multi-Agent LLM Orchestration

Python | LangGraph | GPT-4o | Redis

Architected an agentic framework using LangGraph to implement iterative feedback loops, allowing LLMs to self-correct reasoning paths during complex task execution. Integrated a Redis backend for persistent state management and history tracking across long-running agent sessions.

- **MedVision – Deep Learning for Automated Chest X-Ray Analysis**

PyTorch | TorchVision | CNNs | OpenCV

Constructed a computer vision pipeline using a fine-tuned ResNet-50 architecture to classify multi-label thoracic diseases from the NIH ChestX-ray14 dataset. Implemented Grad-CAM visualizations to provide explainable heatmaps for clinical decision support.

- **DataScale – Big Data Analytics for Scalable Fraud Detection**

Apache Spark | PySpark | Random Forest | SMOTE-on-Spark

Developed a distributed classification pipeline using PySpark to process large-scale financial transaction datasets. Engineered a custom solution for severe class imbalance using SMOTE-based resampling within a Spark environment, improving minority class recall by 35%.

- **BioSage – Clinical Decision Support API**

FastAPI | PostgreSQL | Docker | Redis | Scikit-Learn

Designed a production-ready REST API to serve patient risk-stratification models. Implemented asynchronous request handling with FastAPI and integrated Redis caching to reduce inference latency; containerized the entire stack using Docker for seamless deployment.

- **EcoSense – Time-Series Anomaly Detection for Environmental Risk**

LSTMs | Pandas | Statistical Modeling | Matplotlib

Engineered a research pipeline to analyze multivariate time-series data for environmental hazard classification. Applied LSTMs and Isolation Forests to detect anomalies in air quality and sensor metrics, achieving a 92% F-1 score on public benchmark datasets.

ACHIEVEMENTS

- Ranked in the top 5% (approx. 22,000 out of 370,000+ candidates) in the K-CET national competitive entrance examination.
- Selected by faculty at two international research institutions (Tunghai University and University of Tokyo) for technical collaborations on scalable AI deployment.
- Awarded full funding for the prestigious IIPP research program in Taiwan, recognized for demonstrated academic excellence and contributions to AI research.
- Recognized for successful collaboration within a 13 member international research team, contributing as one of the youngest participants alongside PhD level researchers.
- Managed and executed academic research projects during undergraduate studies, resulting in a peer-reviewed scientific publication.

PUBLICATIONS

“Multiple Disease Prediction System Using Machine Learning,” *International Research Journal of Modernization in Engineering Technology and Science*, Vol. 6, Issue 5, 2024.

CERTIFICATIONS & PROFESSIONAL DEVELOPMENT

- **Data Analytics and Predictive Technology** – Indian Institute of Technology (BHU), Varanasi.
- **Deep Learning Specialization (5-Course Series)** – Coursera (Instructor: Andrew Ng).
- **Introduction to Large Language Models** – DeepLearning.AI.
- **LangChain for LLM Application Development** – DeepLearning.AI / LangChain Academy.
- **Applied Machine Learning with Real-World Projects** – Professional Development Certification.

LANGUAGES

- English (Fluent).
- Urdu (Native).
- Hindi (Fluent).
- Kannada (Fluent).