

Muhammad Ali

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Nationality: Pakistani

Research Interests

Natural Language Processing • Information Retrieval • Large Language Models • Retrieval-Augmented Generation • Multi-Agent Systems • Machine Learning • Time-Series Forecasting • Explainable AI

Academic Education

2024 – 2026: MS in Artificial Intelligence

Air University, Islamabad

Relevant Coursework: Machine Learning, Deep Learning, Computer Vision, NLP, LLMs, RAG

Thesis: Intelligent HEMS Optimization: Integrating Advanced Deep Learning Models with Adaptive Scheduling

2018 – 2023: BS in Electrical Engineering

COMSATS University Islamabad

Focus: Signal processing, control, programming, embedded systems, and applied machine learning

Experience

Feb 2025 – Present: Independent Researcher

Self-Directed Research

- Developing an intelligent home energy management system that combines forecasting and optimization for cost reduction and comfort-aware scheduling.
- Designing time-series models for load and price forecasting using LSTM/GRU-based architectures and data preprocessing pipelines.
- Exploring transformer-based NLP methods for low-resource translation tasks, including Akkadian-to-English experiments.
- Building research workflows for data cleaning, model training, evaluation, and ablation analysis in Python and PyTorch.

Feb 2024 – Mar 2025: Research Assistant

7BOT Technologies – NSTP

- Developed a smart health monitoring watch for elderly care with real-time sensor processing and alert logic.
- Designed an intelligent air purifier with automated air-quality detection and adaptive control.
- Deployed an object classification model on edge devices for real-time inference.

Mar 2023 – Feb 2024: Computer Science Teacher

College

- Taught fundamentals of computing, networking, software engineering, databases, and programming.
- Guided students through Python-based projects, basic data analysis, and problem-solving exercises.

Technical Skills

Programming: Python, C++

AI/ML: PyTorch, TensorFlow, Keras, Scikit-learn

Domains: Deep Learning, NLP, LLMs, RAG, Time Series Forecasting, optimization, smart energy systems

Tools: Flask, Git, Jupyter, NumPy, Pandas, Matplotlib

Languages: English, Urdu