MUHAMMAD HUZAIFA IMRAN

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RESEARCH INTERESTS

Machine Learning and Deep Learning; Natural Language Processing and Speech Processing; Large Language Models and Multi-Agent Systems.

EDUCATION

Gomal University | *Dera Ismail Khan, Pakistan*
BS in Artificial Intelligence | *Expected May 2027*

- **CGPA:** 3.43 / 4 (Through 6th Semester)
- **Relevant Coursework:** Python Programming, C++ Programming, Linear Algebra, Probability and Statistics, Calculus, Neural Networks, Natural Language Processing, Speech Processing, Computer Vision.

SELECTED RESEARCH & TECHNICAL PROJECTS

Urdu Text-to-Speech Generation | *Ongoing*
Final-Year Project | Project Lead

- Leading the development of a text-to-speech (TTS) model for Urdu and other Pakistani languages using conditional variational autoencoders (CVAEs) with adversarial learning.
- Building a speech dataset from scratch, including audio collection, manual transcription, data cleaning, and preprocessing for model training.
- Developing an agentic workflow to support transcription and audio preprocessing, streamlining dataset preparation.
- Aiming to preserve the voices and linguistic contributions of distinguished literary figures and cultural icons through AI-driven speech synthesis.

Solar Load and Generation Prediction Model | *Completed*
Dataset provided by SkyElectric Pakistan

- Analyzed and preprocessed a large-scale solar energy dataset containing approximately 1.2 million rows and 12 columns, addressing data quality issues through cleaning, imputation, and interpolation.
- Performed feature engineering and trained and hyperparameter-tuned machine learning models to predict solar power generation and electrical load, optimizing performance using mean absolute error (MAE).
- Evaluated model performance against deep learning approaches to investigate the effectiveness of machine learning methods for solar energy prediction.

COMPETITIONS & TECHNICAL TRAINING

Advanced Deep Neural Network Bootcamp | *Participant*
Ghulam Ishaq Khan Institute (GIKI), Swabi, Pakistan | June 2024 – August 2024

- Completed intensive, hands-on training in deep neural networks, including neural network implementation from scratch, classification, regression, computer vision, reinforcement learning, transformers, and natural language processing (NLP).
- Participated in structured laboratory exercises covering neural network development and applications across multiple AI domains.
- Received a certificate of completion from Ashar Aziz, CEO, upon completing the bootcamp.

Solar Prediction Machine Learning Competition | *3rd Place*
Skylabs AI and SkyElectric, in collaboration with the Ashar Aziz Foundation | August 2024

- Secured **3rd place** in a machine-learning competition focused on solar load and generation prediction.
- Processed and analyzed a dataset containing approximately 3.2 million rows and 12 columns using Python, pandas, Matplotlib, and data preprocessing techniques.

AWARDS & HONORS

- **Certificate of Excellence** — 1st place in Research Pitch Competition | *Gomal Medical College*
- **Certificate of Completion & Performance** — AI Bootcamp | *Ghulam Ishaq Khan Institute (GIKI)*
- **1st place** — Machine Learning and Speed Programming Competition | *University of Engineering and Technology (UET), Peshawar*

CERTIFICATIONS

- **Building AI Agents and Agentic Workflows Specialization** | IBM, Coursera — *In progress*
- **Mathematics for Machine Learning and Data Science Specialization** | DeepLearning.AI, Coursera — *In progress*
- **Chinese Characters for beginner (汉字)** | Peking University, Coursera — *In progress*
- **Learn Chinese: HSK Test Preparation Specialization** | Peking University, Coursera — *In progress*

TECHNICAL SKILLS

Programming: C++, Python
Data Analysis: NumPy, pandas, Matplotlib
Machine Learning / Deep Learning: scikit-learn, PyTorch, TensorFlow
LLM / Agent Frameworks: CrewAI, LangChain, LangGraph
Mathematical Foundations: Calculus, Linear Algebra, Probability and Statistics
Operating Systems: Windows, Ubuntu, Fedora
Cloud: AWS

LANGUAGES

- **Urdu** — Native.
- **English** — Proficient.
- **Chinese** — Beginner.