

MOAZZAM UMER GONDAL

Website • [LinkedIn](#) • [GitHub](#) • [Email](#) • +92-300-1600028

ACHIEVEMENTS & HONORS

- [Dean's List](#) recognition for academic excellence – Spring 2023, 2024, and 2025.
- [7.5 Bands](#) in IELTS (CEFR C1), demonstrating high English language proficiency.
- Awarded Aspire College Merit Scholarship with full funding for Intermediate studies.
- 2× Exceptional Volunteer Award – Deputy Head, SOFTEC (Pakistan's largest IT event).
- Participated in international hackathons (Google, Kaggle, Devpost) focused on AI and global exposure.
- Research output: 1 paper submitted (Sept 2025), 1 under preparation (expected 2025).

EDUCATION

FAST National University of Computer and Emerging Sciences

Lahore, Pakistan

Bachelor of Science in Data Science

Sept 2021 – May 2025

- **CGPA:** 3.37/4.00 | **Final 2 Years:** 3.5/4.0 | **Rank:** Top 10% | **25 A's, 22 B's**
- **FYP:** [Landscape Art Studio](#) – An AI-driven application enabling artists to edit and enhance landscapes through mask processing, image generation, and intuitive customization tools.

Relevant Coursework: Introduction to Data Science, Big Data Analytics, Advanced Statistics, Data Warehousing and Business Intelligence, Artificial Intelligence, Natural Language Processing, Data Mining, Generative AI

RESEARCH EXPERIENCE

Department of AI and Data Science, FAST NUCES

Lahore, Pakistan

Research Assistant | Supervisor: [Dr. Asma Ahmad](#)

Oct 2024 – Present

- **Beyond the Hype: Comparing Lightweight and Deep Learning Models for Air Quality Forecasting**
Submitted to *Signal, Image and Video Processing Journal (Springer)* – Sept, 2025
 - Conducted multivariate forecasting experiments using NeuralProphet, LightGBM, and Facebook Prophet with feature selection (GMI, mRMR) on urban air quality data from Beijing.
 - Achieved $R^2 > 0.94$ and $MAE < 5$ with additive models, outperforming deep learning baselines (e.g., LSTM) while improving interpretability and deployment readiness.
- **From Pixels to Posts: Smart Image Segmentation for Captions and Hashtags**
To be submitted to *Expert Systems with Applications (Elsevier)* – Oct 2025
 - Designed an end-to-end pipeline combining YOLOv11 for fine-grained object detection with LLaMA 3.0 and RAG for detailed image captioning and trend-aware hashtag generation in fashion imagery.
 - Achieved a 0.86 F1 score in object detection and 0.89 semantic relevance in hashtag generation on a custom fashion dataset (n=2,511), with a 23% estimated boost in social media engagement over generic tags.

TEACHING EXPERIENCE

FAST National University of Computer and Emerging Sciences

Lahore, Pakistan

Teaching Assistant

Feb 2023 – Dec 2023

- Assisted in teaching and mentoring 40+ students in **Introduction to Data Science** to enhance their understanding of Python, data wrangling, and analysis concepts.
- Supported 30+ students in **Fundamentals of Big Data Analytics**, guiding them through Hadoop and Spark assignments, leading review sessions, and improving overall student performance.
- Assessed assignments and quizzes and provided feedback to boost students' competitive and analytical abilities.

INDUSTRY EXPERIENCE

Catalic AI

Lahore, Pakistan

AI Engineer | Lead: [Asjad Zaheer](#) | [Experience Letter](#)

May 2024 – April 2025

- Developed AI-driven applications integrating RESTful APIs to enable real-time data processing for scalable platforms.
- Optimized AI model deployment on AWS and GCP, increasing system efficiency in cloud environments.
- Fine-tuned large language models (LLMs) to enhance task-specific performance in enterprise-level automation systems.
- Contributed to R&D on advanced AI and LLM architectures while authoring technical documentation to communicate model innovations and deployment strategies to stakeholders.

PROJECTS

Improving Image Captioning on Asian Cultural Dresses (Research) [\[GitHub\]](#)

Tools: Python, PyTorch, BLIP, HuggingFace Transformers, CLIP, Jupyter

- Fine-tuned the BLIP vision-language model on a custom dataset of Asian cultural apparel, achieving a BLEU score of 0.218 and METEOR of 0.60 through few-shot learning and transfer learning.
- Addressed bias and improved generalization in culturally specific image captioning using targeted data augmentation, with strong ROUGE-L performance (F1: 0.418) validating semantic relevance.

Transformer-based Medical QA System (MedQuAD Dataset) [\[GitHub\]](#)

Tools: Python, PyTorch, HuggingFace Transformers, BERT, MobileBERT, RoBERTa

- Developed a question-answering system using the MedQuAD dataset, fine-tuning transformer models (BERT, MobileBERT, RoBERTa) with rigorous preprocessing and dropout regularization.
- Achieved highest performance with MobileBERT (BLEU: 0.622), demonstrating robustness in medical domain QA through smoothing techniques and comparative evaluation.

EngageAI – A Visual and Conversational AI Experience [\[GitHub\]](#)

Tools: Python, OpenCV, PyTorch, HuggingFace Transformers, YOLOv5, SpeechRecognition, FastAPI, WebSockets, AWS

- Designed and integrated a multimodal AI system combining object detection, speech-to-text, and language generation to enable real-time visual and conversational interaction.
- Implemented a unified pipeline for vision and NLP tasks, demonstrating robust system-level integration and enhancing real-time human-AI engagement through multimodal processing.

Secure AI and Deepfake Detection [\[Github\]](#)

Tools: Python, TensorFlow, Keras, OpenCV, CNN, VGG-19, NumPy, Scikit-learn

- Developed a deepfake detection pipeline using CNN, MLP, and VGG-19 architectures, achieving 80%+ classification accuracy on a 10k-image dataset of real and manipulated faces.
- Explored challenges in generalization and model robustness for image forensics, emphasizing secure AI applications in media authentication and digital trust.

PhotoMentor Chatbot [\[GitHub\]](#)

Tools: Python, OpenAI GPT, ChromaDB, RAG architecture, AWS Deployment

- Built a RAG chatbot leveraging ChromaDB and OpenAI models to deliver context-aware responses to photography-related queries.
- Engineered a pipeline combining dense embeddings and semantic search with generative models, enabling accurate and intelligent dialogue grounded in a curated photography dataset.

INTERNATIONAL HACKATHONS

Google – The Gemma 3n Impact Challenge

Aug 2025

Project: [Sight Guide](#) - AI-Powered Navigation Assistant for the Visually Impaired

Tools: Python, Gemma 3n, OpenCV, PyTorch, HuggingFace

- Built a multimodal AI assistant by fine-tuning Gemma 3n on an obstacle dataset, enabling real-time path guidance and hazard detection for visually impaired users via vision-language integration.

AI vs H.I. — A Global Hackathon by CS Girlies

July 2025

Project: [Unmask AI - The Bias Detection Lab for LLMs](#)

Tools: FastAPI, PostgreSQL, OpenAI GPT-4o, SQLAlchemy, Streamlit, Jinja2, WeasyPrint, Railway, Docker

- Engineered a modular backend using FastAPI and PostgreSQL to support bias detection, cross-examination, and human override of AI outputs, enabling structured LLM evaluation during a global hackathon.
- Integrated OpenAI GPT to analyze prompts for cultural and ideological bias, producing insight-driven reports and re-framed responses to enhance AI transparency and accountability.

Build Real ML Web Apps: No Wrappers, Just Real Models

July 2025

Project: [SoundCheck](#)

Tools: Python, Scikit-learn, Streamlit, FastAPI, NumPy, Pandas, SciPy, Librosa, SoundFile, Plotly, NHANES dataset

- Developed SoundCheck, a browser-based ML app for hearing assessment using real-time audio simulation to replicate hearing loss effects using frequency filtering; achieved 99% classification accuracy on NHANES data.

SKILLS

Languages:	Python, R, C/C++, SQL
Frameworks:	FastAPI, Flask, Django, Streamlit
Libraries:	Pandas, Numpy, Scikit-Learn, Matplotlib, Seaborn, Tensorflow, Keras, PyTorch, OpenCV
Databases:	PostgreSQL, SQL Server, MySQL, SQLite, MongoDB
Cloud and DevOps:	AWS, GCP, Docker, Linux, CI/CD, Git, GitHub, HuggingFace
LLMs & AI APIs:	OpenAI API, Gemini, Gemma 3 series, ChromaDB, Pinecone, LangChain, YOLO
Softwares:	VS Code, Cursor, Jupyter Notebook, Anaconda

COURSES & CERTIFICATIONS

Data Analyst 101	Simplilearn	July 2025
Introduction to Generative AI Studio	Simplilearn	July 2025
CS50's Introduction to Artificial Intelligence with Python	Harvard University	March 2024
Tensorflow for Deep Learning	Udacity	April 2023

LEADERSHIP EXPERIENCE

Assistant Vice President | FAST Society of Data Science

May 2023 – Sept 2024

- Led a 20-member team of heads and volunteers to organize seminars and workshops on AI and data literacy, engaging over 200 participants across the student body.

Marketing Deputy Head | SOFTEC, FAST NUCES Lahore

Jan 2022 – Oct 2023

- Led a 10-member marketing team to coordinate with sponsors, IT companies, and software houses, supporting seminar execution and SOFTEC's flagship tech exhibition.