

MOAZZAM UMER GONDAL

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ACHIEVEMENTS & HONORS

- Earned Dean's List recognition for academic excellence in Spring 2023, 2024 and 2025.
- Achieved **7.5 Bands in IELTS**, demonstrating CEFR C1-level English proficiency.
- Participated in 4 International Hackathons (Google, Kaggle, Devpost)
- 2x Exceptional Volunteer Award – Deputy Head, SOFTEC
- Awarded Aspire College Merit Scholarship with full funding for Intermediate studies.

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 | **Rank:** Top 10% | **25 A's & 22 B's** across transcript
- **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

- **PM2.5 & PM10 Forecasting via Multivariate Time Series Modeling (Publication Expected, 2025)**
 - Conducting experiments with NeuralProphet, LightGBM, and Nixtla-based models using feature selection methods (GMI, mRMR) for multivariate air quality forecasting.
 - Developing a federated learning framework for cross-city pollutant prediction, achieving improved MAE and RMSE compared to baseline and centralized models.
- **Federated Learning on Multi-Sensor HAR Datasets (Publication Expected, 2025)**
 - Built a simulation pipeline using Flower to train and evaluate FL models across heterogeneous user data, achieving 85%+ accuracy on the Extransensory dataset in a federated setting.
 - Integrated multimodal features and round-wise metric logging for reproducible model comparison, with results supporting a publication draft targeted for late 2025 submission.

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.

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, FAISS, LangChain, Sentence Transformers, RAG architecture

- 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 user responses to pure-tone audio; achieved 99% classification accuracy on NHANES data.

- Implemented real-time audio simulation to replicate hearing loss effects using frequency filtering, enhancing user awareness and accessibility.

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
<ul style="list-style-type: none">• 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
<ul style="list-style-type: none">• Led a 10-member marketing team to coordinate with sponsors, IT companies, and software houses, supporting seminar execution and SOFTEC's flagship tech exhibition.	