MUHAMMAD AREEB BIN NADEEM

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EDUCATION

FAST National University, *BS in Artificial Intelligence* | Karachi CGPA: 3.31 Aug 2021 - May 2025

Relevant Courses: Fundamentals of Software Engineering, Artificial Intelligence, Machine Learning, Artificial Neural Networks, Applied Recommender Systems, Information Retrieval, Computer Vision, NLP, Applied DevOps, Generative AI

Achievement: Dean's List of Honor - Fall 2024

EXPERIENCE

10 Pearls Pakistan, *Data Science Intern* Dec 2024 - Jan 2025

- Conducted data preprocessing, feature engineering, and model optimization to improve model performance
- Developed and deployed machine learning models for time series forecasting using cloud-based infrastructure.
- Automated data ingestion pipelines and model training workflows, integrating CI/CD for real-time deployment.

FAST National University, *Student Teaching Assistant (Calculus & Analytical Geometry)* Sept 2023 - Dec 2023

- Checked assignments and quizzes and provided feedback to students.

PROJECTS

Defect Detection in Textile Industry - *FYP*

- Developed an AI-powered real-time fabric inspection system to identify weaving defects such as thread misalignment, broken yarns, and irregular patterns, minimizing dependency on manual quality checks.
- Applied advanced deep learning techniques including Convolutional Neural Networks (CNNs) and Vision Transformers for robust defect detection and pattern analysis across diverse textile types.
- Built a full-stack application with a React frontend and Python backend to deliver an interactive, scalable, and automated quality control solution for industrial textile environments.

PDFBot: AI-Powered Multi-Document Chat Assistant - *Self Project*

- Built a Streamlit app to chat with multiple PDFs using Google Gemini Pro and FAISS-based vector search.
- Used HuggingFace embeddings for text chunking and semantic search across documents.
- Enabled multi-turn conversations with memory-augmented retrieval chains for contextual Q&A.
- GitHub Repository

Pearls AQI Predictor - *Internship Project*

- Developed a predictive system to forecast AQI using real-time pollutant data fetched using REST API.
- Designed a fully serverless pipeline using Hopsworks for automated data ingestion, model training, and deployment.
- Built an interactive Streamlit web application for AQI prediction, containerized using Docker, with automated CI/CD using GitHub Actions.
- Utilized SHAP for data visualization and analysis.
- GitHub Repository

Generating Radiology Reports via Memory-driven Transformer - *Course Project*

- Developed a Transformer-based model for automatic radiology report generation.
- Utilized computer vision techniques, including pre-trained CNNs, for feature extraction from radiology images, which serve as input for the Transformer-based encoder-decoder architecture.
- Achieved good results on benchmark datasets, demonstrating the model's potential in medical AI applications.
- GitHub Repository

Student Performance Prediction (Deployed on AWS EC2) – *Self Project*

- Developed a machine learning model to predict high school students' math scores.
- Built an end-to-end data pipeline, including data ingestion, preprocessing, model training, and evaluation.
- Deployed the model on AWS EC2, enabling real-time predictions through a Flask web application.
- GitHub Repository

SKILLS

Languages & Tools	Python, Java, SQL, Git, Bash, Terraform
Software & Platforms	Linux, Power BI, MongoDB, GitHub, Docker, AWS, Azure, GitHub Actions, Hopsworks, Snowflake
Libraries & Frameworks	Pandas, scikit-learn, TensorFlow, Keras, PyTorch, NLTK, OpenCV, PIL, LLM, SHAP, LIME
Certifications	Machine Learning Specialization, DeepLearning.AI | Deep Learning Specialization – (in progress)