

Mirza Saram Khalil

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About Me

Passionate AI and Machine Learning enthusiast with hands-on experience in computer vision, natural language processing, and generative models. Proficient in Python, TensorFlow, and PyTorch, with practical knowledge of advanced architectures such as CNNs, LSTMs, Transformers, and diffusion models. Focused on developing impactful deep learning solutions with real-world applications.

Education

FAST-NUCES, CFD Campus

Expected Graduation: June 2025

Bachelor of Science in Computer Science

Relevant Coursework: Object-Oriented Programming, Data Structures, Database Management, Web Programming, Artificial Intelligence, Natural Language Processing, Generative AI

Technical Skills

Programming: Python, C#, C++, JavaScript

Frameworks & Libraries: TensorFlow, PyTorch, OpenCV, Keras, YOLO, ResNet, EfficientNet, Vision Transformer, Transformer

Tools & Platforms: Git, Google Colab, Jupyter Notebook, scikit-learn, matplotlib, seaborn, NLTK

Other Skills: Computer Vision, Deep Learning, Natural Language Processing, Generative AI, Sequence-to-Sequence Modeling, Regression, Decision tree, Feature Engineering, DevOps, GCP

Projects

Urdu Poetry Generation (PyTorch) ([GitHub](#))

Created a generative deep learning model that produces Urdu poetry based on user-input couplets. Trained on classical Urdu poetry datasets, the model captures stylistic patterns and rhyme structures to generate coherent and stylistically appropriate verses.

Lung Disease Detection (TensorFlow) ([GitHub](#))

Built a classification model using TensorFlow to diagnose lung diseases from Chest X-ray (CXR) images. The model was trained on a balanced dataset to accurately detect COVID-19, Pneumonia, Tuberculosis, and Normal cases. It achieved a high overall accuracy of 95%, with precision, recall, and F1-score each averaging 0.95 across all classes. This model supports efficient and reliable medical diagnosis.

Arabic to English Translation (Transformer, PyTorch) ([GitHub](#))

Developed a transformer-based sequence-to-sequence model for translating Arabic text into English. The model's performance was optimized using BLEU scores to ensure linguistic coherence and accuracy in translation.

RAG for Diagnostic for Clinical Notes DiReCT (LLAMA-3, ClinicalBERT)

Developed a full-stack Retrieval-Augmented Generation (RAG) system that leverages the MIMIC-IV-Ext dataset to answer clinical queries with contextual responses from large language models. The system integrates a vectorbased retrieval mechanism with a language model to provide accurate and contextually relevant diagnostic information. A user-friendly Streamlit frontend facilitates interactive querying, and comprehensive documentation supports reproducibility and further development.

Stress Level Predictor (Regression)

Designed a predictive model using regression techniques to estimate student stress levels based on academic and personal data. The model analyzes factors such as study hours, sleep patterns, GPA, and extracurricular involvement to assess stress levels, supporting early intervention and student well-being.

Awards and Honors

Provincial Level Position in AKU-EB (Intermediate 2021)

FAST NUCES Scholarship holder (Secured 100% scholarship for BS degree in FAST NUCES)