Ahmed Abdullah

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EXPERIENCE

- **College of Engineering and Computing, Missouri S&T University**   Missouri, US (Remote)
  Undergraduate Researcher   *Feb 2025 - Present*
  - **Computational Oncology Research**: Developing a predictive model for tumor de-growth using the Gompertz function to assess drug efficacy. Implementing mathematical modeling and data-driven approaches to analyze tumor response, aiming to improve accuracy in treatment outcome predictions.

- **Institute of Computational Perception - Johannes Kepler University**   Linz, AT (Remote)
  Research Assistant   *Aug 2024 - Feb 2025*
  - **Multimodal Research**: Worked on handling missing modality and accurately estimating face-voice association using FOP Loss. Utilized WavLM, ECAPA, and VGGVox on VoxCelebV1 to improve embedding quality through pseudo-modal and zero-shot learning, achieving an EER of 20%.

- **School of Computing, FAST-NUCES**   Lahore, PK
  Research Assistant   *Sept 2024 - Nov 2024*
  - **Healthcare Research**: Worked on a novel approach using Pathopix-GANs for CT scan augmentation in ischemic stroke functional outcome prediction. Addressed data scarcity (only 43 patients available) by enhancing multimodal imaging. Utilized the ISLES'24 dataset and surpassed the previous state-of-the-art accuracy of 43%.

- **UrduX Research Lab - FAST-NUCES**   Islamabad, PK (Remote)
  Research & Development Intern   *Jun 2024 - July 2024*
  - **Generative AI / NLP Research**: Contributed to research on gender and race biases in image generation. Worked on 3 techniques of Retrieval-Augmented Generation (RAG), model training, and fine-tuning.

PROJECTS

- **Lumbar Spine Degeneration Classification**:
  Description: This paper focuses on classifying degenerative conditions of the lumbar spine using GANs in cases where an MRI is missing. The system integrates medical imaging data and metadata descriptions to enhance diagnostic accuracy and support clinical decision-making. The model achieved the accuracy of the minority class at 92.24% and an AUC-ROC of 64%, with a Δ accuracy decline of just 10% (SOTA) when a modality is missing.
  Status: Manuscript in preparation for submission to MICCAI/RSNA (Dec. 2025).

- **Skin Cancer Detection using 3D TBP**:
  Description: Developed a skin cancer detection system using volumetric segmentation to analyze skin lesions. Integrated four different modalities of meta and images to enhance diagnostic accuracy. Implemented data pre-processing, feature extraction, and classification models to achieve high detection rates. The model was able to achieve 98% accuracy and 0.165 pAUC (20%).
  Tools: 3D TBP, TensorFlow, Keras, Pytorch

EDUCATION

- **National University of Computer and Emerging Sciences**   Lahore, Pakistan
  Bachelor of Science in Data Science;   *Aug. 2022 – May. 2026*
  - **Honors**: Dean's List (x3), Top of Batch (x2)
  - **CGPA**: 3.6/4.00
  - **Relevent Courses**: Linear Algebra, Data Structures, Operating Systems, Algorithms, Discrete Structures, Adv. Statistics, Data Analysis and Visualization, AI Algorithms, Operating Systems, Data Warehousing & Big Data Analytics.

PROGRAMMING SKILLS

- **Languages**: Python, SQL, R, C, C++, JavaScript.
- **Technologies**: PyTorch, Tensorflow, LangChain, Keras, Transfomrers, HuggingFace, MLLib, PowerBI, Tableau, Plotly, MONAI, Scikit-learn, Matplotlib, Pandas, NumPy, PySpark, Hadoop, Flask, Firebase, MongoDB, and PostgreSQL