FAIZA IQBAL

Contact: faizaiqbal18tl@gmail.com LinkedIn Portfolio

Research Interests: Explainable AI, Speech and Language Processing, Human-Centered AI

Data Scientist with a Master's degree and research experience in Explainable AI, NLP, and interpretable machine learning. Skilled in analyzing linguistic and cognitive patterns in speech and text using transparent models. Passionate about building human-centered AI systems for socially impactful decision support, with a strong interest in trustworthy NLP and interdisciplinary research.

EDUCATION

Master of Science (M.Sc.) in Data Science Feb 2023 - Present
Mehran University of Engineering and Technology *Jamshoro, Pakistan*
CGPA: 3.94/4.00
Thesis: An Explainable AI Approach to Speech-Based Alzheimer's Dementia Screening
Skills: Explainable AI, Machine Learning, Natural Language Processing

Bachelor of Engineering (B.E) in Telecommunication Oct 2018 - Dec 2022
Mehran University of Engineering and Technology *Jamshoro, Pakistan*
CGPA: 3.82/4.00
Thesis: Evaluating the Feasibility of Implementing Homomorphic Encryption
Skills: Cyber Security, Computer Networking, Machine Learning

WORK EXPERIENCE

Research Assistant - RADAR (Record Access and Data Retrieval Center) Nov 2023 - Present
Mehran University of Engineering and Technology *Jamshoro, Pakistan*

- Automated data pipelines using Python and SQL for large-scale publication and ranking datasets.
- Applied machine learning for trend analysis and predictive insights.
- Developed interactive dashboards and web tools to support research driven decision-making.

Research Assistant - Examination Department May 2023 - Nov 2023
Mehran University of Engineering and Technology *Jamshoro, Pakistan*

- Led data analysis on academic performance using SQL and Python.
- Designed predictive models to support institutional assessment strategies.
- Coordinated cross-departmental reporting as QOBE focal person.

PROJECTS

An Explainable AI Approach to Speech-Based Alzheimer's Dementia Screening Developed interpretable machine learning models using linguistic and paralinguistic features, applying LIME and SHAP for transparent decision-making, which inspired my interest in model simplification and inherently interpretable architectures.
Tools and Techniques: Machine Learning, LIME, SHAP, Linguistic Feature Extraction, eGeMAPS, RMSE

NLP-Based Classification and Severity Assessment of Anxiety and Mental Health Conditions Designed an NLP system to classify anxiety severity and visualize psychological patterns through topic modeling and latent linguistic analysis.
Tools and Techniques: NLP, Topic Modeling, Word Clouds, Speech Analysis, Binary & Multi-Class Classification

Sentiment Classification using Advanced Data Analytics for ChatGPT Conducted sentiment analysis and topic extraction on Twitter discussions using NLP and word cloud visualization to identify public opinion trends.
Tools and Techniques: Sentiment Analysis, NLP, Data Visualization, Word Clouds, Twitter Data Analytics

SKILLS

Programming Languages: Python, MATLAB, C++, SQL
Libraries: Numpy, Pandas, Matplotlib, NLTK, SpaCy, Scikit-Learn, Keras, TensorFlow, PyTorch, LIME, SHAP
Tools and Technologies: Data Science, Machine Learning, Deep Learning, Feature Engineering, SQL Server, Latex, PowerBI, Git

PUBLICATIONS

Aslam, A. B., Iqbal, F., Talpur, U., Syed, Z. S., & Shaikh, F. K. (2024). Artificial intelligence-enabled 6G mobile systems. In A. Bourdena et al. (Eds.), *Intelligent technologies for healthcare business applications*, pp. 49-79, Springer. https://doi.org/10.1007/978-3-031-58527-2_3

Iqbal, F., Syed, Z. S., Syed, M. S. S., and Syed, A. S., "An Explainable AI Approach to Speech-Based Alzheimer's Dementia Screening," in Speech, Music and Mind 2024 (SMM24), *Satellite Workshop of Interspeech 2024, International Speech Communication Association (ISCA)*, 2024, pp. 11-15. http://dx.doi.org/10.21437/SMM.2024-3.

COMPETITIONS AND ACHIEVEMENTS

- **Postgraduate First Position Holder**: Achieved the highest CGPA in the MSc Data Science program.
- **Huawei ICT Competition Finalist (2022-2023)**: Selected as one of the top 30 students in Pakistan in the prestigious Huawei ICT competition.
- **Top-10 Undergraduate Student**: Consistently ranked among the top-performing students during the Bachelor of Engineering program.
- **Academic Excellence Scholarship (2019-2022)**: Awarded annual scholarships for three consecutive years in recognition of ranking among the top 10 students in the batch.
- **SPEC'19**: Winner at SPEC'19 Speed Programming Competition

LANGUAGES

- English (CEFR C1)
- German (CEFR A1)

CERTIFICATIONS

- Databases and SQL for Data Science with Python
- Python for Everybody (Coursera)
- Linear Algebra for Machine Learning and Data Science

RESEARCH CONFERENCES SYMPOSIUMS

- **SMM Workshop, Interspeech 2024 – Presenter** Presented paper titled "An Explainable AI Approach to Speech-Based Alzheimer's Dementia Screening", published by ISCA.
- 1st International Conference on English Language and Linguistics (Participant)
- 35th Multitopic International Symposium (Participant)
- 37th Multitopic International Symposium (Participant)

REFERENCES

- Zafi Sherhan Syed - Professor
  Mehran University of Engineering and Technology
  `zafi.sherhan@faculty.muet.edu.pk`
- Sanam Narejo - Associate Professor
  Mehran University of Engineering and Technology
  `sanam.narejo@faculty.muet.edu.pk`