Muhammad Waseem Akram

● ABOUT ME

Seeking a dynamically challenging career position with professional growth potential in the field of Data Science. Major research areas include Machine Learning (Deep Learning), Image processing, Signal Processing and Natural Language Processing.

● EDUCATION AND TRAINING

01/10/2022 – CURRENT Pisa, Italy
PHD IN EMERGING DIGITAL TECHNOLOGIES Scuola Superiore Sant'Anna

- How to do research
- Machine learning fundamentals, algorithms and applications through python
- Neural network and deep learning: theoretical foundations
- Neural Network and Deep Learning: Advanced Topics
- Neural Network and Deep Learning: Implementation Issues

Website https://www.santannapisa.it/en │ **Level in EQF** EQF level 8 │ **Thesis** Musical Chord Segmentation and Classification

04/02/2017 – 13/01/2019 Islamabad, Pakistan
MS COMPUTER SCIENCE COMSATS University Islamabad, Islamabad, PK

Machine Learning, Natural Language Processing, Advanced Topics in Data Mining, Advanced Topics in Neural Networks, Advanced Topics in Image Processing

Address Park Rd, Islamabad, Islamabad Capital Territory , 45550, Islamabad, Pakistan │ **Website** https://www.comsats.edu.pk/ │

Field of study Computer Science │ **Final grade** 3.25/4.0 │ **Thesis** Short Text Clustering using Deep Learning Approach

31/08/2010 – 30/08/2014 Lahore, Pakistan
BS COMPUTER SCIENCE National College of Business Administration & Economics, Lahore, PK

Address 40 E 1 Shahrah-e-Hazrat Imam Hussain, Block E1 Block E 1 Gulberg III, Lahore, Punjab, 54660, Lahore, Pakistan │

Website https://ncbae.edu.pk/ │ **Field of study** Computer Science │ **Final grade** 3.15/4.0

● PUBLICATIONS

2025
EAFvision: Real-Time Automated Safety Surveillance in Electric Arc Furnaces Using Deep Learning Models

Under Review

Journal Name: The 14th IEEE International Conference on Image Processing Theory, Tools and Applications IPTA 2025

2025
AI-Powered IT Infrastructure for Enhanced Safety in EAF Operations

Under Review

Journal Name: The European Steel Technology and Application Days – ESTAD2025

2024
Automating Grapevine LAI Features Estimation with UAV Imagery and Machine Learning

2025
ChordFormer: A Conformer-Based Architecture for Large-Vocabulary Audio Chord Recognition

Under Review

Journal Name: IEEE/ACM Transactions on Audio, Speech, and Language Processing

2022
[A novel deep auto-encoder based Linguistics clustering model for social text](#)

2022
[Big Data Management in Drug–Drug Interaction: A Modern Deep Learning Approach for Smart Healthcare](#)

2017
[A review: Security challenges in cognitive radio networks](#)

MS THESIS

31/08/2017 – 13/01/2019
Short Text Clustering using Deep Learning Approach

I have purposed an autoencoder based clustering model for Urdu short text clustering very first time. I have scraped Urdu News headline data of four categories Politics, Business, Sports and Entertainment from express news website. The purposed model is implemented in Python programming language using Ker's, Scikit Learn, NumPy and Pandas library and this model is trained on the scraped data. The model achieved 15% better results as compared to the state-of-the-art models.

WORK EXPERIENCE

🏢 **TENOVA LOI THERMPROCESS** – DUISBERG, GERMANY
COMPUTER VISION ENGINEER – 04/01/2025 – CURRENT

Continuing my collaboration with Tenova in Germany as part of the Isteel-expert project.

🏢 **TENOVA** – CASTELLANZA, MILAN , ITALY
COMPUTER VISION ENGINEER – 01/09/2024 – 31/03/2025

Collaboration on Isteel-expert Project(https://www.isteel-expert.eu/):
Implement real-time computer vision models to detect safety hazards in the EAF.

🏢 **NATIONAL COLLEGE OF BUSINESS ADMINISTRATION AND ECONOMICS, MULTAN, PK** – MULATAN, PAKISTAN
COMPUTER SCIENCE LECTURER – 31/10/2019 – 30/09/2022

Below is a list of courses which I have taught, including the different roles I have played in each one.
- Machine Learning
- Programming Fundamentals
- Lecture planning, preparation and delivering
- Supervising BS students

🏢 **COMSATS UNIVERSITY ISLAMABAD, ISLAMABAD, PK** – ISLAMABAD, PAKISTAN
RESEARCH ASSOCIATE – 14/06/2016 – 14/06/2017

- Writing research proposals
- Papers and other publications
- Reading academic journals

🏢 **TECHO. G SOFTWARE HOUSE, FAISALABAD, PK** – FAISALABAD, PAKISTAN
WEB DEVELOPER – 31/08/2014 – 30/12/2015

Implementation and maintains of different websites using WordPress

PROJECTS

09/01/2020 – 09/04/2020
Cervical cancer classification using UCI (Cervical cancer (Risk Factors)) dataset:

I have applied combination of IForest + SMOTE + Random Forest algorithms and achieved 98% accuracy.

14/02/2022 – 29/04/2022
Hatred Speech Analysis

Twitter dataset was investigated for "Hate Speech" through applying and giving comparative analysis of transformers, GRU, RNN, SVM, and CNN.

04/01/2020 – 07/10/2020
SMS spam detection

SMS spam detection was investigated by applying modern machine learning techniques. It was critically important to avoid the fraudulent nature of the viruses.

Urdu document classification using Convolution Neural Network

There are a very few works related to Urdu language processing. We applied LSTM
to classify the Urdu language documents.

Sentiment analysis in Urdu

Working in the domain of "Urdu Language Processing", we involved the strategies of sentiment extraction from the Urdu text and applied different analysis methods like GRU, LSTM,RNN, CNN, SVM

Sentiment analysis of movies reviews

Developed a project to process the text of movie reviews with different preprocessing techniques and sentiments of the reviews were investigated, classified, and analyzed. I have applied Bidirectional LSTM model and achieve a better accuracy from state of the art algorithms.

HONOURS AND AWARDS

DeepLearning.AI – Coursera

Successful completion of Deep Learning course on Coursera

National Internship Program – PM Youth Internship Program

Selected for National Internship Program and completed 1 year of internship with distinction

SKILLS

Machine Learning Algorithms

Transformers, Bert, Neural Network, Recurrent Neural Network, Long-Term Short-Term Memory Network (LSTM), Convolutional Neural Network (CNN), Logistic Regression, Support Vector Machine, Decision Tree, Random Forest, K-Means Clustering, DB Scan

Python Programming

Python(Tensor flow, OpenCV, Keras, PyTorch, Scikit-learn, Numpy, Pandas, Matplotlib, Scrapy, Request), and C++.

Python Programming Tools

Google Colab,PyCharm, VC code, Anaconda, Spyder, Jupiter Notebook, Git, Linux OS, Google ML Kit, Overleaf.

OTHER SKILLS

C++, SQL, WordPress, React Native

LANGUAGE SKILLS

Mother tongue(s):   **URDU**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C2	C2	C2	C2	C2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user