

Osama Mohammed Afzal

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EDUCATION

Mohamed bin Zayed University of Artificial Intelligence (MBZUAI)

Master of Science in Natural Language Processing

Abu Dhabi, UAE

Aug. 2022 – Present

- Expected to Graduate in **2024**
- **Supervisor:** [Preslav Nakov](#)

National University of Sciences & Technology (NUST)

Bachelor of Science in Computer Science

Islamabad, Pakistan

Sep. 2017 – Jun. 2021

- CGPA: 3.53/4.00 (88%)
- **Relevant Courses:** AI, Advanced Deep Learning, Image Processing, Distributed Computing
- **Supervisor:** [Faisal Shafait](#)

Al Waha International School

CIE AS and A Levels – Class of 2017

Jeddah, Saudi Arabia

Aug. 2015 – Jun. 2017

PUBLICATIONS ([GOOGLE SCHOLAR](#))

Language-Agnostic Framing Detection in Multi-Lingual Online News: A Zero-Shot Transfer Approach

SemEval 23

Osama Mohammed Afzal, Preslav Nakov

[Paper/Code](#)

Our system detects frames in multi-lingual news articles using machine translation and an English prediction model, demonstrating zero-shot transfer capability and feasibility of language-agnostic framing detection.

On Smart Gaze based Annotation of Histopathology for Training Deep CNNs

IEEE J-BHI

K. Mariam, O. Mohammed Afzal et al.

[Paper/Code](#)

This work explores the viability of annotating histopathology data with a person's gaze compared to conventional hand-based annotation for object detection.

EXPERIENCE

NLP Research Intern

MBZUAI - Core42

Abu Dhabi, UAE

May 2023 – Aug 2023

- Contributed to the development of 'jais-13b-chat,' the first Arabic Language Large Model (LLM), available on [Hugging Face](#).
- Conducted extensive experimentation with various prompt templates to evaluate the effectiveness of a single universal prompt template.
- Worked on the deployment of the model on the FastChat platform, focusing on integration and operational efficiency.
- Explored and applied quantization techniques to optimize the model's deployment strategy for enhanced efficiency and performance.

Machine Learning Engineer

DCube Technologies

Islamabad, Pakistan

Jun. 2021 – Jul. 2022

- Conducted research on the SOTA deep learning methods for information extraction from documents
- Trained multiple deep learning models for classification, region segmentation, and NER tasks

- Implemented automated training, evaluation, and deployment of models on data changes using DVC
- Created a tool for visualizing and annotating data for object detection and entity tagging
- Deployed, tested, and packaged deep learning models as APIs for production on GCP
- Held daily meetings with clients to iteratively improve the product for the identified use case

Machine Learning Engineer

Hayyan Systems

Islamabad, Pakistan

Mar. 2021 – Feb. 2022

- Conducted research on SOTA deep learning methods for COVID detection, severity using CXRs
- Worked on the interpretability of machine learning models for different medical use cases
- Coded multiple Data based Analytics dashboard for an in house data platform

Undergraduate Research Assistant

TUKL NUST Research & Development Lab

Islamabad, Pakistan

Jun. 2019 – Mar. 2021

- Developed a Large Scale Image Viewer (LSIV) and annotation Tool for Whole Slide Images (WSI)
- Came up with a new annotation technique for labelling of medical data for machine learning
- Trained multiple Object Detection models such as Yolov3 and Yolov4 on Keratin Pearl Dataset
- Co-authored a paper in IEEE J-BHI

PROJECTS

Identification of Persons Wearing Masks

Final Year Thesis for completion of Undergraduate Degree

- The thesis explored the viability of Periocular region as the primary biometric for a surveillance system in this age of COVID-19 where traditional systems which relied on the face failed due to masked faces
- Experimented with multiple architectures including siamese, self supervised and traditional networks
- The thesis concluded that Periocular Region showed promising results as a stand-alone biometric both in closed and open world conditions while also providing good results in situations where the person's face was occluded

COVID-19 Prognosis via Self-Supervised Representation Learning

- The goal of this project was to implement a solution for COVID-19 Prognosis which could aid hospitals in efficient triage of Patients based on the conditions of their CXR
- Fine-tuned the pre-trained model provided by FAIR on the collected data
- Used GradCAM to visualize and highlight the ROI for classification of the disease
- Coded a package for Chest X-ray analysis which included detection, severity and localisation of multiple disease

TECHNICAL SKILLS

Languages: Python, JavaScript C/C++, SQL

Frameworks: Pytorch, Hugging Face, Fast.ai, Flask, Ray.io, REST APIs

Web & Mobile: React, Flutter

AI Interests: Self Supervised Learning, NLP, Transformers, Continual Learning

Developer Tools: Git, Docker, Google Cloud Platform, VS Code

Libraries: Pandas, NumPy, Matplotlib, opencv, Seaborn

Interests: DevOps, AI, AI Research, Cloud, NLP, Statistics

REFERENCES

To be provided upon request