

Muhammad Hamza Sharif

Google Scholar: scholar.google.com
Github: github.com/Sharifmhamza

Mobile: +971-50-533-0642
Email: sharifmhamza@gmail.com

PERSONAL STATEMENT

My research interests focus on computer vision applications particularly in biomedical imaging and remote sensing domain. I am interested in developing and applying deep learning methods for segmentation, detection, and reconstruction tasks and also interested to learn and use the knowledge of multi-modal data to understand these domain in a better way.

EDUCATION

- **Mohamed bin Zayed University of Artificial Intelligence (MBZUAI), Abudhabi UAE**
Masters in Science in Computer Vision Aug. 2021 - June 2023
 - **CGPA:** 3.91 on scale of 4.00
 - **Thesis:** "Exploring the potential of deep learning approaches for Biomedical Image Segmentation" [Link](#)
 - **Advisors:** Primary : Dr. Min Xu, Secondary : Dr. Muhammad Yaqub
- **University of Engineering and Technology (UET), Lahore Pakistan**
Bachelor of Science in Computer Engineering Sept. 2013 - Aug. 2017
 - **CGPA:** 3.521 on scale of 4.00
 - **Thesis:** "iFruitfly Detector: An Intelligent System for food Quality Control" [Link](#)
 - **Advisor:** Dr. Sheikh Faisal Rashid

SKILLS

Development Languages, Tools & Frameworks: Python, R, SQL, Anaconda, Visual Studio, Git, Linux, Tableau

ML & DL Libraries and Frameworks: pandas, numpy, scipy, statsmodel, scikit-learn, keras, pytorch, plotly

Computer Vision & NLP Libaraies: Opencv, detectron2, MONAI, nibabel, SimpleITK, NLTK

Databases: MySQL/Maria DB, SQL Server, Talend, Google Big Query

EXPERIENCE

- **Data Analyst - AI**
Afiniti Karachi, Pakistan [Link](#) Feb. 2021 - Aug. 2021
 - Responsible for developing maintaining, and optimizing data pipelines for various international clients.
 - Developing and deploying ETL routines and write complex SQL procedures for various data intensive workflows.
- **Machine Learning Engineer**
Ephlux Karachi, Pakistan [Link](#) Dec. 2019 - Aug. 2020
 - Responsible for collecting and processing data from different sources, performing data profiling, preliminary data analysis, and interpreting results using statistical techniques.
 - Responsible for model development, model validation, model deployment, and model explainability for medical datasets using the SHAP library.
 - Implement NLP based model for semantic text similarity problems for the medical corpus.
- **Research Associate**
Barrett Hodgson University (BHU) Karachi, Pakistan [Link](#) May 2018 - Nov. 2019
 - Conduct research in the computational neuroscience domain for automatic detection of autism using MRI scans.
 - Responsible for implementing deep learning methods by scientific studies in a multidisciplinary domain.
- **DAAD Research Intern**
Deutsches Forschungszentrum für Künstliche Intelligenz (DFKI) Germany [Link](#) July 2016 - Sept. 2016
 - I have worked on fruit fly identification problem in fruits using thermography and machine learning techniques. For that purpose, I have implemented image processing algorithms and build ML classifiers using python. I also learned how to use rapidminer and weka tools during my internship.

RESEARCH & PROJECTS

- **Object Detection in Aerial: Imagery Improving the Performance of Faster R-CNN on iSAID Dataset** In this project we used different techniques to enhance the efficiency of the Faster R-CNN detector when applied to aerial imagery. Through the implementation of various strategies, we were able to improve the average precision to 42.7%, resulting in a 5.5% improvement as compare to the original model.) [Link](#).
- **Improving Latent Space of Generative Adversarial Networks (GANs)** In this project, I have proposed new method that combine a self-supervised contrastive learning approach with generative adversarial learning to generate images with greater control over their underlying representations.
- **Patient Experience PX-PULSE** I have developed an API for the patient length of stay in hospital-based upon patient disease and condition using a regression technique. Getting the data using API request, pre-processing and transforming the dataset by imputing the missing values, dumping dataset into Flask-SQLAlchemy database, and applying regression technique.
- **Ante Natal Risk Identification using Fetal Doppler** This is a collaborative research-based project between Ephlux, AKUH, and Boston Children Hospital. I have developed a model using XGBoost for antenatal risk identification using fetal doppler through hyper-parameter tuning of the model using Grid-Search and interpreting the model using Shapely Values.
- **iFruitFly Detector: An intelligent System for food Quality Control** This is a collaborative research project funded by DAAD for the automatic identification of mangoes infested with fruit flies. Hand crafted pixel-based features are calculated using frames of thermal video of mangoes. A two-layer MLP identifies healthy and non-healthy mango with an accuracy of 94.18%. Using the DB-SCAN clustering algorithm, regions in the infested mangoes are marked. MLP also identifies infested regions with an accuracy of 94.00%.

PUBLICATIONS

- Dmitry Demidov, **Muhammad Hamza Sharif**, Aliakbar Abdurahimov, Hisham Cholakkal, Fahad Khan. Salient Mask-Guided Vision Transformer for Fine-Grained Classification. (**VISAPP-2023-Oral Best Paper Award**) [Link](#)
- **Muhammad Hamza Sharif**, Dmitry Demidov, Asif Hanif, Mohammad Yaqub, Min Xu. TransResNet: Integrating the Strengths of ViTs and CNNs for High Resolution Medical Image Segmentation via Feature Grafting. (**BMVC-2022**) [Link](#)
- Muneera A. Rasheed, Prem Chand, Saad Ahmed, **Hamza Sharif**, Zahra Hoodbhoy, Ayat Siddiqui, Babar S. Hasan. Use of artificial intelligence on Electroencephalogram (EEG) waveforms to predict failure in early school grades in children from a rural cohort in Pakistan [Link](#)
- **Hamza Sharif**, Rizwan Ahmed Khan. A novel framework for automatic detection of autism: A study on corpus callosum and intracranial brain volume [Link](#)

AWARDS & ACCOLADES

- Awarded fully funded Masters Scholarship at MBZUAI
- Awarded for winning 3rd place **Hack for Space Hackathon** powered by G42 (1000dhs)
- Research Internship Award (1000 Euro/month Summer @DAAD Award)

REFERENCES

Name: **Dr. Min Xu**

Designation: *Associate Professor, Computational Biology Department at CMU*

Affiliated Associate Professor, Computer Vision Department at MBZUAI

Email: xumin100@gmail.com

Name: **Dr. Mohammad Yaqub**

Designation: *Associate Professor, Computer Vision Department at MBZUAI*

Email: mohammad.yaqub@mbzuai.ac.ae

Name: **Dr. Kun Zhang**

Designation: *Associate professor, Philosophy Department at CMU*

Associate Professor, Machine Learning Department at MBZUAI

Email: kun.zhang@mbzuai.ac.ae