Muhammad Zain Amin

PERSONAL INFORMATION

Email: Muhammad-Zain_Amin@etu.u-bourgogne.fr   **Website:** https://zainamin.github.io/
Github: https://github.com/ZainAmin   **Google Scholar:** https://scholar.google.com/citations?user=f3uZ9NsAAAAJ&hl=en

RESEARCH INTERESTS

My research focuses on weakly/semi/self-supervised learning with applications on medical imaging, and computer vision. I am also passionate about applying neuroimaging strategies for the prevention and diagnosis of brain disorders.

EDUCATION AND TRAINING

Erasmus Mundus Joint Master Degree in Medical Imaging and Applications (MAIA)   2022 - Present

University of Cassino and Southern Lazio (UNICAS)   ITALY

- 2nd Semester, currently enrolled and supervised by Prof. Alessandro Bria.

University of Texas Health Science Center (UTHealth)   USA

- Post 1st Semester Associate Training, supervised by Giancardo lab of UTHealth.
- Participated in IACTA-EST 2023 challenge to work on baseline deep learning models focusing on CTA Endovascular Stroke Therapy.

Université de Bourgogne (uB)   FRANCE

- 1st Semester, supervised by Prof. Alain Lalande, and Prof. Olivier Laligant.

Bachelor of Science in Computer Science (BSc)   2015 - 2019

University of Engineering and Technology Lahore (UET Lahore)   PAKISTAN

- Supervised by Prof. Amna Yasin, **RANK: 5/37, GRADE: 3.50/4.00**
- **Project**: Sentiment Analysis of the United States of America Airlines based on Natural Language Processing.

WORK EXPERIENCE

UNIVERSITY OF WARWICK   UNITED KINGDOM
Researcher   Sep 2022 - Jan 2023

- Supervised by Prof. Yu Guan, and Prof. Yongjian Hu from SCUT, China.
- Researched on exposing DeepFake frames through spectral analysis of colour channels in frequency domain.

WAVY AI RESEARCH   CHINA
Machine Learning Researcher   June 2020 - April 2021

- Researched and implemented lungs X-ray images segmentation using U-Nets.
- Research on methodologies to minimize the impact of batch effects in classification studies using X-ray image datasets.

UNITED NATIONS DEVELOPMENT PROGRAMME (UNDP)   PAKISTAN
Data Science Coordinator, Local Economic Development (LED) Initiative   Sep 2019 - Nov 2019

- Submitted the measurement of LED goals of healthcare interrelations tailored to Faisalabad.
- Documented over 28 thousand potential relations and ranked them using graph theory methods.

NFC INSTITUTE - Federal Government Research Institute   PAKISTAN
Machine Learning Intern   Jan 2018 - Aug 2019

- Supervised by Prof. Amna Yasin.
- Implemented machine learning-based healthcare decision making-system for Cesarean Section surgery.

GOOGLE SUMMER OF CODE (GSoC) PROGRAM, JSK ROBOTICS LAB, UNIVERSITY OF TOKYO   JAPAN
Student Developer   April 2016 - Aug 2016

- Worked on a project regarding the prediction of robotics execution failures using erroneous data.
- Awarded with a funding of 5400 USD by Google.

ACHIEVEMENTS AND AWARDS

- **Erasmus Mundus Joint Master Scholarship Grant** by the European Union, Belgium (**EUR 42,000**).   2022
- **GREAT Scholarship Recipient** funded by the UK government and the British Council, UK (**GBP 10,000).**   2022

- **Data Science Master Degree Scholarship Grant** funded by the University of L'Aquila, Italy (**EUR 15,668**).   2022
- **Think Big Scholarship Recipient** funded by the University of Bristol, UK (**GBP 10,000**).   2021
- **Dean's International Achievement Scholarship Recipient** funded by the University of Leeds, UK (**GBP 5,000).**   2021
- **Pakistan's National ICT Research Grant** funded by the Ministry of IT and Telecommunication (**PKR 50,000).**   2019
- **High Honors Student** for 8 semesters by the dean of UET Lahore Engineering Faculty, Pakistan.   2019
- **GPA Based Scholarship** by UET Lahore, Pakistan (**PKR 65000).**   2019
- **Semifinalists in the National ICT Project Exhibition Contest.** Was featured on National Television (PTV) News.   2019
- **Teaching Assistant Award** by the Department of Computer Science and Engineering.   2018
- **Best Paper Award** at National Conference on AI and Neural Information Processing System, UET Lahore.   2017

MEDICAL IMAGING PROJECTS

Automated Detection and Diagnosis of Diabetic Retinopathy
Muhammad Zain Amin
MAIA Medical Imaging and Applications, Final Presentation on Medical Sensors, Université de Bourgogne, Le Creusot, France, 2023.

Detection of Parkinson's Disease Using Automated Tunable Q Wavelet Transform Technique with EEG Signals
Muhammad Zain Amin, Md. Imran Hossain
MAIA Medical Imaging and Applications, Final Presentation on Digital Signal Processing, Université de Bourgogne, Le Creusot, France, 2023.

Comparative Analysis of Eight Direction Sobel Edge Detection Algorithm for Brain Tumor MRI Images
Muhammad Zain Amin, Md. Imran Hossain
MAIA Medical Imaging and Applications, Final Presentation on Image Processing, Université de Bourgogne, Le Creusot, France, 2023.

PUBLICATIONS

BIBLIOMETRICS (Google Scholar)

Citations: 74
H index: 4
i10-index: 2

CONFERENCE & TECHNICAL PAPERS

An Approach for Spam Detection in Youtube Comments based on Supervised Learning
Amir Ali, Muhammad Zain Amin
In proceedings of the 2nd National Conference on Emerging Technologies, University of South Asia, Lahore, Pakistan, 2016.

Application of Multilayer Perceptron for Data Mining in Healthcare Operations
Muhammad Zain Amin, Amir Ali
Oral presentation at 3rd International Conference on Biotechnology (ICB), University of South Asia, Lahore, Pakistan, 2017.

InceptFood: A CNN based Classification Approach for Recognizing Food Images
Muhammad Zain Amin, Amir Ali
In Proceedings of the National Conference on Emerging Trends in Computing, Statistics and Mathematical Sciences, Peshawar, Pakistan, 2017.

Performance Evaluation of Supervised Machine Learning Classifiers for Predicting Healthcare Operational Decisions
Muhammad Zain Amin, Amir Ali
In proceedings of the National Conference on Artificial Intelligence and Neural Information Processing System (AINIP), University of Engineering and Technology, Lahore, Pakistan, 2017.
* Used Dataset donated to UCI Machine Learning Repository, University of California, Irvine, USA, 2017.

Convolutional Neural Network: Text Classification Model for Open Domain Question Answering System
Muhammad Zain Amin, Noman Nadeem
ArXiv preprint arxiv: 1809.02479, Cornell University, USA, 2018.

ResCap V1: Deep Residual Learning Based Image Captioning
Muhammad Zain Amin, Muhammad Ahmad Amin, Amir Ali
Oral presentation at the National ICT Project Exhibition Contest, Pakistan Scientific and Technological Center, University of Agriculture, Faisalabad, Pakistan, 2019.

Conversational AI Chatbot Based on Encoder-Decoder Architectures with Attention Mechanism
Amir Ali, **Muhammad Zain Amin**
Oral Presentation at National AI Conference, NED University of Engineering and Technology, Karachi, Pakistan, 2019.

Sentiment Analysis of the United States of America Airlines based on Natural Language Processing
Muhammad Zain Amin
Bachelor's Thesis in Computer Science at University of Engineering and Technology, Lahore, Pakistan, 2019.

BOOKS

Deep Learning Objective
Amir Ali, **Muhammad Zain Amin**
Amazon Kindle Direct Publishing, Paperback ISIN: 1070238945, eBook ISIN: B07S9FHD7R, 2019.

Hands-On Machine Learning with Scikit-Learn
Amir Ali, **Muhammad Zain Amin**
Amazon Kindle Direct Publishing, Paperback ISIN: 1090626797, eBook ISIN: B07Q5MK6DS, 2019.

TECHNICAL SKILLS

Frameworks - Tensorflow, Keras, Scikit-Learn, Matplotlib, Numpy, Pandas, OpenCV, Flask

Programming languages - Python, C++, Javascript, R

MOOCs -

- Applied Data Science (**University of Michigan**).
- Fitting Statistical Models to Data with Python (**University of Michigan**).
- Machine Learning (**Stanford University**).
- Linear Regression and Modeling (**Duke University**).
- Neural Networks and Deep Learning (**Andrew Ng**).
- Convolutional Neural Network for Visual Recognition (**Stanford University**).

OPEN DAYS

- Attended the EIPHI graduate school ceremony and got the introduction about the research activities, open badges, tutoring, mentoring, and doctoral schools of the University Burgundy Franche-Comté, Besançon, France (2022).
- Attended the Project Exhibition " Village de science", Le Creusot, France (2022).

SERVICES

CONFERENCE WORKSHOPS ORGANIZED

- Adaptive and Multitask Learning at AINIP Conference (2017).

LEADERSHIP AND VOLUNTEERING ACTIVITIES

- Member of the Erasmus Mundus Association, Brussels, Belgium (2022 - present).
- Senior Member and GREAT Scholar for "Study UK campaign" at the British Council, London, UK (2022 - present).
- Dataset Donor in Life Sciences, UCI Machine Learning Repository, University of California, Irvine, USA (2018 - present).