Hira Zaffar

Email: hira.zaffar@unitelmasapienza.it

QUALIFICATIONS

(12/2023 - Continue)

Ph.D. Student

Ph.D. School: Ph.D. School in Sustainable Development and Climate Change, IUSS Pavia

Cycle: 39th PhD Cycle, Academic Year 2023-2024

Host University: University of Rome Unitelma Sapienza

Research Topic: Artificial Intelligence for Precision Livestock Farming: Supporting Sustainable Production

Research Abstract: Precision livestock farming (PLF) is defined as the individual management of animals through continuous real-time monitoring of their health, welfare, production/reproduction, and the environmental impact of livestock farming. The use of sensors to collect data on animals' behavior and livestock farming production in PLF has several potentials, including: i) the early detection of diseases and other animal welfare issues; ii) the improvement of production performances; iii) the optimization of natural resources usage; iv) the minimization of environmental impact; v) the increase of livestock farming societal acceptance. The proposed research project aims to apply artificial intelligence (AI) techniques and methodologies to data collected in real precision livestock farming (PLF) scenarios to experimentally support the achievement of PLF objectives and potentials. Specifically, the project research goal is to search for the best trade-offs between livestock farming productivity, natural resources usage, animal welfare and environmental impact, while improving food quality, guaranteeing food safety, and favoring the adaptation and mitigation to climate change.

Supervisor: Prof. Damiano Distante (INF/01 - Computer Science). University of Rome UnitelmaSapienza

(02/2018 - 01/2021)

Master of Science in Computer Science

COMSATS University Islamabad, Attock Campus, Pakistan

http://attock.comsats.edu.pk

Field of study: Data Science, Machine Learning

Final grade: 3.83/4.0 CGPA (Batch Topper)

Thesis: **Predicting University Students' Dropout using Machine Learning Techniques**

Thesis summary: In this study, we have presented the machine learning approach to predict the student dropout using the academic and financial attributes of students. We used the four years institute data of students with several individual and ensemble machine learning techniques to develop the models for the prediction of dropouts and understand the reasons behind these dropouts.

(03/2014 - 02/2018)

Bachelor of Science in Software Engineering

COMSATS University Islamabad, Attock Campus, Pakistan

http://attock.comsats.edu.pk

Field of study: Software Engineering

Final grade: 3.76/4.0 CGPA (Gold Medalist)

Final Year Project: **Handicrafts Recommender System**

FYP Summary: Online Handicrafts Shopping System Short Description: This application was planned to help those people who make handicrafts, but they cannot get reasonable price according to their talent. This application will provide an online platform for handicraft shopping. It will also promote our people's talent and culture. PHP, HTML Wamp server, Dreamweaver and Microsoft office used to make this application reliable.

WORK EXPERIENCE

(03/2022 - Current)

Lecturer (Computer Science)

Air University Islamabad, Aerospace & Aviation Campus Kamra, Pakistan.
http://aack.au.edu.pk

Main activities and responsibilities:
- Engaged in the development and teaching undergraduate curricula.

Courses taught: Artificial Intelligence, Machine Learning, Human Computer Interaction, Object Oriented Programming, Theory of Automata, Data Structures & Algorithms, Database Systems, Programing Fundamentals and Information & Communication Tech.
- Supervise the undergrad final year projects.
Projects under supervision: Hand Gesture Recognition System, Smart Class Rooms, Autistic Learning, Students' Performance prediction System using Machine Learning Techniques.

(09/2019 - 01/2022) ### Research Associate/Teacher Assistant

Comsats University Islamabad, Attock Campus, Pakistan.
http://attock.comsats.edu.pk

Main activities and responsibilities:
- Conduct labs of various computer science courses.
- Worked as part of final year project committee, exams committee along with the program coordination.
- Support activities around research, teaching, enterprise & student's experience.

(10/2018 - 03/2019) ### Lecturer

Muhammad Ali Post Graduate Institute, Attock, Pakistan.

Main activities and responsibilities:
Taught computer science subjects to undergraduate students.

PUBLICATIONS _____

- Ali, Z., Naz, S., Zaffar, H., Choi, J., & Kim, Y. (2023). "An IoMT-Based Melanoma Lesion Segmentation Using Conditional Generative Adversarial Networks". Sensors 2023. 23. 3548, DOI: 10.3390/s23073548.
- Ansari, Y., Yasmin, S., Naz, S., Zaffar, H., Ali, Z., Moon. J., & Rho. S. (2022). "A deep reinforcement learning based decision support system for Automated stock Market Trading". IEEE Access. DOI: 10.1109/ACCESS.2022.3226629.
- Zaffar, H., & Ahmad, R. (2023). "Predicting University Students Dropout Using Machine Learning Techniques "[Submitted for Publication]. Department of Computer Science, Comsats University Islamabad, Attock, Pakistan.
- Zaffar, H., & Maqsood, S. (2022). "A review on Neurological Disorders." [Unpublished manuscript].

HONOUR & AWARDS _____

- **Gold Medal** in BS(SE) at COMSATS University Islamabad, Attock Campus, Pakistan.
- **Internship Certificate** from Avionics factory, Aeronautical Complex, Kamra, Pakistan.
- **Merit Scholarship Certificate** in 2nd year of BS from Pakistan Ordinance Factories.
- **Merit Scholarship Certificate** in 3rd year of BS from Pakistan Ordinance Factories.
- **Merit Scholarship Certificate** in 4th year of BS from Pakistan Ordinance Factories.
- **Merit Scholarship Certificate** in MS (CS) from Pakistan Ordinance Factories.
- **Certificate of Appreciation** for organizing open House at COMSATS University Islamabad, Attock Campus, Pakistan.

TECHNICAL SKILLS_____

Majority of the skills were learnt at university.

Skills: Python, JAVA, C++
Tools: Anaconda, Dev C++, Visual Studio, Netbeans, Eclipse, Pycharm, Jupyter Notebook.
MS Office: Word, Excel, Power point, Access, Visio.

LANGUAGE SKILLS_____

Mother Language: Urdu, Punjabi

Other: English **IELTS 6.5** (Speaking: **7.0**, Writing: **6.5**, Listening: **6.5**, Reading: **6.0**