Dr. Azam Rafique

+966 500 389 587

Strengths:
- **Deep Learning**
- **Impact Factor:** **29.369**
- **Research publications:** **19**
- **Citations:** **285**
- **H-Index:** **07**
- **i10-index:** **06**
- **Conference Secretary ICETECC`22**
- **9 Projects Funded by ICT R&D**
- **1 Project Funded by SUPARCO**
- Expert in programming & system Designing
- Python Programmer

PhD Research Topic:
Deep Learning Based Loop Closure Detection from Different Viewpoints and Occlusions

Final Year Projects:
M.E: Traffic Congestion and Incident Warning using V2I Communication
B.E: File Sharing and Information Dissemination in VANETs

ORCID: 0000-0002-8927-1522
Scopus ID: 57220699255
Google Scholar

Nationality: Pakistani
Permanent Address:
Bungalow # 7, Block B-5, near Police Choki, Mehran University Employees Cooperative Housing Society, Jamshoro, Sindh, Pakistan

E-mail:
azammemon2000@gmail.com

PhD in Visual SLAM using Deep Learning

EDUCATION
1. **Ph.D (Control Science & Engineering) - 2023**
   Shanghai Jiao Tong University, Shanghai, China
   (Ranked **45 in QS World Ranking 2024-25)**

2. **M.E (Electronic System Engineering) - 2016**
   Mehran University of Engineering and Technology (MUET), Jamshoro, Pakistan
   Passed with **3.67 CGPA**

3. **B.E (Electronic Engineering) - 2012**
   Mehran University of Engineering and Technology (MUET), Jamshoro, Pakistan
   Passed with **87.22%** Percentage (1st Division – **CGPA: 3.91**)
   Secured 3rd Position

3. HSC (Pre-Engineering) - 2007
   BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, HYDERABAD, Pakistan
   Passed with 68.4% marks (1st Division)

4. SSC (Science Group) - 2005
   BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, HYDERABAD,
   Passed with 80.9% marks (1st Division)

EXPERIENCE: **(12+ YEARS)**
- ✓ **Post-Doctoral Researcher**
   Working at Prince Sultan University since June 2024
- ✓ **INSTRUMENTATION ENGINEER (BPS-18)**
   Working as an Instrumentation Engineer at Mehran UET, Jamshoro on Regular basis since March 20, 2020
- ✓ **INSTRUMENTATION ENGINEER (BPS-17)**
   Worked as an Instrumentation Engineer at Mehran UET, Jamshoro on Regular basis from March 20, 2015 to March 19, 2020
- ✓ **INSTRUMENTATION ENGINEER (on Contract basis)**
   Worked as Instrumentation Engineer at Mehran UET, Jamshoro, From 24th August 2012 to March 19, 2015

FIELDS OF INTEREST
- ✓ Deep Learning, Computer Vision, Visual Simultaneous Localization & Mapping (vSLAM)
- ✓ Automation and Robotics

TECHNICAL SKILLS:
Embedded System Design:
- ✓ Worked on Jetson Nano, uP Board, Raspberry Pi, Arduino, LabView, Android,

AI/ML/ Deep Learning:
- ✓ Python, Machine Learning, Deep Learning, Artificial Intelligence
- ✓ Tensorflow, Keras, Anaconda, Docker, Tensorflow, OpenCV, ROS, PyTorch
- ✓ MATLAB, Android, PHP, JavaScript, JQuery, Visual Basic, C++
- ✓ Data Science, Data Analysis, Data Augmentation

Image Processing:
- ✓ Skilled in MATLAB Programming with good Knowledge in Data Acquisition, Image Processing & Signal Processing Toolboxes
- ✓ Image processing using Python, Applying image processing on batches automatically using Python

Web Development (Full Stack Developer):
- ✓ HTML/ CSS / Bootstrap/ JavaScript/ JQuery
- ✓ MySQL, PHP
- ✓ Data Scrapping, Bot building

Android App Development:
- ✓ Basic 4 Android, Flutter (Beginner)

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RESEARCH PUBLICATIONS: (19)

- ✓ **DisView: A Semantic Visual IoT Mixed Data Feature Extractor for Enhanced Loop Closure Detection for UGVs during Disaster Recovery** - IEEE Internet of Things Journal, [**Accepted**] (**I.F: 8.2**)
- ✓ **Viewpoint-Invariant Loop Closure Detection Using Step-Wise Learning With Controlling Embeddings of Landmarks –** IEEE TRANSACTIONS ON INTELLIGENT TRANSPORTATION SYSTEM, 23 May, 2022 (**I.F: 9.551**)
- ✓ **S-VIT: Stereo Visual-Inertial Tracking of Lower Limb for Physiotherapy Rehabilitation in Context of Comprehensive Evaluation of SLAM Systems -** IEEE TRANSACTIONS ON AUTOMATION SCIENCE AND ENGINEERING, 06 August, 2020 (**I.F: 4.938**)
- ✓ **Loop Closure Detection using Supervised and Unsupervised Deep Neural Networks for Monocular SLAM Systems -** Robotics And Autonomous System, 08 February, 2020 (**I.F: 2.825**)
- ✓ **Using Crowed-Source Based Approach for V2X Communication For Vehicular Ad Hoc Network -** Chinese Automation Congress (CAC), 2019
- ✓ **Performance Analysis of Location based Smart Catastrophe Monitoring System using WSN -** International Journal of Wireless Personal Communication, 02nd April, 2018 (**I.F: 0.951**)
- ✓ **Interactive Physiotherapy: An Application Based on Virtual Reality and Bio-feedback -** International Journal of Wireless Personal Communication, 05th Feb, 2018 (**I.F: 0.951**)
- ✓ **Chest Radiographs TB Detection using Gabor Filter and SVM Classifier** 2017 4th International Conference on "Computing for Sustainable Global Development," 2017, pp. 1231–1236.
- ✓ **A Hierarchical Approach to Home Energy Management Systems** Int. Conf. Recent Trends Comput. Sci. Electron., vol. 9, no. December, 2016.
- ✓ **Self-Driving and Driver Relaxing Vehicle** 2nd IEEE International Conference on Robotics and Artificial Intelligence (ICRAI – 2016) - 01-11-2016 to 02-11-2016
- ✓ **Kinect as a Generalised Interface for Games and PC Control -** Internal Journal of Wireless Personal Communication, 23rd Nov, 2016 (**I.F: 0.701**)
- ✓ **Real time Implementation of Path planning Algorithm with Obstacle Avoidance for Autonomous Vehicle** 3rd 2016 International Conference on "Computing for Sustainable Global Development", 16th – 18th March, 2016
- ✓ **GSM Based Advanced Noticeboard Display** 3rd 2016 International Conference on "Computing for Sustainable Global Development", 16th – 18th March, 2016
- ✓ **Internet of Things (IoT) Enabled Smart Animal Farm** 3rd 2016 International Conference on "Computing for Sustainable Global Development", 16th – 18th March, 2016
- ✓ **Experimental Evaluation of Vehicle-to-Vehicle Based Data Transfer** - 2015 International Conference on Information and Communication Technology Research (ICTRC), 17-19 May 2015
- ✓ **An Electronic Information Desk System For Information Dissemination In Educational Institutions** - 2015 2nd International Conference on "Computing for Sustainable Global Development", 11th - 13th March, 2015
- ✓ **Efficient Gestures and Voice Based Computing using Hardware Implementation** - International Journal of Enhanced Research in Science Technology & Engineering (**I.F: 1.252**)
- ✓ **A New way to use Computer with Gestures & Images** - 26th IEEEP Students' Seminar
- ✓ **Generation of Electricity through Solar Cell and Thermocouple –** 26th IEEEP Students' Seminar

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ACADEMIC ACHIEVEMENTS
- ✓ **3rd Position in B.E – (Electronic Engineering)**
- ✓ Winner in Software Competition at Micro-Maze 2011 (April 2011)
- ✓ 2nd Runner Up in All Pakistan Website Development Competition "Know My Pakistan" by NUML, Islamabad
- ✓ 2nd Runner Up in Science fair by BISE, Hyderabad

CONFERENCES AND WORKSHOPS
- ✓ Research Article in 2019 Chinese Automation Congress (CAC)
- ✓ Certificates for Author in 26th IEEEP Students' Research Seminar (March 2011)

FUNDED RESEARCH PROJECTS: (9)
Funded by: National ICT R&D Fund
1. Advanced Human Gesture Controlled Application Using Microsoft Kinect (2016)
2. Stair Climbing Robot (2016)
3. Environment Mapping and WAR driving of Hyderabad City (2016)
4. Energy Harvesting through Radio Frequencies (2015)
5. Self-Driving and Driver Relaxing Vehicle (2015)
6. Development of Search Algorithm for Path Planning of Mobile Robot (2014)
7. Tele-Manipulation of Master Slave Robotic Arm using Data-glove (2013)
8. Robotic Network for Bomb Defusal and Disaster Aid (2013)

Funded By SUPARCO:
9. Design & Development of Yaw & Pitch Control of large wind turbines & their safety Mechanisms using PLC (2015)

PROGRAMS ORGANIZED:
- ✓ **Organized an International Conference on Emerging Technologies in Electronics, Computing and Communication (ICETECC`22)**
- ✓ Organized A one-day Seminar on Professional Career Development, "Groom Your career with Innovative Talks" – Oct 5, 2021
- ✓ Conducted Lab on Arduino Microcontroller in 1st International Workshop on Embedded Systems and Its Applications
- ✓ Did live coverage of Mehran University Alumni Association Annual Session 2014 and Broadcasted it world wide
- ✓ Certificate as "Coordinator" for Organizing "Synergy`14"
- ✓ Certificate as "Organizer" Final Year Project Exhibition 2014
- ✓ Certificate as "Organizer" in **29th IEEEP All Pakistan Students' Seminar 2014**

CERTIFICATES:
- ✓ Certificate as "Coordinator" for Arranging 2 weeks Internship program at Department of Electronic Engineering
- ✓ Certificate as "Organizer" in IEEE PSGWC 2013
- ✓ Certificate of Appreciation for Serving as a "Coordinator" in "Matlab Competition 2013"
- ✓ Certificate of "Coordination" in "Leaders Winter Internship Program 2013"
- ✓ Certificate of Participation as a "Course Coordinator" in "Two Days Hands-on Workshop on Silicon Labs Microcontroller Using C Language"
- ✓ Certificate of Participation as a "Organizer" in "National Engineering Exhibition (NEX`11)"
- ✓ Certificate of Participation as an "Organizer" in "MicroMaze 2011"
- ✓ Certificate for "Organizing" "IEEE Women in Engineering (WIE) Mentoring Session"
- ✓ Certificate of Participation in IEEEP Symposium 2014
- ✓ Certificate as "Organizer" in 29th IEEEP All Pakistan Students' Seminar 2014
- ✓ Certificate as "Organizer" in IEEE PSGWC 2013
- ✓ Certificate for "Organizing" "IEEE Women in Engineering (WIE) Mentoring Session"

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CERTIFICATES:
- ✓ Certificate of Participation in "Two Days Hands-on Workshop on Programmable Logic Controller"
- ✓ Certificate of Participation as Author in Poster Session at **IMTIC`12**
- ✓ **Merit Certificate for Securing THIRD Position in B.E Electronic Engineering**
- ✓ Acceptance Letter from **2011 IEEE International Conference** on Signal processing, Communication and Computing (ICSPCC 2011), Xi'an China
- ✓ Certificate of Author for presenting Research Paper in "26th IEEEP Students' Research Seminar"
- ✓ Certificate as "Coordinator" for Organizing "Synergy`14"
- ✓ Certificate as "Organizer" Final Year Project Exhibition 2014
- ✓ Certificate of Participation in IEEEP Symposium 2014
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- ✓ Acceptance Letter from **2011 IEEE International Conference** on Signal processing, Communication and Computing (ICSPCC 2011), Xi'an China
- ✓ Certificate of Author for presenting Research Paper in "26th IEEEP Students' Research Seminar"
- ✓ **And Many More…**