

# Muhammad Umer Farooq

## Assistant Professor

Department of Computer Science and Information  
Technology, NED University of Engineering &  
Technology.



<b>Postal Details</b>	Department of Computer Science & Information Technology, NED University of Engineering & Technology, Karachi, Pakistan.
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<b>D.O.B</b>	15, February 1982
<b>Nationality</b>	Pakistani
<b>Marital Status</b>	Married
<b>E-Mail</b>	<a href="mailto:umer@neduet.edu.pk">umer@neduet.edu.pk</a> , <a href="mailto:umerorai@gmail.com">umerorai@gmail.com</a>

**Field of Specialization:** Artificial Intelligence (Computer Vision)

**Objective:** To contribute my knowledge and to continue research and teaching to the world for the benefit of humanity.

### **Academic Qualification:**

**Ph. D.**  
(2019; CGPA 3.58) From Computer Science and Information Technology Department,  
NEDUET Karachi-Pakistan.

**MCIT**  
(2008; CGPA 3.35) From Computer Science and Information Technology Department,  
NEDUET Karachi-Pakistan.

**BCIT**  
(2004; 1<sup>st</sup> Division) From Computer Science and Information Technology Department,  
NEDUET Karachi-Pakistan.

**H.S.C**  
(2000; Grade A) From Malir Cantt College, Karachi – Pakistan.

**S.S.C.**  
(1997; Grade A) From Iqra School, Karachi - Pakistan

### **Publication:**

1. S. Samejo, J. A. Baig, T. G. Kazi, H. I. Afridi, S. Perveen, **M. U. Farooq**, K. Akhtar, S. A. Solangi, F. Abbasi, S. Hussain, "Iron Oxide-Chitosan-Based Nanocomposite for Efficient Fluoride Removal From Drinking Water" *Water, Air, & Soil Pollution*, vol. 235 issue 3 pp. 184, 2024.
2. M. A. Hassan, S. Zardari, **M. U. Farooq**, M. M. Alansari and S. A. Nagro, "Systematic Analysis of Risks in Industry 5.0 Architecture", *Applied Sciences*, vol. 14, 2024.
3. H. Rana, **M. U. Farooq**, A. K. Kazi, M. A. Baig, M. A. Akhtar, "Prediction of Agricultural Commodity Prices using Big Data Framework", *Engineering, Technology & Applied Science Research*, vol. 14, no. 1, pp. 12652-12658, 2024.
4. M. U. Farooq, M. Latif, Waseemullah, M. A. Baig, M.A. Akhtar and N. Sana, "An Application of Machine Learning in Retail for Demand Forecasting", *International Journal of Computer Science and Network Security*, vol. 23, no. 9, pp. 1-7, 2023.
5. A. Raza, M. Latif, M. U. Farooq, M. A. Baig, M. A. Akhtar and Waseemullah, "Enabling Context-based AI in Chatbots for conveying Personalized Interdisciplinary Knowledge to Users", *Engineering, Technology & Applied Science Research*, vol. 13, no. 6, pp. 12231-12236, 2023.
6. A. Ahmed, F. Outay, M. U. Farooq, S. Saeed, M. Adnan, M. A. Ismail and A. Qadir, "Real-time road occupancy and traffic measurements using unmanned aerial vehicle and fundamental traffic flow diagrams", *Personal and Ubiquitous Computing*, vol. 27, pp. 1669–1680, 2023.
7. A. Qaiser, M. U. Farooq, S. M. Nabeel Mustafa, and N. Abrar, "Comparative Analysis of ETL Tools in Big Data Analytics", *PakJET*, vol. 6, no. 1, pp. 7-12, 2023.
8. M. F. Hyder, M. U. Farooq, M. Latif, F. R. Khan, A. Hameed, N. Q. Khan, and M. A. Siddiqui "Implementing Firewall to Mitigate YOYO Attack on Multi Master Cluster Nodes Using Fail2Ban" *International Journal of Computer Science and Network Security* vol. 23, no. 2, pp. 126-132, 2023.
9. S. M. N. Mustafa, M. U. Farooq, M. Tahir, S. M. Khan and R. Qamar, "Frameworks, Applications and Challenges in Streaming Big Data Analytics: A Review," 2022 3rd International Conference on Innovations in Computer Science & Software Engineering (ICONICS), Karachi, Pakistan, pp. 1-6, 2022.
10. M. U. Farooq, A. K. Kazi, M. Latif, S. Alauddin, Kisa-e-Zehra, and M. A. Baig, "Intelligent Character Recognition System for Account Payable by using SVM and RBF Kernel" *International Journal of Computer Science and Network Security*, vol. 22 no. 11 pp. 213-221, 2022.
11. M. U. Farooq, S. Ahmed, M. Latif, D. Jawaid, M. Z. Khan, Y. Khan, "Detection and Recognition of Vehicle License Plates using Deep Learning in Video Surveillance" *International Journal of Computer Science and Network Security*, vol. 22, no. 11, pp. 121-126, 2022.
12. K. Kazi, M. U. Farooq, Z. Fatima, S. Hina, H. Abid, "Analysis of LinkedIn Jobs for Finding High Demand Job Trends Using Text Processing Techniques" *International Journal of Computer Science and Network Security*, vol. 22 no. 10 pp. 223-229, 2022.
13. M. F. Hyder, Waseemullah, and **M. U. Farooq**, "Towards Countering the Insider Reconnaissance Using a Combination of Shuffling and Diversity Moving Target Defense Techniques" *Engineering, Technology and Applied Science Research*, vol. 11, no. 6, pp. 7745–7749, 2021.
14. M. F. Hyder, Waseemullah, **M. U. Farooq**, U. Ahmed, and W. Raza, "Towards Enhancing the Endpoint Security using Moving Target Defense (Shuffle-based Approach) in Software Defined

Networking” *Engineering, Technology and Applied Science Research*, vol. 11, no. 4, pp. 7483–7488, 2021.

15. **M. U. Farooq**, A. Ahmed, S. M. Khan, and M. B. Nawaz, “Estimation of Traffic Occupancy using Image Segmentation” *Engineering, Technology and Applied Science Research.*, vol. 11, no. 4, pp. 7291–7295, 2021
16. M. Anwer, S. M. Khan, **M. U. Farooq**, and Waseemullah, “Attack Detection in IoT using Machine Learning” *Engineering, Technology and Applied Science Research*, vol. 11, no. 3, pp. 7273–7278, 2021.
17. **M. U. Farooq**, N. A. Khan, and M. M. Ali. "Unsupervised video surveillance for anomaly detection of street traffic" *International Journal of Advanced Computer Science and Applications*, vol 12, no. 8 pp. 270-275, 2017.
18. N. A. Khan, U. Amin, Waseemullah and **M. U. Farooq**. "Unsupervised Commercial Identification in Videos" *International journal of advanced computer science and applications*, vol. 8, no. 2 pp. 127-133, 2017.
19. N. A. Khan, O. A. Syed, M. A. Sawand, and **M. U. Farooq**. "Tracking of Occluded and Cluttered Objects" *International Journal of Computer Science and Information Security*, vol. 14, no. 11 pp.723-731, 2016.

### **Research Project:**

1. As a partner in the project with Aga Khan University department of emergency medicine. Title of project is "Design and implementation of a video-based school children road injury prevention tool in Karachi. A quasi-experimental study" approved by the Road Traffic Injuries Research network (RTIRN).

### **Showcasing of MS Thesis Under the Scope of UNESCO Chair "Sustainable Urban Regions" (Spring Semester 2023)**

1. A ConvNet-based Object Detection for Unmanned Aerial Vehicles.
2. Deep Learning Models for Carbon Monoxide Prediction in Urban Traffic.

### **MS Thesis/ISP Supervisor:**

Supervised MS Thesis in Department of Computer Science & Information Technology, NEDUET.

1. Enhancing Drilling ROP Prediction using Machine Learning, (2024).
2. Sentiment Analysis Enhancement in Leveraging LLM Models, (2024).
3. Integrating Machine Learning and logic for Transparent Decision-Making in Artificial Intelligence, (2024).
4. Self-Supervised Knowledge Distillation in Medical Image Segmentation, (2024).
5. Optimizing oil field development plan using stochastic evolutionary algorithm, (2023-2024).
6. Optimizing Saga Architecture in Distributed Microservices, (2023-2024).
7. Predicting Financial Market Trends Using Big Data Analytics And Twitter Sentiment Analysis, (2022-2023).
8. Analyzing Traffic Pollution Using Artificial Intelligence Technique, (2022-2023).
9. Social Media Analysis to Tailor Political Influences in Pakistan, (2022-2023).
10. Prediction of Electricity Usage Using Big Data Framework, (2022-2023).
11. A Machine Learning Approach to Demand Forecasting in Retail, (2021-2022).

12. CNN Approach for Detection of Lung Cancer, (2021-2022)
13. Investigation of the Potential Factors Influencing Covid-19 Cases And Death Rates: A Correlational Analysis, (2021-2022).
14. Automatic Detection of Personal Protective Equipment in Construction Site, (2020-2021).
15. Diabetic Patient Management System Using Machine Learning, (2020-2021).
16. A Generative System for Urdu Input, (2020-2021).
17. An Intelligent Character Recognition System for Amount Payable Automation, (2020-2021).
18. Next word Prediction in Balochi Language using N-gram Model (Co-Supervisor), (2019-2020).
19. Obstacle Detection for Intelligent Cars using Deep Learning (Co-Supervisor), (2019-2020).

**Reviewers:**

1. University of Sindh Journal of Information and Communication Technology.
2. Engineering, Technology and Applied Science Research.

**Professional Experiences:**

**Assistant Professor** 7 December 2019 to till Date.  
NED University of Engineering & Technology, Karachi.

**Responsibilities**

- Course taught (MS, BS)
- Course teacher ( BS at TIEST)
- Focal person of DIL
- Member of duty society
- Member of NCEAC
- FYP Supervisor
- Member of FYP evaluation team
- Member of MS admission Committee
- MS thesis coordinator
- Member of ICONICS
- In-charge Health and Safety Committee

**Lecturer** 25 Jun 2010 to 7 December 2019  
NED University of Engineering & Technology, Karachi.

**Responsibilities**

- Class Adviser
- Course taught ( BS)
- FYP Supervisor
- Member of FYP evaluation team
- Member of ITECH

**IT Manager in Mechanical Engineering** 16 Jan 2010 to 24 Jun 2010  
NED University of Engineering & Technology, Karachi.

**Responsibilities**

- Course teacher of C language and it practical
- Managed and developed mechanical website
- Managed and maintained network and computer system
- Procurement of computer lab accessories.

**IT Manager in Central Library** 9 June 2006 to 15 Jan 2010

NED University of Engineering & Technology, Karachi.

***Responsibilities***

- Managed and developed Library website and library portal system.
- Maintained and performed database administration and scheduled backup of library database.
- Developed and maintained LMS (Library Management System).
- Managed and maintained library network.

***Training and Workshops Attended:***

<b>Training</b>	Web Engineering	CCEE, NEDUET	2006
<b>Training</b>	Oracle 9I	CCEE, NEDUET	2007
<b>Training</b>	Presiding officer	Election Commission of Pakistan	2008
<b>Workshop</b>	OBE System Design	NEDUET	2019
<b>Training</b>	Oracle 10g	CCEE, NEDUET	2009
<b>Workshop</b>	Role of IT in Business Organization	CCEE	2009
<b>Workshop</b>	Technology tools for library operations. Information storage retrieval	Mehran University of Engineering and Technology	2009
<b>Workshop</b>	Technical computing with MATLAB	NEDUET	2014
<b>Training</b>	Presentation Skills	NEDUET	2014
<b>Workshop</b>	Literature Review Made Easy for Researcher	NEDUET	2014
<b>Workshop</b>	Developing Industry Driven Technologies	NEDUET	2015
<b>Workshop</b>	Computer Science	Learning innovation Division HEC Islamabad	2018
<b>Training</b>	Class Advisor	NEDUET	2021

***Training Directed:***

Project Management	PIA Training Centre	2006
Basic Information Technology	NEDUET (Sponsored by Microsoft)	2012
Information technology in Education	CCEE, NEDUET	2014

***Honours and Awards:***

Speech competition	Seerat un Nabi (PBUM)	Govt. Inter Science	1998
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<b>Third Prize</b>		College, Malir Cantt.	
Debate Competition		Govt. Inter Scienc	1997
<b>Consolation Prize</b>		College, Malir Cantt	
Competition	ProQuest Software Competition	University of Karachi	2003
<b>Winner</b>			
<b>Engr. Abul Kalam</b>	On winning ProQuest Software	NEDUET	2003
<b>sanction Cash</b>	Competition, UoK.		
<b>Award</b>			
<b>Research grant (Rs.</b>	MoST Endowment Fund	NEDUET	2016-2019
<b>3.0 million)</b>			