

Muhammad Umer Farooq

Assistant Professor (HEC Approved PhD supervisor) Department of Computer Science and Information Technology, NED University of Engineering & Technology.

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Objective: To contribute my knowledge, experience, and expertise towards academic and research excellence, while continuing to engage in teaching and research for the benefit of humanity.

Professional Experience:

Associate Professor From 6 October 2025 to present

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

Administrative Responsibilities

- ✓ Member of BOS
- ✓ MS thesis coordinator
- ✓ Faculty lead of Data Insite of Student Club
- ✓ In-charge Health and Safety Committee
- ✓ Member of MS admission Committee
- ✓ Member of ICONICS
- ✓ Member of FYP evaluation team
- ✓ Member of duty society
- ✓ Member of NCEAC
- ✓ Member of MS Self-Assessment Report
- ✓ Organised MS thesis seminars
- ✓ Organised Fire Drill

University Projects

- ✓ Store Requisition System (in progress)
- ✓ Staff Colony Billing system (in progress)
- ✓ Asset Management System (in progress)
- ✓ University Single Window (in progress)

Academic Responsibilities

- ✓ Supervising PhD, MS Thesis
- ✓ FYP Supervisor
- ✓ Course taught at PhD, MS, BS level

Assistant Professor 7 December 2019 to 6 October 2025

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

Administrative Responsibilities

- ✓ Organised MS thesis seminars
- ✓ Organised Events of Data Insite Student Club
- ✓ Organised Fire Drill
- ✓ MS thesis coordinator
- ✓ Faculty lead of Data Insite of Student Club

- ✓ In-charge Health and Safety Committee
- ✓ Member of MS admission Committee
- ✓ Member of ICONICS (Chair Sponsorship Committee)
- ✓ Member of FYP evaluation team
- ✓ Member of duty society
- ✓ Member of NCEAC
- ✓ Member of MS Self-Assessment Report
- ✓ Assessment Team Member of BS at TIEST (2022)

University Projects

- ✓ Library Book Recommendation System using Open AI (completed).
- ✓ Paperless Student Attendance System (completed).
- ✓ University Single Window (in progress).

Academic Responsibilities

- ✓ Supervising PhD, MS Thesis
- ✓ FYP Supervisor
- ✓ Course taught at PhD, MS, BS level
- ✓ Course teacher (BS at TIEST in Spring 2020 and 2021)

Lecturer 25 Jun 2010 to 7 December 2019

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

Administrative Responsibilities

- ✓ Class Adviser
- ✓ Member of FYP evaluation team
- ✓ Member of ITECH

Academic Responsibilities

- ✓ Course taught (BS)
- ✓ FYP Supervisor

IT Manager 16 Jan 2010 to 24 Jun 2010

Department of Mechanical Engineering, NED University of Engineering & Technology, Karachi.

Administrative Responsibilities

- ✓ Managed and developed mechanical website
- ✓ Managed and maintained network and computer system
- ✓ Procurement of computer lab accessories.

Academic Responsibilities

- ✓ Course teacher of C language and its practical

IT Manager 9 June 2006 to 15 Jan 2010

Central Library, 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.

Academic Qualification:

Ph. D. (2019; CGPA 3.58)

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

MCIT (2008; CGPA 3.35)

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

BCIT (2004; 1st Division)

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

H.S.C (2000; Grade A)

From Malir Cantt College, Karachi – Pakistan.

S.S.C. (1997; Grade A)

From Iqra School, Karachi - Pakistan

Publications:

Journal Publications:

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. **(Science Citation Index Expanded for the year of publishing of paper).**
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. **(Science Citation Index Expanded)**
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. **(Emerging Sources Citation Index, ISI Index for the year of publishing of paper, HEC Recognized Journal 2023 - 2024 (S.No. 27315 in the list))**
4. S. Bashir, S. A. Sattar, **M. U. Farooq**, S. Ahmed, M. Latif, “Prediction of Next Word in Balochi Language Using N-gram Model”, *Sukkur IBA Journal of Computing and Mathematical Science – SJCMS*, vol. 7, no. 2, pp. 48-62, 2023. **(HEC Recognized Journal 2023 - 2024 (S.No. 27314 in the list))**
5. **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. **(HEC Recognized Journal 2022 - 2023 (S.No. 27329 in the list)).**
6. 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. **(Emerging Sources Citation Index, ISI Index for the year of publishing of paper, HEC Recognized Journal 2022 - 2023 (S.No. 19527 in the list)).**

7. 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. **(HEC Recognized Journal 2023 - 2024 (S.No. 8065 in the list))**.
8. 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. **(HEC Recognized Journal 2023 - 2024 (S.No. 8065 in the list))**
9. 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. **(HEC Recognized Journal 2022 - 2023 (S.No. 27329 in the list))**
10. KisaZehra, **M. U. Farooq**, M. A. Bhutto, A.K. Kazi, "Real-Time Safety Helmet Detection Using Yolov5 at Construction Site" *Intelligent Automation & Soft Computing*, vol. 36, Issue 1, p911, 2023. **(Science Citation Index Expanded; HEC Recognized Journal 2020 - 2021 (S.No. 14838 in the list))**.
11. A. K. Kazi, S. M. Khan, Waseemullah, **M. U. Farooq** and S. Hina, "Compacted Area with Effective Links (CAEL) for Data Dissemination in VANETs" *Sensors*, vol. 22, p 3448, 2022. **(Science Citation Index Expanded for the year of publishing of paper)**
12. U. R. Khan, A. Ali, U. Khudadad, S. Masud, A. Ahmed, **M. U. Farooq**, " Video-based school children road injury prevention tool (V-SCRIPT) in Karachi: quasi-experimental study," *Injury prevention*, vol 28, issue (Suppl 2), pp A81-A82, 2022. **(Science Citation Index Expanded)**
13. **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. **(HEC Recognized Journal 2022 - 2023 (S.No. 27329 in the list))**
14. **M. U. Farooq**, S. Ahmed, M. Latif, D. Jawaaid, 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. **(HEC Recognized Journal 2022 - 2023 (S.No. 27329 in the list))**.
15. 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. **(HEC Recognized Journal 2022 - 2023 (S.No. 27329 in the list))**
16. 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. **(Emerging Sources Citation Index, ISI Index for the year of publishing of paper., HEC Recognized Journal 2021 - 2022 (S.No. 17318 in the list))**.
17. 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. **(Emerging Sources Citation Index, ISI Index for the year of publishing of paper., HEC Recognized Journal 2021 - 2022 (S.No. 17318 in the list))**.

18. **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. **(Emerging Sources Citation Index, ISI Index for the year of publishing of paper., HEC Recognized Journal 2021 - 2022 (S.No. 17318 in the list))**.
19. 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. **(Emerging Sources Citation Index, ISI Index for the year of publishing of paper. (HEC Recognized Journal 2022 - 2023 (S.No. 17318 in the list))**
20. **M. U. Farooq**, N. A. Khan, and M. S. 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. **(Emerging Sources Citation Index ISI Index for the year of publishing of paper)**.
21. 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. **(Emerging Sources Citation Index, ISI Index for the year of publishing of paper)**.
22. 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. **(Emerging Sources Citation Index, ISI Index for the year of publishing of paper)**.

Conference Papers:

1. S. M. N. Mustafa, **M. U. Farooq**, S. S. Zehra and J. P. T. Noronha, "A Comparative Study of the Performance of Real time databases and Big data Analytics Frameworks," *7th International Multi-Topic ICT Conference (IMTIC)*, Jamshoro, Pakistan, pp. 1-7, 2023. doi: 10.1109/IMTIC58887.2023.10178651.
2. 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. doi: 10.1109/ICONICS56716.2022.10100410.

Research Projects:

Funded Projects:

Title: Game Application for Islamic Awareness, **Donor:** IGNITE NGIRI – 2024, **Amount:** 0.08 million.

Title: Learning Analytics Using Natural Language Processing, **Donor:** NED University of Engineering & Technology, Karachi - 2022, **Amount:** 1 million.

Title: Unsupervised Learning of Street Traffic Patterns for Anomaly Detection, **Donor:** NED University of Engineering & Technology, Karachi, **Amount:** 3 million.

Title: Design and implementation of a video-based school children road injury prevention tool in Karachi. A quasi-experimental study, (as a partner in the project with Aga Khan University department of emergency medicine) **Donor:** Road Traffic Injuries Research network (RTIRN)– 2021, **Amount:** 1 million.

Supervising PhD Thesis (in Progress).

Title: Estimation of Depression levels using Machine Learning Techniques.

Title: Developing a framework for Automation & CQI of Software Requirements Specification document using Language Models and Reinforcement Learning.

Title: Advancing Selective Data Removal for Privacy Driven Machine Learning.

Title: Learning Analytics Using Natural Language Processing.

Supervising MS Thesis/ISP: In progress

Title: Optimization of Demand Response in Smart Grids using Generative AI (2024).

Title: A Framework for Integrating Generative AI Models in Face (2024).

Title: Recognition Systems for Enhanced Accuracy (2024).

Title: Improving Diagnostic Accuracy in Medical Imaging Using Generative AI Techniques (2024).

Title: Enhancing Drilling ROP Prediction using Machine Learning, (2024).

Title: Sentiment Analysis Enhancement in Leveraging LLM Models, (2024).

Title: Integrating Machine Learning and logic for Transparent Decision-Making in Artificial Intelligence, (2024).

Completed

Title: Self-Supervised Knowledge Distillation in Medical Image Segmentation, (2023-2024).

Title: Optimizing oil field development plan using stochastic evolutionary algorithm, (2023-2024).

Title: Optimizing Saga Architecture in Distributed Microservices, (2023-2024).

Title: Predicting Financial Market Trends Using Big Data Analytics and Twitter Sentiment Analysis, (2022-2023).

Title: Analyzing Traffic Pollution Using Artificial Intelligence Technique, (2022-2023). **Title:** Social Media Analysis to Tailor Political Influences in Pakistan, (2022-2023). **Title:** Prediction of Electricity Usage Using Big Data Framework, (2022-2023).

Title: A Machine Learning Approach to Demand Forecasting in Retail, (2021-2022).

Title: CNN Approach for Detection of Lung Cancer, (2021-2022)

Title: Investigation of the Potential Factors Influencing Covid-19 Cases and Death Rates: A Correlational Analysis, (2021-2022).

Title: Automatic Detection of Personal Protective Equipment in Construction Site, (2020-2021).

Title: Diabetic Patient Management System Using Machine Learning, (2020-2021).

Title: A Generative System for Urdu Input, (2020-2021).

Title: An Intelligent Character Recognition System for Amount Payable Automation, (2020-2021).

Title: Next word Prediction in Balochi Language using N-gram Model (Co-Supervisor), (2019-2020).

Title: Obstacle Detection for Intelligent Cars using Deep Learning (Co-Supervisor), (2019-2020).

Reviewer of Journals:

1. IETE Journal of Research (**1.3 (2023)** Impact Factor)
2. Engineering, Technology and Applied Science Research (ETASR).
3. International Conference on Innovations in Computer Science & Software Engineering (ICONICS), 2024.
4. University of Sindh Journal of Information and Communication Technology.

Honors and Awards:

Chair, Sponsorship ICONICS	Arrange sponsors for ICONICS	NED University of Engineering & Technology, Karachi.	2024
Research Publication Rewards	For publishing research papers	NED University of Engineering & Technology, Karachi.	2024, 2023
Showcasing of MS Thesis	Title: A ConvNet-based Object Detection for Unmanned Aerial Vehicles	UNESCO Chair "Sustainable Urban Regions"	2023
Showcasing of MS Thesis	Title: Deep Learning Models for Carbon Monoxide Prediction in Urban Traffic.	UNESCO Chair "Sustainable Urban Regions"	2023
Chair, Sponsorship ICONICS	Arrange sponsors for ICONICS	NED University of Engineering & Technology, Karachi.	2022
Research grant (Rs. 3.0 million)	For Ph.D. Research	MoST Endowment Fund /NED Research fund.	2016-2019
Engr. Abul Kalam Sanction Cash Award	On winning ProQuest Software Competition, UoK.	NED University of Engineering & Technology, Karachi.	2003
Participated	Fourteenth All Pakistan Software Competition and Exhibition, Islamabad.	Dr. A. Q. Khan Research Lab. Kahuta, Islamabad	2003
Third Prize	Speech competition on Seerat un Nabi (PBUM)	Govt. Inter Science College, Malir Cantt.	1998
Consolation Prize	Debate Competition	Govt. Inter Science College, Malir Cantt	1997

Training and Workshops

Presenter:

Seminar	To students of Balochistan University of Engineering and Technology, Khuzdar	AV Hall Civil, NED University of Engineering & Technology	2023, 2024
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Workshop	Information Technology in Education	CCEE, NED University of Engineering & Technology	2014
Workshop	Basic Information Technology	QEC, NED University of Engineering & Technology	2012
Workshop	Project Management	PIA Training Centre	2006
<i>Attended:</i>			
Training	Health, Safety and Environment	QEC, NED University of Engineering & Technology	2024
Training	Self-Assessment Report	QEC, NED University of Engineering & Technology	2022
Workshop	3-days Curriculum based workshop on Computer Science	Learning Innovation Division HEC, Islamabad	2018
Workshop	Developing Industry Driven Technologies	QEC, NED University of Engineering & Technology	2015
Workshop	Technical computing with MATLAB	QEC, NED University of Engineering & Technology	2014
Training	Presentation Skills	QEC, NED University of Engineering & Technology	2014
Workshop	Literature Review Made Easy for Researcher	QEC, NED University of Engineering & Technology	2014
Workshop	OBE System Design	QEC, NED University of Engineering & Technology	2009
Training	Oracle Awards of Achievements	CCEE, NED University of Engineering & Technology	2007-2009
Workshop	Role of IT in Business Organization	CCEE, NED University of Engineering & Technology	2009
Workshop	Technology tools for library operations. Information Storage and Retrieval	Mehran University of Engineering and Technology	2009
Training	Presiding officer	Election Commission of Pakistan	2008
Training	Web Engineering	CCEE, NED University of Engineering & Technology.	2006

Personal Details

Postal Details

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

Phone

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D.O.B

15, February 1982

Nationality

Pakistani

Marital Status

Married