# Muhammad Umar Farooq

Associate Professor

College of Electrical & Mechanical Engineering

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## About

Dr. Muhammad Umar Farooq is working as Associate Professor in the College of Electrical & Mechanical Engineering. Dr. Muhammad Umar Farooq has a PhD in Mobile Ad Hoc Networks. Dr. Muhammad Umar Farooq has published 36 research articles & conference papers having a citation count of 172, carried out 1 projects and filed 1 intellectual property.

## Qualifications

**PhD in Mobile Ad Hoc Networks**                                           2011 - 2015
  University Politehnica of Bucharest , Romania

**MS in Mobile Ad Hoc Networks**                                            2006 - 2009
  NUST, Islamabad , Pakistan

**MSc in Software Engineering**                                             2003 - 2005
  Quaid-i-Azam University , Pakistan

**BSc in Mathematics & Physics**                                            2001 - 2003
  BZU, Multan , Pakistan

## Experience

**Associate Professor**                                                   2024- Present
  College of Electrical & Mechanical Engineering

**Associate Professor**                                                     2022 - 2019
  College of Electrical & Mechanical Engineering

**Assistant Professor**                                                     2021 - 2022
  College of Electrical & Mechanical Engineering

**Assistant Professor**                                                     2019 - 2021
  College of Electrical & Mechanical Engineering

**Assistant Professor**                                                     2016 - 2022
  College of Electrical & Mechanical Engineering

**Assistant Professor**                                                     2016 - 2016
  College of Electrical & Mechanical Engineering

**Assistant Professor**                                                     2015 - 2016
  COMSATS Institute of Information Technology , COMSATS Sahiwal Campus

**Team Lead**                                                               2009 - 2011
  Center for Advanced Research in Engineering , Ata-Turk Avenue, Sector G-5, Islamabad

**Software Engineer**                                                       2006 - 2006
  Strategic Systems International , SSI, Johar Town, Canal Road, Lahore

## Awards

## Research Projects

### National Projects

**Design of Adaptive Multiband Networking Waveform with USRP Implementation for Ad hocWireless Heterogeneous Networks**

2022

    **Funding Agency:** HEC
    **Amount:** PKR 17,997,600.00
    **Status:** Approved_inprocess

### International Projects

## Research Articles

**Communication architecture and operations for SDR-enabled UAVs network in disaster-stressed areas**

2024

*Rukaiya Shoab Ahmed Khan Muhammad Umar Farooq Irum Matloob*

*Ad Hoc Networks* , Volume 160, Article Number 103506

**Impact Factor:** 4.400 | **Quartile:** 1 | **Citations:** 13
**DOI:** https://doi.org/10.1016/j.adhoc.2024.103506

**HybridHR-Net: Action Recognition in Video Sequences Using Optimal Deep Learning Fusion Assisted Framework**

2023

*Muhammad Naeem Akbar Muhammad Umar Farooq Majed Alhaisoni Usman Tariq Muhammad Usman Akram Seemab Khan*

*CMC-Computers, Materials and Continua* , Volume 76, Issue 3, Pages 3275-3295

**Impact Factor:** 3.1 | **Quartile:** 3 | **Citations:** 4
**DOI:** 10.32604/cmc.2023.039289

**Gabor Contrast Patterns: A Novel Framework to Extract Features From Texture Images**

2023

*Farhan Riaz Farhan Hussain Muhammad Umar Farooq Abdul Wahab Muzaffar Tarik Abuain Waleed Abdel Karim Abu-Ain Muhammad Ajmal Azad*

*IEEE Access* , Volume 11, Pages 60324-60334

**Impact Factor:** 3.9 | **Quartile:** 2 | **Citations:** 6
**DOI:** 10.1109/ACCESS.2023.3280053

**FIPAM: Fuzzy Inference based Placement and Migration Approach for NFV-based IoTs**

2022

*Muhammad Arslan Tariq Muhammad Umar Farooq Muhammad Zeeshan Ali Hassan Adnan Akhunzada*

*IEEE Transactions on Network and Service Management*, Volume 19, Issue 4, Pages 4298-4309

**Impact Factor:** 5.3 | **Quartile:** 2 | **Citations:** 7
**DOI:** 10.1109/TNSM.2022.3145658

**A Novel Cooperative Micro-Caching Algorithm Based on Fuzzy Inference Through NFV in Ultra-Dense IoT Networks**

2022

*Muhammad Umar Farooq Muhammad Zeeshan Muhammad Talha Jahangir Muhammad Asif*

*Journal of Network and Systems Management*, Volume 30, Issue 1, Article Number 20

**Impact Factor:** 2.198 | **Quartile:** 3 | **Citations:** 7
**DOI:** 10.1007/s10922-021-09632-6

**5G/SDR-Assisted Cognitive Communication in UAV Swarms: Architecture and Applications**

2022

*Kashif Shahzad Muhammad Zeeshan Adnan Akhunzada Muhammad Umar Farooq*

*IT Professional* , Volume 24, Issue 3, Pages 28-34

**Impact Factor:** 2.590 | **Quartile:** 2 | **Citations:** 2
**DOI:** 10.1109/MITP.2022.3161318

**IoTAuth: IoT Sensor Data Analytics for User Authentication Using Discriminative Feature Analysis**

2022

*Samera Batool Ali Hassan Muazzam A. Khan Khattak Ahsan Shahzad Muhammad Umar Farooq*

*IEEE Access* , Volume 10, Pages 59115-59124

**Impact Factor:** 3.476 | **Quartile:** 2 | **Citations:** 8
**DOI:** 10.1109/ACCESS.2022.3178635

**Data collection protocols for VANETs: a survey**

2022

*Maryam Gillani Hafiz Adnan Niaz Muhammad Umar Farooq Ata Ullah*

*Complex & Intelligent Systems* , Volume 8, Pages 2593-2622

**Impact Factor:** 6.700 | **Quartile:** 1 | **Citations:** 42
**DOI:** 10.1007/s40747-021-00629-x

**A novel minimal set decode-amplify-forward (MS-DAF) relaying scheme for MIMO-NOMA**

2022

*Muhammad Zeeshan Mahnoor Ajmal Muhammad Umar Farooq Tabinda Ashraf*

*Telecommunication Systems* , Volume 80, Issue 1, Pages 141-152

**Impact Factor:** 2.5 | **Quartile:** 3 | **Citations:** 1
**DOI:** 10.1007/s11235-022-00894-2

### Traffic Aware Data Gathering Protocol for VANETs

2022

*Maryam Gillani Hafiz Adnan Niaz Ata Ullah Muhammad Umar Farooq Saad Rehman*

*IEEE Access* , Volume 10, Pages 23438-23449

**Impact Factor:** 3.476 | **Quartile:** 2 | **Citations:** 15
**DOI:** 10.1109/ACCESS.2022.3154780

### Dynamic link adaptation for filterband multicarrier in networks with diverse service quality and throughput requirements

2022

*Amna Javed Tiwana Muhammad Zeeshan Tabinda Ashraf Muhammad Umar Farooq Kashif Shahzad Adnan Akhunzada*

*Telecommunication Systems* , Volume 79, Issue 1, Pages 109-122

**Impact Factor:** 2.5 | **Quartile:** 3 | **Citations:** 3
**DOI:** 10.1007/s11235-021-00845-3

### Connected Dominating Set Enabled On-demand Routing (CDS-OR) for Wireless Mesh Networks

2021

*Muhammad Umar Farooq Muhammad Zeeshan*

*IEEE Wireless Communications Letters* , Volume 10, Issue 11, Pages 2393-2397

**Impact Factor:** 4.348 | **Quartile:** 1 | **Citations:** 11
**DOI:** 10.1109/LWC.2021.3101476

### A novel hybrid spreading and scrambling based multiple access (SSMA) technique for capacity improvement

2021

*Tabinda Ashraf Muhammad Zeeshan Muhammad Umar Farooq*

*Telecommunication Systems* , Page 1-13

**Impact Factor:** 2.336 | **Quartile:** 3
**DOI:** 10.1007/s11235-021-00814-w

### A Stochastic Distribution Based Methodology to Estimate Control Phase Time for Software-Defined Radios in Tactical MANETs

2021

*Rukaiya Rukaiya Muazzam A. Khan Khattak Irum Matloob Irum Nosheen Shoab Ahmed Khan Muhammad Umar Farooq*

*IEEE Access* , Volume 9, Page 71687-71698

**Impact Factor:** 3.476 | **Quartile:** 2 | **Citations:** 7
**DOI:** 10.1109/ACCESS.2021.3079173

### Bidirectional Language Modeling: A Systematic Literature Review

2021

*Muhammad Shah Jahan Habib Ullah Khan Shahzad Akbar Muhammad Umar Farooq Sarah Gul Anam Amjad*

*Scientific Programming* , Volume 2021, Article ID 6641832, 15 pages

**Impact Factor:** 1.672 | **Quartile:** 3 | **Citations:** 12
**DOI:** 10.1155/2021/6641832

### Adaptive Multi-Input Medium Access Control (AMI-MAC) Design using Physical Layer Cognition for Tactical SDR Networks

2021

*Muhammad Zeeshan Kashif Shahzad Muhammad Umar Farooq Shoab Ahmad Khan*

*IEEE Access* , Vol. 9, pp. 58364-58377

**Impact Factor:** 3.745 | **Quartile:** 2 | **Citations:** 7
**DOI:** 10.1109/ACCESS.2021.3073030

### A Novel Self-Forming Virtual Sub-Nets Based Cross-Layer MAC Protocol for Multihop Tactical Network

2021

*Rukaiya Rukaiya Farhan Hussain Shoab Ahmed Khan Muhammad Umar Farooq*

*Applied Sciences* , Volume 11(6), Article Number 2470

**Impact Factor:** 2.838 | **Quartile:** 2 | **Citations:** 3
**DOI:** 10.3390/app11062470

### CFFD-MAC: A Hybrid MAC for Collision Free Full-Duplex Communication in Wireless Ad-Hoc Networks

2021

*Rukaiya Rukaiya Farhan Hussain Adnan Akhunzada Shoab Ahmed Khan Muhammad Umar Farooq*

*IEEE Access* , Volume 9, Page 35584-35598

**Impact Factor:** 3.476 | **Quartile:** 2 | **Citations:** 15
**DOI:** 10.1109/ACCESS.2021.3061943

### Multi-objective regression test suite optimization using three variants of adaptive neuro fuzzy inference system

2020

*Ayesha Kiran Wasi Haider Butt Arsalan Shaukat Muhammad Umar Farooq Urooj Fatima Farooque Azam Zeeshan Anwar*

**On-demand Link State Hybrid Routing Protocol for Mobile Ad hoc Networks**  2015

*Nicolae Tapus Muhammad Umar Farooq*

*Scientific Bulletin, Series C* , Volume 77, Issue 4, Pages 1-14

**Impact Factor:** -
**DOI:** https://www.scientificbulletin.upb.ro/rev_docs_arhiva/full648_410129.pdf

## Conference Proceedings

**A Study & Proposed Architecture for Large Scale IoT Networks in the space of Public Transportation**  2023

*Afaq Ahmad Khan Muhammad Umar Farooq Ali Hassan*

*3rd IEEE International Conference on Artificial Intelligence, ICAI 2023*, res.country(177,)

**Citations:** N/A
**DOI:** 10.1109/ICAI58407.2023.10136684

**NOMA-enabled Cognitive Communication based on Hybrid Narrowband/Wideband SDR Waveform**  2022

*Muhammad Zeeshan Kashif Shahzad Muhammad Umar Farooq*

*2022 3rd International Informatics and Software Engineering Conference (IISEC)*, res.country(224,)

**Citations:** N/A
**DOI:** 10.1109/IISEC56263.2022.9998288

**SDN/NFV Enabled Security for an Enterprise Network using Commodity Hardware**  2022

*Rizwan Saeed Safwan Qureshi Muhammad Umar Farooq Muhammad Zeeshan*

*Proceedings - 2022 International Conference on Computing, Electronics and Communications Engineering. iCCECE 2022*, res.country(231,)

**Citations:** N/A
**DOI:** 10.1109/iCCECE55162.2022.9875076

**Challenges in Transition of Software Defined Radio Implementation from Bare Metal to Real-Time Operating System**  2021

*Kashif Shahzad Muhammad Zeeshan Muhammad Umar Farooq Shoab Ahmed Khan*

*2021 International Conference on Robotics and Automation in Industry (ICRAI)*, res.country(177,)

**Citations:** N/A
**DOI:** 10.1109/ICRAI54018.2021.9651406

**Near-Far Problem as a Function of Analog to Digital Converter Resolution in Software Defined Radio Tactical Network**  2021

*Kashif Shahzad Muhammad Zeeshan Muhammad Umar Farooq Shoab Ahmed Khan*

*12th International Conference on Information, Intelligence, Systems & Applications (IISA)*, res.country(88,)

**Citations:** N/A
**DOI:** 10.1109/IISA52424.2021.9555577

**Collision avoidance and dynamic slot scheduling in multi-hop TDMA based ad-hoc networks using genetic algorithm**  2019

*Shoab Ahmed Khan Muhammad Umar Farooq Rukaiya*

*9th International Conference on Advances in Computing, Communication and Information Technology*, res.country(109,)

**Citations:** N/A
**DOI:** 10.15224/978-1-63248-181-8-10

**SHANZ Algorithm for QoE Enhancement of HTTP based Adaptive Video Streaming**  2019

*Muhammad Umar Farooq Farhan Hussain Shahid Nabi*

*IEEE 11th International Conference on Communication Software and Networks (ICCSN 2019) 2019 IEEE 11th International Conference on Communication Software and Networks (ICCSN 2019)* , res.country(48,)

**Citations:** N/A
**DOI:** 10.1109/ICCSN.2019.8905278

**Convolutional neural network based image segmentation: a review**  2018

*Hina Ajmal Saad Rehman Muhammad Umar Farooq Qurrat-ul-Ain Farhan Riaz Ali Hassan*

*SPIE Defense + Security* , res.country(233,)

**Citations:** N/A
**DOI:** 10.1117/12.2304711

**Comparison of SIFT and ASIFT based filters for better recognition and tracking in a remote scene environment**

2018

*Haris Masood Saad Rehman Qaiser Chaudry Farhan Riaz Ali Hassan Muhammad Umar Farooq*

*SPIE Defense + Security*, res.country(233,)

**Citations:** N/A

**DOI:** 10.1117/12.2305266

**CAMT: Core assisted multicast tree for ad hoc networks**

2014

*Muhammad Umar Farooq Nicolae Tapus*

*RoEduNet Conference 13th Edition: Networking in Education and Research Joint Event RENAM 8th Conference*

**Citations:** N/A

**DOI:** 10.1109/RoEduNet-RENAM.2014.6955327

**CEHR: Core enabled hybrid routing protocol for mobile ad hoc networks**

2014

*Muhammad Umar Farooq Nicolae Tapus*

*IEEE 10th International Conference on Intelligent Computer Communication and Processing (ICCP)*, res.country(188,)

**Citations:** N/A

**DOI:** 10.1109/ICCP.2014.6937020

**Multiclass On-demand routing in heterogeneous ad hoc networks**

2014

*Muhammad Umar Farooq Nicolae Tapus*

*10th International Conference on Communications (COMM)*, res.country(188,)

**Citations:** N/A

**DOI:** 10.1109/ICComm.2014.6866717

**Performance comparison of on-demand routing protocols for Mobile Ad hoc Networks**

2013

*Muhammad Umar Farooq Nicolae Tapus*

*RoEduNet International Conference 12th Edition: Networking in Education and Research*, res.country(188,)

**Citations:** N/A

**DOI:** 10.1109/RoEduNet.2013.6714211

**Hostname addresing in heterogeneous mobile ad hoc networks**

2010

*Muhammad Umar Farooq Shoab Ahmad Khan Syed Ayad Hasan Adnan Ahmed Khan*

*3rd International Conference on Computer Science and Information Technology*, res.country(48,)

**Citations:** N/A

**DOI:** 10.1109/ICCSIT.2010.5563784

**Seamless Communication Over Heterogeneous Interfaces in Mobile Ad Hoc Networks**

2009

*Muhammad Tassadaque Zia Muhammad Umar Farooq Shoab Ahmad Khan*

*IFIP International Conference on Wireless and Optical Communications Networks*, res.country(65,)

**Citations:** N/A

**DOI:** 10.1109/WOCN.2009.5010564

**Supporting Heterogeneous Interfaces in Mobile Ad hoc Networks**

2009

*Muhammad Umar Farooq Muhammad Tassadaque Zia Muhammad Asim Mubarik Shoab Ahmad Khan*

*International Conference on Computing, Engineering and Information*, res.country(233,)

**Citations:** N/A

**DOI:** 10.1109/ICC.2009.57

## Intellectual Property

### Copyrights

**Software for the Annotation and Labeling of Gastroenterology Images**

2022

**Status:** Filed

### Patents

### Industrial Designs

### Trademarks