Dr. Rizwan Aslam Butt

Objective	**To pursue a challenging research and academic career in the field of Electronic / Telecommunications Engineering field to benefit humanity and my country.**
Personal Information	Father's Name Muhammad Aslam Nationality Pakistani Date of Birth 1st January 1982 N.I.C. No. 42201-0548644-3 Marital Status Married Address R-66, Gulshan-e-Qadri-III, Malir Halt, Karachi-43, Sindh, Pakistan Contact No +923352885709 (call / Whatsapp) Email rizwan.aslam@neduet.edu.pk
Qualification	**2015-2018** PhD Electrical Engineering from **UTM Malaysia (Achieved Best Postgraduate Student Award and Pro-Chancellor Award)** **2011- 2013** M.Engg Telecom from **NED UET Pakistan (with 3.89 CGPA)** **2007- 2010** MS CS & IT from **NED UET Pakistan (with 3.8 CGPA)** **2001-2005** B.E. Electronics from **NED UET Pakistan (82% marks & Distinction)**
Publications	❖ Total Publications = 84 ❖ JCR Listed Journal Papers = 35 ❖ Accumulative Impact Factor = 80 (approx.) ❖ H-Index = 22 & i-10th index = 37 ✚ List of Publications is attached with at the end.
Awards / Distinctions Received	✓ Listed in Top 2% Scientist list Worldwide issued by Elsevier and Stanford University in the field of Optoelectronics and Photonics, published 16th Sep 2024. ✓ Received Best Publication Research Award 2022 from NED Alumni Association of North America. ✓ Received Best Researcher Awards 2019 from NED University of Engineering and Technology, Karachi Pakistan ✓ Received Best Researcher Awards 2020 from NED University of Engineering and

	Technology, Karachi Pakistan
	✓ Received Best Researcher Awards 2021 from NED University of Engineering and Technology, Karachi Pakistan
	✓ Received Best Researcher Awards 2022 from NED University of Engineering and Technology, Karachi Pakistan
	✓ Received Best Researcher Awards 2023 from NED University of Engineering and Technology, Karachi Pakistan
	✓ Received Best Publication Research Award 2020 from NED Alumni Association of North America.
	✓ Received Pro-Chancellor Award from UTM Malaysia in its 60th Convocation in 2018.
	✓ Received Best Postgraduate Student Award from UTM Malaysia in its 60th Convocation in 2018.
Patents	➢ A patent on my PhD Student's work on a proposed Physical Layer Architecture for Inter-ONU Communication in Passive Optical Networks is in process (Submitted to ORIC NED UET).
	➢ A Patent on a Master's Thesis Student work on a Machine Learning based Fabric Defect Identification is in Process. (In writing Stage)
Research Grants won / completed	➢ Have got a MoST Endowment Funding of PKR. 2.99 million on the PhD research project titled "**Bandwidth Efficient Inter ONU Communication Enabled Physical and MAC Layer Architecture for Next Generation PON**" for two years effective from Jan 2024.
	➢ Got 0.5 Million PKR PhD Research Grant on Turbo Coded OFDM based wide band anti jamming PhD project.
	➢ Got 0.25 Million PKR PhD Research Grant on Deep learning based TEC Forecasting PhD project.
	➢ Got 1 Million PKR PhD Research grant on PhD Project titled " Solar Nanogrid Clustering for smart cities" PhD project.
	➢ Got 1 Million PKR PhD Research grant on PhD Project titled "Inter Optical Network Unit Communication for Next Generation Passive Optical Networks" PhD project.
	➢ Got 1 Million PKR PhD Research grant on PhD Project titled "Intelligent Real time Fabric Weave Identification and characterization using visual sensors network for textile applications"
	➢ Completed research grant of PKR. 1.8 Million research of two years from April 2022 to May 2024 from Sindh HEC titled "**Smart IOT enabled ground birds farming**"
	➢ Got start-up Research grant (SRGP 1981) for one year of PKR 280000/- from Higher Education Commission Pakistan in 2018.
	➢ Have got 07 IGNITE final year research project grants till now, each ranging from PKR. 50000 to 77000.
Media Coverage	➢ My Masters student project titled "INTELLIINSPECT", that can detect Textile fabric defects in real-time using AI, presented in 4th Sindh HEC Showcase 2025 at Expo center Karachi was covered by Major mainstream media namely; SAMA TV, DUNIYA News, ARY, EXPRESS News. Major Industries like Gul Ahmed and Feroz 1888 Textile mills also had meetings with us and still we are in negotiations on the

	way forward. For industrial scale implementation of this project. ✓
Completed PhD Projects / Supervisions	➢ Completed 02 PhD Projects as at NED UET Karachi on following Topics / Titles; ✓ Forecasting Ionospheric Total Electron Content Using Signal Processing Techniques and LSTM ✓ Development of Anti-jamming Turbo Coded OFDM System for Wireless Communication under Optimal (Partial/Full) Band Jamming Environment ➢ Co-Supervised 02 PhD students at UTM Malaysia with Prof. Dr. Sevia as main Supervisor.
Active PhD Research Supervisions	➢ Supervising 03 PhD Projects as at NED UET Karachi on following Topics / Titles; ✓ Solar Nanogrid Cluster for Smart city applications. (Thesis accepted by Foreign Reviewers with minor corrections) ✓ Woven Fabric weave identification and characterization using visual sensor network. (Research paper Accepted and Thesis in write-up stage) ✓ Inter-Optical Network Unit Communication for Next Generation Passive Optical Networks. (Paper accepted and Thesis in write-up stage)
Masters Thesis Supervisions	➢ Supervised 1total 14 Masters Thesis students in M.Engg Telecommunication and M.Engg Electronics at NED UET Karachi. ➢ Currently supervising 02 Thesis student in M.Engg Telecommunications at NED UET Karachi in Spring 2025 Semester.

Postgraduate Teaching Experience	➢ Taught Communication Networks course in Fall 2024 Semester in M.Engg Telecommunications
	
	 ➢ Taught following courses to M.Engg (Telecom) and M.S Telecommunication system Programs in NED University;
	
	     ✓ Communication Security/Data Security
	
	     ✓ Data Communication
	
	     ✓ Smart Grid System Security
	
	     ✓ Optical Networks
	
	     ✓ Communication Networks
	
	     ✓ AI in Telecommunications
	
	 ➢ Taught following courses to PhD students ;
	
	     ✓ Research Methodology
	
	     ✓ Advanced Topics in Digital Communication
	
	     ✓ Optoelectronics and Optical Communication
	
	     ✓ Internet of Things

	➢ Taught Mechatronics Course to M.Engg (Electronics) Students in Fall 2019 and Spring 2024.
Journal Article Reviewer	1. International Journal of Electrical and Computer Engineering (IJECE). 2. Energy Reports 3. Optical Switching and Networking 4. Fiber and Integrated Optics 5. Optical Fiber Technology (OFT) 6. Transactions on Emerging Telecommunications Technologies 7. IEEE Access 8. International Journal of Communication System (IJCS) 9. Journal of Microprocessors and Microsystems 10. Telecommunication Systems 11. Acta Polytechnica 12. Scientific Reports Springer Nature 13. Satellite Communication and Networking 14. MDPI Sensors 15. MDPI Sustainability 16. MDPI Applied Sciences 17. PLOS1 18. Sustainable Computing and Informatics 19. IEEE Transactions on Green Communications and Networking
Conference TPC member	✓ Part of TPC of International Conference on Photonics ICP 2016 as a student, (Sarawak, Malaysia) ✓ Fiber Optics Access Network (FOAN) 2019, Sarajevo, Bosnia ✓ Fiber Optics Access Network (FOAN) 2022, Valencia, Spain ✓ INTERACT 2023, 15-16 March 2023, Karachi, Pakistan.
Undergraduate Teaching Experience	➢ Currently working as Assistant Professor in Telecom Engineering Department at NED UET Karachi since 2021 and taught/teaching following subjects ; ✓ Telecommunication Networks ✓ Digital Logic Design ✓ Served as Assistant Professor in Electronic Engineering Department at NED UET Karachi from Jan 2010 and to 2021 and taught following subjects ; ✓ Telecommunication Networks ✓ Digital Signal Processing ✓ Electronics-I ✓ Basic Electronics ✓ Amplifiers and Oscillators ✓ Digital Electronics

	✓ Telecommunication Network Management
Key FYDP Supervised / Completed	1. Currently Co-Supervising 06 FYDPs in Electronic Engineering Department with CLD and 02 FYDPs in Telecommunications Engg. Dept. 2. Till now have supervised more than 40 Final Year Projects (FYPs/FYDPs) till now in NED University of Engineering and Technology with a few selected projects listed below, ✓ Smart Solar-Assisted Stacked Solar Solar Still Array for sustainable water desalination ✓ IOT Enabled CNc-based PCB Milling and Engraving Machine. ✓ IOT Enabled Smart Vertical Farming Monitoring System ✓ Wifi enabled LASER based Acrylic and Wooding cutter/engraver machine. ✓ Solar Nanogrid Clustering project with four solar Nanogrid nodes ✓ 1000 Watt pure Sinewave Inverter design using AVR microcontroller. ✓ 500 Watt Modified Square Wave inverter using PIC microcontroller. ✓ Brain Controlled Robotic Car using EEG Headset. ✓ Automatic Agriculture land watering system using Arduino based embedded control system. ✓ Home power monitoring and management system using Arduino microcontroller based embedded system. ✓ IOT based smart car parking system using IR sensors.
Management Experience	➢ Serving as M.Engg Coordinator Telecommunications Engineering Department since 2020. ➢ Served as Class Adviser Second Year Telecom Engineering from 2012 to 2015. ➢ Served as PhD Coordinator Electronic Engineering Department from 2018 to 2020. ➢ Have been part of the core cell of Objective Based Education (OBE) for Electronic and Telecom Engineering departments from 2019 to 2021. ➢ Member Program Team for M.Engg Telecommunications SAR development since 2019. ➢ Member Postgraduate Admission Committee of Telecommunications Engineering Department since 2020. ➢ Member Board of Faculty of Electrical and Computer Engineering Faculty on NED UET since 5-11-2024 ➢ Member Board of Studies of Electronic Engineering Department from 25-09-2019 to 2021 (Till Department Separation) ➢ Member Board of Studies of Telecommunication Engineering Department from since 2021.
Industry Experience	➢ Worked for around 04 years with PTCL (From Feb 2006 to Dec 2009) as Engineer / Senior Engineer Operations in different departments and posts as follows; ✓ Operations Engineers Landhi Exchange Karachi. ✓ Operations Engineers Clifton-II Exchange Karachi.

	✓ Engineer and Senior Engineer (Look after) in Optical Fiber System and Digital Cross connect (DXX), Pak-Capital Exchange Karachi. ✓ Engineer and Senior Engineer (Look after) Regional NOC Pak-Capital Exchange Karachi.
Professional Trainings / Courses conducted	➢ Conducted an invited one-week Workshop/Training on OMNET++ in Electrical Engineering Department of Universiti Teknologi Malaysia in Feb 2019. ➢ Conducted an Invited Short Training on OMNET++ Software in Dawood University in May 2022. ➢ Taught a Commercial Course Through NED Academy on microcontrollers twice in 2014. ➢ Taught a commercial course on Controllers for Mechatronics Through NED Academy in 2023 ➢ Delivered a10 days professional training on Telecommunication Engineering through Sindh Technical Education & Vocational Training Authority.
References	• Professor Dr. Attaullah Khawaja, Chairman Electrical Engg. Dept. NED University of Engineering Pakistan (atta@neduet.edu.pk) • Professor Sevia Mahdaliza Idrus Universiti Teknologi, Johor Bahru, Malaysia (sevia@fke.utm.my, sevia@utm.my) • Dr. Muhammad Amir Qureshi, Assistant Professor, Textile Engineering Department, NED UET Karachi. (qureshi@neduet.edu.pk)

List of Publications of Dr. Rizwan Aslam Butt

- ❖ Total JCR Journal Papers = 43
- ❖ Total Master List Journal Papers = 11

- ❖ Other Scopus / Peer Reviewed Journal = 9
- ❖ Conference Papers = 20
- ❖ Book Chapters = 01
- ❖ Accumulative Impact Factor = 85(approx.)
- ❖ H-Index = 22, i-10th index = 37

ISI Indexed Impact Factor (JCR) Journal Papers

1. **Butt, R. A.,** Idrus, S. M., Qureshi, K. N., Zulkifli, N., & Mohammad, S. H, "Improved Dynamic Bandwidth Allocation Algorithm for XGPON", *Journal of Optical Communications and Networking*, vol. 9, no. 1, pp. 87-97, 2017. (**JCR 2017 IF = 2.742, Q1**)

2. **Butt, Rizwan Aslam**, Sevia Mahdaliza Idrus, Kashif Naseer Qureshi, Pir Meher Ali Shah, and Nadiatulhuda Zulkifli, "An Energy Efficient Cyclic Sleep Control Framework for ITU PONs." *Optical Switching and Networking*, vol. 27, no. 1, pp.7-17, 2017. (**JCR 2017 IF = 1.113, Q3**)

3. **Butt, Rizwan Aslam**, Sevia M. Idrus, Zulkifli, N. and M. Waqar Ashraf (2017), "Comprehensive Bandwidth Utilization and Polling mechanism for XGPON", *International Journal of Communication system (Wiley),* vol. 31, issue. 3, pp. 1-18*.* (**ISI Journal IF = 1.066**).

4. Qureshi, Kashif Naseer, Abdul Hanan Abdullah, Omprakash Kaiwartya, Saleem Iqbal, **Rizwan Aslam Butt**, and Faisal Bashir. "*A Dynamic Congestion Control Scheme for safety applications in vehicular ad hoc networks*." *Computers & Electrical Engineering* (2017). (**JCR 2017 IF = 1.747, Q3**)

5. **Butt, Rizwan Aslam**, M. Waqar Ashraf, M. Faheem, and Sevia M. Idrus. "Processing efficient frame structure for passive optical network (PON)." *Optical Switching and Networking* 30, November 2018: 85-92. (**JCR 2017 IF = 1.113, Q3**)

6. Faheem, M., S. B. H. Shah, **R. A. Butt**, B. Raza, M. Anwar, M. W. Ashraf, Md A. Ngadi, and V. C. Gungor. "Smart grid communication and information technologies in the perspective of Industry 4.0: Opportunities and challenges." *Computer Science Review* 30 (2018): 1-30.(Q1 **JCR 2017, IF = 3.0**)

7. Faheem, M., **R. A. Butt**, B. Raza, M. W. Ashraf, Seema Begum, Md A. Ngadi, and V. C. Gungor. "Bio- inspired routing protocol for WSN- based smart grid applications in the context of Industry 4.0." *Transactions on Emerging Telecommunications Technologies*: e3503. (***JCR 2017*, Journal IF = 1.606, Q3)**

8. M. Waqar Ashraf, Farabi Iqbal, Sevia M. Idrus and **Butt, Rizwan Aslam**, On Spatially-Disjoint Lightpaths in Optical Networks. *Photonic Network Communications,* 2018*.* (**ISI Journal IF = 1.203, Q3**)

9. **R. A. Butt**, S. M. Idrus, N. Zulkifli, and M. Waqar Ashraf, "*Comprehensive bandwidth utilization and polling mechanism for XGPON,*" *International Journal of Communication Systems*, vol. 31, no. 3, pp. 1–18, 2017. (**JCR IF = 1.717, Q2**)

10. **Butt, Rizwan Aslam**, M. Waqar Ashraf, M. Faheem, and Sevia M. Idrus. "Sleep Assistive Dynamic Bandwidth Assignment scheme for XGPON." *Photonic Network Communications,* 2018, (**ISI Journal IF = 1.113, Q3)**

11. Ashraf, M. Waqar, Sevia M. Idrus, **R. Aslam**, and Farabi Iqbal. "Capacity-bounded lightpath routing in WDM optical networks." *Optical Fiber Technology* 48 (2019): 50-57. (**ISI Journal IF = 1.824, Q2**)

12. Faheem, M., **R. A. Butt**, B. Raza, M. W. Ashraf, Seema Begum, Md A. Ngadi, and V. C. Gungor. "Energy efficient and reliable data gathering using internet of software-defined mobile sinks for WSNs-based smart grid applications." *Computer Standards & Interfaces,* **vol. 66, no. 103341, OCT (2019) (JCR IF = 1.465, Q2)**

13. Ashraf, M. Waqar, Sevia M. Idrus, Rizwan Aslam Butt, and Farabi Iqbal. "Post- Disaster least loaded lightpath routing in elastic optical networks." *International Journal of Communication Systems* (2019): volume 32, issue 8, pp:e3920. (**ISI Journal IF = 1.824, Q2**)

14. **Butt, Rizwan Aslam**, M. Faheem, Asad Arfeen, M. Waqar Ashraf, and Mehwish Jawed. "Machine learning based dynamic load balancing DWBA scheme for TWDM PON." *Optical Fiber Technology* 52 (2019): 101964. . (**JCR IF = 1.2, Q2**)

15. Faheem, Muhammad, **Rizwan Aslam Butt**, Basit Raza, Hani Alquhayz, Muhammad Zahid Abbas, Md Asri Ngadi, and Vehbi Cagri Gungor. "A Multiobjective, Lion Mating Optimization Inspired Routing Protocol for Wireless Body Area Sensor Network Based Healthcare Applications." *Sensors* 19, no. 23 (2019): 5072. (**JCR IF = 2.475, Q2**)

16. Ali, Kamran, Qi Zhang, **Rizwan Aslam Butt**, Khalid Hussain Mohammadani, Muhammad Faheem, Noor Ul Ain, Feng Tian, and Xiangjun Xin. "Traffic-Adaptive Inter Wavelength Load Balancing for TWDM PON." *IEEE Photonics Journal* (2019). (**JCR IF = 2.729, Q1**)

17. Faheem, Muhammad, **Rizwan Aslam Butt**, Basit Raza, Hani Alquhayz, Muhammad Waqar Ashraf, Syed Bilal Shah, Md Asri Ngadi, and Vehbi Cagri Gungor. "QoSRP: A Cross-Layer QoS Channel-Aware Routing Protocol for the Internet of Underwater Acoustic Sensor Networks." *Sensors* 19, no. 21 (2019): 4762. (**JCR IF = 2.475, Q2**)

18. **Butt, Rizwan Aslam**, M. Faheem, and M. Waqar Ashraf. "Efficient upstream bandwidth utilization with minimum bandwidth waste for time and wavelength division passive optical network." *Optical and Quantum Electronics*, 52 (1):14, (2020). (**JCR IF = 1.54, Q2**)

19. Faheem, M., **Butt, R.A.**, Raza, B., Alquhayz, H., Ashraf, M.W., Raza, S. and Ngadi, M.A.B., 2020. FFRP: Dynamic Firefly Mating Optimization Inspired Energy Efficient Routing Protocol for Internet of Underwater Wireless Sensor Networks. *IEEE Access*, 8, pp.39587-39604, (2020) (**JCR IF = 4.098, Q1**)

20. Mohammadani, Khalid, **Rizwan Aslam Butt**, Kamran Ali Memon, Fayaz Hassan, Abdul Majeed, and Rajesh Kumar. "Highest Cost First-Based QoS Mapping Scheme for Fiber Wireless Architecture." In *Photonics*, vol. 7, no. 4, p. 114. (**JCR IF= 2.14**)

21. Memon, Kamran Ali, **Rizwan Aslam Butt**, Khalid Hussain Mohammadani, Bhagwan Das, Sibghat Ullah, Saleemullah Memon, and Noor ul Ain. "A Bibliometric Analysis and Visualization of Passive Optical Network Research in the Last Decade." *Optical Switching and Networking* 39 (2020): 100586. (**JCR 2017 IF = 1.113, Q3**)

22. Muhammad Faheem, **Rizwan Aslam Butt**, Rashid Ali, Basit Raza, Md. Asri Ngadi, Vehbi Cagri Gungor,CBI4.0: A cross-layer approach for big data gathering for active monitoring and maintenance in the manufacturing industry 4.0, **Journal of Industrial Information Integration**, Volume 24, **2021**, pp: 100236.

23. **Butt, R. A.**, Faheem, M., Ashraf, M. W., Arfeen, A., Memon, K. A., & Khawaja, A. (2021). Sleep-aware wavelength and bandwidth assignment scheme for TWDM PON. *Optical and Quantum Electronics*, 53(6), 1-23.

24. H.Mohammadani, MonirHossen, Rizwan A.Butt, Kamran Ali Memond and M. MujtabaShaikh "Capacity-bounded lightpath routing in WDM optical networks." *Optical Fiber Technology* (2021, In Press). (**ISI Journal IF = 1.824, Q2**)

25. Shah, Pir Meher Ali, Shahryar Shafique Qureshi, **Rizwan Aslam Butt**, Sevia Mahdaliza Idrus, and Jawad Mirza. "Design and analysis of 5G network architecture with orthogonal frequency division multiple access based passive optical network." *Optical Fiber Technology* 67 (2021): 102678.

26. Mohammadani, Khalid H., Monir Hossen, **Rizwan A. Butt**, Kamran Ali Memon, and M. Mujtaba Shaikh. "ONU migration using network coding technique in Virtual Multi-OLT PON Architecture." *Optical Fiber Technology* 68 (2022): 102788.

27. Hussain Mohammadani, Khalid, **Rizwan Aslam Butt**, Kamran Ali Memon, Safiullah Faizullah, and Muhammad Ishfaq. "Bayesian auction game theory-based DBA for XG symmetrical PON." *Optical and Quantum Electronics* 54, no. 5 (2022): 1-21.

28. Ashraf, M. Waqar, **Rizwan Aslam Butt**, M. Faheem, M. Tariq, and Abid Munir. "Disaster-resilient lightpath routing in WDM optical networks." *Optical and Quantum Electronics* 54, no. 3 (2022): 1-23.

29. **Butt, Rizwan Aslam**, Adnan Akhunzada, Muhammad Faheem, and Basit Raza. "Enhanced Energy Savings with Adaptive Watchful Sleep Mode for Next Generation Passive Optical Network." *Energies* 15, no. 5 (2022): 1639.

30. Mohammadani, Khalid Hussain, **Rizwan Aslam Butt**, Kamran Ali Memon, Nazish Nawaz Hussaini, and Arshad Shaikh. "Load adaptive merging algorithm for multi-tenant PON environments." *Optical Switching and Networking* (2023), vol 47, pp: 100712.

31. Shah, Pir Meher Ali, Shahryar Shafique Qureshi, Rizwan Aslam Butt, Sevia Mahdaliza Idrus, and Jawad Mirza. "Design and analysis of 5G network architecture with orthogonal frequency division multiple access based passive optical network." *Optical Fiber Technology* 67 (2021): 102678.

32. **Butt, Rizwan Aslam**, Muhammad Faheem, Muhammad Anwar, Khalid H. Mohammadani, and Sevia M. Idrus. "Traffic aware cyclic sleep- based power consumption model for a passive optical network." *International Journal of Numerical Modelling: Electronic Networks, Devices and Fields* (2022): e2996.

33. Shahid, Muhammed, **Rizwan Aslam Butt,** and Attaullah Khawaja. "Fiscal-and Space-Constrained Energy Optimization Model for Hybrid Grid-Tied Solar Nanogrids." *Energies* 15, no. 21 (2022): 8080.

34. Edeagu, S.O., **Butt, R.A**., Idrus, S.M. and Gomes, N.J., 2023. A hybrid dynamic bandwidth allocation scheme operating with IACG and cooperative DBA for converged fronthaul networks. *Optical Fiber Technology*, *75*, p.103199.

35. Amir, M., Ahmed, K., Hasany, S.F. and **Butt, R.A**., 2023. Non-Covalent Bonding of Green Synthesized Copper Nanoparticles to enhance Physicochemical behavior of Sulfur-Dyed Cotton Fabric. *AATCC Journal of Research*, p.24723444231161742., 2023

36. Mohammadani, K.H., **Butt, R.A**., Nawaz, W., Faizullah, S. and Dayo, Z.A., 2023. Energy-Efficient Sleep-Aware Slicing-Based Scheduler (SA-SBS) for Multi-Operators Virtualized Passive Optical Networks. *IEEE Access*. (2023)

37. Edeagu, S.O., **Butt, R.A**., Idrus, S.M. and Gomes, N.J., 2023. A hybrid dynamic bandwidth allocation scheme operating with IACG and cooperative DBA for converged fronthaul networks. *Optical Fiber Technology*, *75*, p.103199. (2023)

38. Amir, M., Ahmed, K., Hasany, S.F. and **Butt, R.A**., 2023. Non-Covalent Bonding of Green Synthesized Copper Nanoparticles to enhance Physicochemical behavior of Sulfur-Dyed Cotton Fabric. *AATCC Journal of Research*, *10*(5), pp.280-288. (2023)

39. Ahmed, S., **Butt, R.A**. and Aslam, M.I., 2024. Simultaneous upstream and inter optical network unit communication for long reach PON using single transmitter and self-phase modulation. *Optical Fiber Technology*, *82*, p.103639.

40. Amir, M., **Butt, R.A**., Naqvi, S. and Hasany, S.F., 2024. Powering of IOTs through single jersey wearable tribo-electric nano generator. Engineering Research Express, 6(1), p.015404. (2024)

41. Mirza, A.M.A., Khawaja, A., Butt, R.A. and Mughal, S., 2024. Symmetric Turbo Coded OFDM System for Multi-relay Coded-Cooperative Wireless Communication under Wideband Noise Jamming Environment. Traitement du Signal, 41(3). (2024)

42. MIRZA, A.M.A., KHAWAJA, A., MUGHAL, S. and **BUTT, R.A**., 2024. Distributed Symmetric Turbo Coded OFDM Scheme Incorporated with STBC-MIMO Antennas for Coded-Cooperative Wireless Communication under Wideband Noise Jamming Environment. RADIOENGINEERING, 33(4), p.503. (2024)

43. Shaikh, M.M., Butt, R.A. and Khawaja, A., 2023. Forecasting total electron content (TEC) using CEEMDAN LSTM model. Advances in Space Research, 71(10), pp.4361-4373.

ISI Indexed Master List Journal Papers

44. Rehman, Shahid Ur, Sevia M. Idrus, Raja Zahillah Radzi, Mohd Shahrill Salleh, and **Rizwan Aslam Butt**. "Effect of channel spacing on the signal quality for bi-directional TWDM PON." *JURNAL TEKNOLOGI* 78, no. 3 (2016): 281-286.

45. M. Waqar Ashraf, Farabi Iqbal, Sevia M. Idrus and **Butt, Rizwan Aslam,** M. Faheem, "Disaster-Resilient Optical Survivability: a Comprehensive Survey" MDPI Photonics, 2018.

46. **Butt, Rizwan Aslam**, M. Faheem, M. Waqar Ashraf, Attaullah Khawaja and Basit Raza." Attack-Aware Dynamic Upstream BandwidthAssignment Scheme for Passive Optical Network." *Journal of Optical Communications*, 2019, https://doi.org/10.1515/joc-2019-0142

47. **Rizwan A. Butt,** Sevia M. Idrus, Shahid-Ur Rehman, Pir Meher Ali Shah and Zulkifli, N. (2017), "Comprehensive Polling and Scheduling Mechanism for Long Reach Gigabit Passive Optical Network", *Journal of Optical Communication*, DOI 10.1515/joc-2017-0026, 2017.

48. **Butt, Rizwan Aslam**, M. Waqar Ashraf, M. Faheem, and Sevia M. Idrus. "A Survey of Dynamic Bandwidth Assignment Schemes for TDM-Based Passive Optical Network." *Journal of Optical Communications*.

49. Mohammadani, Khalid H., Rizwan A. Butt, Kamran A. Memon, Azhar A. Pirzado, Muhammad Faheem, Adeel Abro, Babar Ali, and Noor-ul Ain. "A QoS provisioning architecture of fiber wireless network based on XGPON and IEEE 802.11 ac." Journal of Optical Communications (2021).

50. Ashina Sadiq,Muhammad Anwar,Rizwan A. Butt,Farhan Masud,optical fiber K. Shahzad, Shahid Naseem,Muhammad Younas, " A review of phishing attacks and countermeasures for internet of things-based smart business applications in industry 4.0" Human Behavior and Emerging technologies (2021).

51. Faheem, Muhammad, and Rizwan Aslam Butt. "Big datasets of optical-wireless cyber-physical systems for optimizing manufacturing services in the internet of things-enabled industry 4.0." Data in Brief 42 (2022): 108026.

52. Akram, N., **Butt, R.A**. and Amir, M., 2024. Modification of a convolutional neural network for the weave pattern classification. *Mehran University Research Journal Of Engineering & Technology*, *43*(2), pp.79-90.

53. Amir, M., **Butt, R.A**., Naqvi, S. and Hasany, S.F., 2024. Powering of IOTs through Single Jersey Wearable Tribo-Electric Nano Generator. *Engineering Research Express*.

54. Akram, N., **Butt, R.A**. and Amir, M., 2024. Modification of a convolutional neural network for the weave pattern classification. Mehran University Research Journal of Engineering & Technology, 43(2), pp.79-90. (2024)

Other Indexed Journal Papers

55. **Butt, R. A.,** Idrus, S. M., Radzi, R. Z., & Qureshi, K. N. (2016). Energy Efficient Frame Structure for Gigabit Passive Optical Networks. *International Journal of Electrical and Computer Engineering*, *6*(6), 2971. **(Scopus)**

56. **Butt, R. A.,** Hasunah Mohammad, S., Idrus, S. M., & Rehman, S. U. (2015). Evolution of Access Network from Copper to PON—Current Status, ARPN Journal of Engineering and Applied Sciences. 10 (18). **(Scopus)**

57. **Butt, Rizwan Aslam**, Muhammad Yasir Anwar, Muhammad Waqar Ashraf, and Muhammad Zuhair Arfeen. "A novel scheduling and polling mechanism for upstream bandwidth assignment in a Passive Optical Network." *Technical Journal,* 23, no. 01 (2018): 64-73. (**HEC Recognized 'Y' Category Journal**)

58. **Butt, Rizwan Aslam**, M. Waqar Ashraf, M. Faheem, and Sevia M. Idrus , (2018). Survey of Energy Conservation Schemes for Present and Next Generation Passive Optical Networks. *Journal of communication (JCM)*, vol. 13, issue. 3, pp. 129-138. **(Indexed in Scopus and Ulrich)**

59. Anwar, Muhammad, Abdul Hanan Abdullah, **Rizwan Aslam Butt**, Muhammad Waqar Ashraf, Kashif Naseer Qureshi, and Fasee Ullah. "Securing Data Communication in Wireless Body Area Networks Using Digital Signatures." *Technical Journal* 23, no. 02 (2018): 50-55. (**HEC Recognized 'Y' Category Journal**)

60. **Butt, R. A**., Ali, S. M. U., & Shahid ur Rehman, S. Cost effective WSN Network Monitoring and Control using Modified SNMP. *International Journal of Emerging Technology and advance Engineering (IJETAE) Vol*, *3*, 735-740. (**Peer Reviewed Journal**)

61. Ismail, N. A., Sevia Mahdaliza Idrus, **R. A. Butt**, F. Iqbal, A. M. Zin, and F. Atan. "Performance evaluation of comprehensive bandwidth utilization for 10-gigabit passive optical network." *Bulletin of Electrical Engineering and Informatics* 8, no. 3 (2019): 1047-1052.

62. **Butt, R.A**., Rehman, T. and Qureshi, M.A., 2023. A Smart IoT-Enabled Cage for the Farming of Ground Birds. *Engineering Proceedings*, *46*(1), p.26.

63. Ahmed, S., **Butt, R.A**. and Aslam, M.I., 2023. Simultaneous Upstream and Inter Optical Network Unit Communication for Next Generation PON. *Engineering Proceedings*, *32*(1), p.20.

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