Dr. Syed Talib Abbas Jafri

Research Interests: IoT, Cybersecurity, 5G, Virtualization, Big Data

Approved Ph.D. Supervisor (NEDUET)

B215, Meerut C.H.S, Scheme 33,
Maymar Avenue, Karachi, Pakistan
+92-333-2645434
syedtalibabbas@gmail.com

Summary Researcher, Approved PhD supervisor and teacher with more than twelve years of research and teaching experience in an engineering and computer networks, plus four years of experience telecom industry. Having keen knowledge of data Science, cloud computing / virtualization, cybersecurity, IoT and computer graphics. Uses effective and efficient methods of teaching while focusing on the individual needs of each student. Past experience involves managing service provider network of Hybrid Fiber Coaxial as Executive Engineer.

Education & Certifications

Doctor of Philosophy 3.82/4.0 GPA
N.E.D University (2022)
Thesis Title: Routing Reliability Improvement in IoT-based MANET

Masters of Engineering (Telecom) 3.81/4.0 GPA
N.E.D University (2013)

Bachelors of Engineering (Electronics) 3.4/4.0 GPA
PAF-KIET (2009)

ISC2 CC – Certified in Cybersecurity (In-progress)

Cybersecurity Professional Certificate
Google (2025)

Cisco Certified Network Associate (CCNA) 920/1000 Marks
Cisco (2011 - 2015)

Current Project

Enabling Proximity Services (ProSe) in NB-IoT LTE networks
Working as Consultant in NRPU funded project to provide technical support for establishing network using USRP as eNodeB/gNodeB and vendor specific COTS UE to establish LTE/5G network and enabling NB-IoT with Relay node working to provide proximity services for the COTS UE

Experience

N.E.D University, Karachi Oct 2025 till date
Working as Assistant Professor in Telecommunications Engineering Department. Involved in teaching courses and research projects. Working to establish IoT Lab in the department.

N.E.D University, Karachi Mar 2023 till Oct 2025
Worked as Assistant Professor in Department of Physics. Responsibilities includes teaching courses in Bachelors and Master's program, supervising and co-supervising postgraduate thesis and performing assigned duties. Research activities are also included for career development and contributing to the university and country. Conducted two workshops of IoT in NEDUET and FAST.

Iqra University, Karachi Nov 2022 till Mar 2023
Worked as visiting faculty member in Faculty of Engineering, Sciences and Technology (FEST) teaching computer and network related courses in bachelor program of the university.

N.E.D University, Karachi August 2017 till Mar 2023
Worked as visiting faculty member in Electronic Engineering department teaching courses in Bachelors and Master's program and constantly engaged in counseling students for their career options.

SZABIST Karachi 2019
Worked as Visiting faculty member in Computer Science department for teaching course Advanced Computer Networks in MS(CS) program

Iqra University Karachi Nov 2013 – May 2022
Worked as Lecturer in "Faculty of Engineering, Sciences and Technology" (FEST) with following responsibilities

- Teaching technical courses to bachelor students of engineering and computer science.
- Worked on implementation of OBE for PEC program in coordination with HoD.
- Assisted Editor "Asian Journal of Engineering, Sciences and Technology" in routine tasks for publishing scholarly work, and coordination with HEC officials, authors and universities.
- Supervised final year projects with focus on computer networks.

Worldcall Telecom Ltd Aug 2009 – Nov 2013
Working as Executive Engineer in Technical Operations department, my position is to assist manager in smooth execution of operations, maintenance, testing and commissioning of HFC & Fiber Optic Network. I am assigned as Project Execution Engineer for any new projects related to HFC/FTTx network.

Funding 3 million funding received for Ph.D. from Ministry of Science and Technology (MoST), Govt. of Pakistan
IGNITE NGIRI FYP funding 2023-24 award

Membership Pakistan Engineering Council PEC – Registered Engineer – ELECTRO/12348
ISC2 Candidate # 3205336

Publications 7 international journals published, 2 under review
5 international conferences
1 local conferences
(See attached sheet "Research Publications")

Google Scholar https://scholar.google.com/citations?user=vKCUEXwAAAAJ

Skills

Cloud Computing and Virtualization (Advanced)
VMWare ESXI, VSphere, Vcenter, Active Directory, Exchange Server on Windows Platform and Apache, Samba on Red Hat Linux, Ubuntu and Centos, Docker management

Data Science (Advance)
Big data analysis using HADOOP, Spark, PyTorch, Keras, OpenCV, medical image analysis using Pydicom, Nibabel, and MONAI

Cybersecurity
Manage threats, vulnerabilities, through IDS and IPS while following NIST framework. Use packet sniffer tools to troubleshoot and identify potential risks, Use AI and python to automate security tasks as per playbook.

Networking (Advanced)
Switching, Routing on Cisco Devices, hands on experience and Simulation using Cisco Packet Tracer, Dynamips, NS-2, Opnet, Omnet++ and Python

Computer Languages (Advanced)
C, C++, VB, PHP, Python, Julia and MATLAB

Graphics, Publications & Web (Intermediate)
Photoshop, Corel Draw, Illustrator, Flash, MS Expression Web, Office, LaTeX, Project, Visio

Industrial Projects

The Ocean Mall Fixed Network Deployment (HFC)

Assign as Project Engineer for new network deployment in Sofitel Tower to offer Internet, Cable TV and VoIP services. Performed Installation, testing and commissioning of HFC outside plant, consulting with Sofitel Management and meeting with CBC/DHA authorities to acquire RoW for trenching and deployment of fiber/coaxial cable beneath the ground

Plastec Auto Safe &Arif Habib Bank Voice Solution

Arif Habib Bank & Plastech Autosafe both provided a extendable Avaya IP Office 500 solutions with 200+ analog and 10 digital extensions with IP Office 402 extendable units. The solution provides both (Executive Office & Production environment) with a greater availability of communication network throughout the Office.

Academic Projects

Designing and Implementing I/O Card for Unmanned Remote Vehicle (FYP)

The designing and programming of I/O card using ATmega8 microcontroller for the UGV, which is capable of moving independently from PAF-KIET to Korangi zero point.

Customizing and applying current available image filters in MATLAB

App is written in MATLAB with complete GUI to perform some basic operations like crop, resize, edit, enhance, change color format, color balance, HSV filtering, different noise and blur filters. Inspired by Adobe Photoshop **(Won cash prize for 1st position in project competition)**

Paper on Rain Attenuation in Microwave

Discussed and compared 2 different methods of minimizing rain attenuation (Crane Model and ITU-R Model) at different frequencies using MATLAB simulation and depicted results in the paper.

Research Publications

In ascending order

International Journals:

[1] F. Qamar, M. N. Hindia, **S. Talib Abbas**, B. D. Kaharudin, and I. S. Amiri, "Investigation of QoS Performance Evaluation over 5G Network for Indoor Environment at millimeter wave Bands," *International Journal of Engineering and Technology,* 2017.

[2] Hindia, M. N., Qamar, F., **Abbas, T**., Dimyati, K., Abu Talip, M. S., & Amiri, I. S. (2019). Interference cancelation for high-density fifth-generation relaying network using stochastic geometrical approach. International Journal of Distributed Sensor Networks, 15(7), 1550147719855879.

[3] **Jafri, STA**, Irfan Ahmed, and Sundus Ali. "Queue-Buffer Optimization Based on Aggressive Random Early Detection in Massive NB-IoT MANET for 5G Applications." Electronics 11.18 (2022): 2955.

[4] Wenhua Z, Qamar F, Abdali T-AN, Hassan R, **Jafri STA**, Nguyen QN. Blockchain Technology: Security Issues, Healthcare Applications, Challenges and Future Trends. Electronics. 2023; 12(3):546. https://doi.org/10.3390/electronics12030546

[5] **Jafri, STA**, Irfan Ahmed, Sundus Ali, Jamaiah Yahaya, Faizan Qamar, and Zuriani Hayati Abdullah. 2023. "Split Hop Penalty for Transmission Quality Metrics in a Better Approach to Mobile Ad Hoc Networking (BATMAN) for IoT-Based MANET" Symmetry 15, no. 5: 969. https://doi.org/10.3390/sym15050969

[6] Yang, H., Qamar, F., Kazmi, S. H. A., **Jafri, S. T. A.**, Ariffin, K. A. Z., & Nguyen, Q. N. (2024). Interference Mitigation in B5G Network Architecture for MIMO and CDMA: State of the Art, Issues, and Future Research Directions. Information, 15(12), 771. https://doi.org/10.3390/info15120771

[7] **Jafri, S. T. A**., Amin, S. R., Amanat, F., Aslam, T., Ali, S., Ahmed, I., & Aslam, M. I. (2024). Development of Narrow Band Internet of Things Testbed for Proximity Services. International Journal of Innovations in Science & Technology, 6(7), 146–157.

[8] Sundus Ali, **S. Talib Abbas**, Ghulam Fiza, Cezar Anicai, Yingbo Zhu, Muhammad Imran Aslam, Muhammad Zeeshan Shakir, et. al., “IoT-enabled, real-time, remote, outdoor environment monitoring system”, Environmental Monitoring and Assessment, Springer, 2024 **(Submitted)**

[9] **Jafri, S. T.A.**, Sundus Ali, Irfan Ahmed, Imran Aslam, “SDR-based experimental evaluation of NB-IoT testbed in outdoor environment using open-source software stack”.2025. **(Review Received)**

International Conferences:

[10] **S. Talib Abbas**, F. Qamar, A. Irfan, B. D. Kaharudin, and M. B. Majed, "Propagation Channel Characterization for 28 and 73 GHz Millimeter-Wave 5G Frequency Band," presented at the IEEE Student Conference on Research and Development (SCOReD), Malaysia, 13-14 December, 2017.

[11] F. Qamar, **S. Talib Abbas**, B. D. Kaharudin, M. N. Hindia, A. B. N. Kamarul, and A. Irfan, "Characterization of MIMO Propagation Channel at 15 GHz for the 5G Spectrum," presented at the IEEE Malaysian International Conference on Communications (MICC2017), Malaysia, 28-30 Novemer, 2017.

[12] **Abbas, T.**, Qamar, F., Hindia, M. N., Hassan, R., Ahmed, I., & Aslam, M. I. (2020, September). Performance analysis of ad hoc on-demand distance vector routing protocol for MANET. In 2020 IEEE student conference on research and development (SCOReD) (pp. 194-199). IEEE.

[13] **Jafri, S. T. A.**, Ahmed, I., Ali, S., & Qamar, F. (2023). Analysis of AgRED Performance in LR-WPAN Dense Ad-Hoc Networks. Engineering Proceedings, 32(1), 5.

[14] S. Ali, M. I. Aslam, I. Ahmed, **S. T. A. Jafri** and T. Aslam, "Development of a novel OMNET++ framework for analysis of an NB-IoT uplink network," 2024 International Conference on Emerging Trends in Smart Technologies (ICETST), Karachi, Pakistan, 2024, pp. 1-4, doi: 10.1109/ICETST62952.2024.10737960.

Local Conferences:

[15] S. Arsalan, **S. Talib Abbas**, and R. Hassan, "Implementation of Ad-hoc on Demand Distance Vector (AODV) routing protocol on End Devices," presented at the International Conference on Computing, Electronics and Electrical Engineering (ICCEEE), Karachi, 2-3 August, 2017.