

# Dr. Syed Attique Shah

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| 🎓 Dr. Syed Attique Shah



*Dedicated Academic Leader | Proficient in Machine Learning, Data Science, and IoT Applications | Committed to Cultivating Critical Thinking, Lifelong Learning, and Publishing Innovative Research | Adept at Problem-Solving, Fostering Meaningful Connections, Inspiring Future Leaders through Engaging Teaching*

## Summary

Working as a Senior Lecturer at the Department of Computer Science, *Birmingham City University (BCU), UK*, and also holding the role of Programme/Course Lead/Director for the MRes in Computing and MSc Advanced Computer Network at BCU. Brings over 12 years of experience in teaching and research. Previously worked as a Lecturer/Assistant Professor at the Institute of Computer Science, *University of Tartu, Estonia*, and also served as an Associate Professor and Chairperson for the Department of Computer Science at *BUIITEMS, Pakistan*. Received Ph.D. from the Informatics Institute, *Istanbul Technical University, Türkiye*. Served as a Visiting Scholar at the *Tallinn University of Technology (TalTech), Estonia*, the *University of Tokyo, Japan*, and the *National Chiao Tung University, Taiwan*. Recipient of 6 different scholarships. Published more than 40 research papers in reputable Q1 journals with an accumulative impact factor of more than 230, a citation count of more than 3800, and an h-index of 28. Recognised twice in the Stanford University-Elsevier Top 2% Scientists list (Worldwide) for 2024 and 2025. Presented several research papers at internationally renowned conferences. Mentor at the Postdoc Academy, University of Cambridge, UK. Assessor at Innovate UK and Member of the EPSRC Peer Review College. Regional Assessor for the Chevening Scholarships Reading Committee. Grant Reviewer for British Council, UK. Chartered IT Professional (CITP) by British Computer Society (BCS), Professional Member of the BCS and IEEE Senior Member, Fellow of the Higher Education Academy (FHEA), Recognised for Supporting Learning by SEDA- Staff and Educational Development Association, UK. Endorsed by Royal Society UK as a Global Talent. External Examiner at *De Montfort University and Cardiff Metropolitan University, UK*. Awarded funding of approximately £100k as Principal Investigator (PI) for two different projects, under the UKRI-funded and Alan Turing Institute-led Digital Twin NetworkPlus (DTNet+) call and through the EPSRC with support from UKRI and DfT under National Hub for Decarbonised, Adaptable, and Resilient Transport Infrastructures (DARe). Involved as Co-PI and Project Lead in three other funded projects. Interested research areas include machine learning, big data analytics, the Internet of Things (IoT), digital twinning, network security and image recognition. Enthusiastic in devising better problem-solving methods for challenging tasks and learning new skills, tools and techniques.

## Work Experience

### Senior Lecturer

*Birmingham, United Kingdom*

**Department of Computer Science, Birmingham City University**

*August. 2025 - Present*

- Lead and manage taught UG/PGT/PGR courses including organisational oversight, timetabling, assessment, curriculum design, quality standards and accreditation, to meet institutional and external (OfS) expectations.
- Undertake and contribute to research, conducting individual research or collaborating with others.
- Lead collaborative research activity producing high quality outputs with demonstrable impact, in particular influencing leading edge practice.
- Contribution to impact activities that would be of a suitable level to potentially be a research impact case study
- Serving as **Postgraduate Course (Programme) Lead/ Director, MRes in Computing**, March 2025 - Present.

### Online Tutor and Supervisor

*London, United Kingdom*

**University of London**

*April. 2025 – Present*

- Deliver online tutoring and academic support for *CM3020 Artificial Intelligence* on the BSc Computer Science (Online) programme via Coursera.
- Facilitate learning through discussion forums, Q&A sessions, and timely responses to student queries.
- Provide feedback and guidance on coursework, ensuring alignment with module learning outcomes and assessment criteria.
- Support student engagement and progression by signposting resources and encouraging effective study strategies.

### Lecturer/ Assistant Professor

*Birmingham, United Kingdom*

**School of Computing and Digital Technology, Birmingham City University**

*Feb. 2022 - July. 2025*

- Innovate on best practice for learning, teaching, support and assessment methods.
- Acting in accord with the University's strategy, policy and procedures.
- Lead in the design and development of high quality, up-to-date computing modules.
- Conduct high quality research leading to publications in reputable journals and international conference proceedings.
- Serving as **Postgraduate Course (Programme) Leader, MSc Advanced Computer Networks**, January 2024 - Present.

### Lecturer/ Assistant Professor

*Tartu, Estonia*

**Chair of Data Science, Institute of Computer Science, University of Tartu**

*Oct. 2020 - Aug. 2021*

- Lecturing and conducting seminars in the field of Big Data on all levels of higher education.
- Supervising research work of students. Participating in the research activities of the Chair of Data Science, Institute of Computer Science.
- Participation in the work of the university's decision-making bodies as recommended.
- Popularisation of the specialisation.

## Chairperson (Additional Charge as Head of the Department)

Quetta, Pakistan

### Department of Computer Science, BUIEMS

Feb. 2020 - Sep. 2021

- Responsible for leading the department, providing effective administration and supervision of all its resources and supporting excellence in teaching and scholarly activity.
- Contributing to curriculum, resource, program, and subject design, development, and review as required ensuring that learning and teaching in the faculty and across disciplines reflect best practice and a command of the field.

## Associate Professor

Quetta, Pakistan

### Department of Information Technology, BUIEMS

Dec. 2021 - Feb 2022

- Develop, design, and deliver a range of course content at various levels for the courses in the Information Technology domain.
- Make a significant contribution to the development and clarification of academic standards and quality.
- Conduct research and other collaborative partnerships with educational institutions and research funding bodies.

## Assistant Professor

Quetta, Pakistan

### Department of Information Technology, BUIEMS

Jul. 2014 - Dec. 2021

- Contributing effectively to teaching and learning in Information Technology, exemplifying teamwork and adaptability to ensure the educational and commercial success of the faculty and the University.
- Participating in scholarly activities that influence and enhance learning and teaching at the University.
- Contributing to top-ranked scholarly journals and other recognition efforts within the research community.

## Lecturer

Quetta, Pakistan

### Department of Information Technology, BUIEMS

Sep. 2011 - Jul. 2014

- Conducting lectures, tutorials, workshops, practical classes, and demonstrations for students' comprehension.
- Assessing students' coursework and marking examinations.

# Education

## Post Graduate Certificate (PGCert) (Learning and Teaching in Higher Education)

Birmingham, UK

### BIRMINGHAM CITY UNIVERSITY (BCU)

Jan. 2023 - Jul. 2024

- Higher Education Academy Fellowship (FHEA), UK
- Staff and Educational Development Association (SEDA), UK - Certified in Learning and Teaching in Higher Education

## Doctorate/ Ph.D. (Information Technologies)

Istanbul, Türkiye

### INSTITUTE OF INFORMATICS, ISTANBUL TECHNICAL UNIVERSITY (ITÜ)

Sep. 2014 - Sep. 2019

- Acquired Fully Funded Türkiye Bursları Scholarship
- Score: 4/4 CGPA
- ECCTIS UK, qualifications verification unique reference number: V4001118381

## MS (Information Technology)

Quetta, Pakistan

### FICT, BALOCHISTAN UNIVERSITY OF INFORMATION TECHNOLOGY, ENGINEERING & MANAGEMENT SCIENCES (BUIEMS)

Oct. 2010 - Dec. 2013

- Gold Medalist (First position holder)
- Score: 3.80/4 CGPA

## BS (Information Technology)

Quetta, Pakistan

### FICT, BALOCHISTAN UNIVERSITY OF INFORMATION TECHNOLOGY, ENGINEERING & MANAGEMENT SCIENCES (BUIEMS)

Sep. 2006 - Sep. 2010

- Secured first position from 1<sup>st</sup> to 8<sup>th</sup> semester and acquired full tuition fee merit scholarship.
- Score: 3.62/4 CGPA

# Scholarly Endeavors and International Internships

## Module Lead/ Visiting Lecturer

Wuhan, China

### Wuhan University of Science and Technology

Nov. 2023 - Dec. 2023

- Served as module lead for Network Technologies (on Campus) and Network Design and Management (distance/online learning) at Wuhan University of Science and Technology (WUST) China, as part of the Joint Program between Birmingham City University (BCU) and WUST.

## Visiting Scholar

Tallinn, Estonia

### Tallinn University of Technology - TalTech

Sep. 2017 - Feb. 2018

- Served as Visiting Scholar at the Information Systems Group, School of Information Technologies, Tallinn University of Technology under the Erasmus+ Programme Scholarship.

## Research Intern - Taiwan Elite Internship Program

Hsinchu, Taiwan

### National Chiao Tung University

March. 2018 - May. 2018

- This Internship provided an opportunity to work in the area of big data analytics and machine learning at the Department of Computer Science, National Chiao Tung University, Taiwan.

## Research Intern

### Taisei Corporation

Tokyo, Japan

July. 2016 - Aug. 2016

- This Internship focused on the utilization and performance of energy, urban systems, and ICT under the condition of severe natural disasters, fully funded by the Japan-Turkey Cooperative Education Program on Resilience Engineering for Energy and Urban Systems.

## Exchange PhD Student

### Technical University of Madrid (Universidad Politécnica de Madrid)

Madrid, Spain

Mar. 2016 - April. 2016

- Completed a course in Geographical Information Systems at the Technical University of Madrid through the ATHENS Programme.

# Research Areas

## My current research interests include:

MACHINE LEARNING, BIG DATA ANALYTICS, IOTs, INFORMATION SECURITY, DIGITAL TWINING, IMAGE DETECTION

- Key Area-1: Harnessing Machine Learning, Deep Learning, IoT, Digital Twinning, GIS, and Big Data Analytics for AI-enhanced hybrid energy systems, improved transportation management and other Smart City applications.
- Key Area-2: Addressing security challenges in IoT networks and smart cities using SDN, Smart Contracts, and Machine Learning methodologies.
- Key Area-3: Using Machine Learning, Deep Learning and Big Data Analytics to improve health informatics and medical image recognition capabilities.

## PhD Thesis

PH.D. THESIS TITLE: "A NOVEL FRAMEWORK FOR DISASTER RESILIENT SMART CITIES: USING BIG DATA ANALYTICS"

(2019)

- Key Area-1: Applying Big Data Analytics to enhance and optimise disaster management processes within Smart City environments.
- Key Area-2: Analysing crowd-sourced and IoT-generated data for enhanced decision-making processes.

# Research Publications

## Published Peer-Reviewed Journal Articles

1. Muhammad Ajmal Azad, Syed Attique Shah, "Privacy-preserving federated learning system under malicious collaborators and aggregators", **Future Generation Computer Systems**, Volume 183, October 2026, 108530, DOI: <https://doi.org/10.1016/j.future.2026.108530>. (Impact Factor: 5.9)
2. Usama Antuley, Shahbaz Siddiqui, Sufian Hameed, Waqas Arif, Syed Attique Shah, "SORA-ATMAS: Adaptive Trust Management and Multi-LLM Aligned Governance for Future Smart Cities", **Knowledge-Based Systems**, Volume 337, 25 March (2026), 115403, DOI: <https://doi.org/10.1016/j.knosys.2026.115403>. (Impact Factor: 7.06)
3. Awais Ahmed, Xiaoyang Zeng, Rui Xi, Mengshu Hou, Muhammad Afzal, Syed Attique Shah, "Identifying pertinent cohorts and addressing imbalance for robust intensive care survival analysis", **Engineering Applications of Artificial Intelligence**, Volume 171, 1 May (2026), 114267, DOI: <https://doi.org/10.1016/j.engappai.2026.114267>. (Impact Factor: 8.0)
4. Shahbaz Siddiqui, Sufian Hameed, Muhammed Rafi, Syed Attique Shah, Dirk Draheim, "Consensus at a Turning Point: Analyzing Ethereum's 2022 Migration From PoW to PoS", **IEEE Access**, vol. 13, pp. 199579-199614, (2025), DOI: 10.1109/ACCESS.2025.3636402. (Impact Factor: 3.6)
5. Muhammad Ajmal Azad, Ali Kashif Bashir, R Muhammad Atif Azad, Syed Attique Shah, "WFL: Edge-Enabled Weighted Federated Learning for Securing Heterogeneous Networks", **IEEE Communications Standards Magazine**, (Early Access) (2025), DOI: <https://doi.org/10.1109/MCOMSTD.2025.3584703> (SJR: 2.17)
6. Mahtab Shahin, Markus Bertl, Nasim Janatian, Juan Aznar-Poveda, Syed Attique Shah, Thomas Fahringer, Sijo Arakkal Peious, Dirk Draheim, "DatApollo: Orchestration of Serverless Functions for Scalable Data Mining", **IEEE Access**, vol. 13, pp. 142813-142828, (2025), DOI: <https://doi.org/10.1109/ACCESS.2025.3591712> (Impact Factor: 3.6)
7. Muhammad Hanif Tunio, Awais Ahmed, Syed Attique Shah, Xiaoyang Zeng, Yingling Li, Abdullahi Yahya Imam, "RiceNet: a robust ensemble attention mechanism for automated rice plant disease classification", **Multimedia Tools and Applications**, (2025), DOI: <https://doi.org/10.1007/s11042-025-20979-9> (Impact Factor: 5.1)
8. Awais Ahmed, Xiaoyang Zeng, Rui Xi, Mengshu Hou, Syed Attique Shah, "Enhancing multimodal medical image analysis with Slice-Fusion: A novel fusion approach to address modality imbalance", **Computer Methods and Programs in Biomedicine**, 261, (2025), DOI: <https://doi.org/10.1016/j.cmpb.2025.108615> (Impact Factor: 4.8)
9. Usama Antuley, Sufian Hameed, Shahbaz Siddiqui, Syed Attique Shah, "Securing Smart City Ecosystems: A Taxonomy-Based Review of Emerging Technologies and Frameworks for Scalable Collaborative Services", **IET Smart Cities**, e70007, (2025), DOI: <https://doi.org/10.1049/smc2.70007> (Impact Factor: 2.3)
10. Mahtab Shahin, Markus Bertl, Nasim Janatian, Juan Aznar-Poveda, Syed Attique Shah, Thomas Fahringer, Sijo Arakkal Peious, Dirk Draheim, "DatApollo: Orchestration of Serverless Functions for Scalable Data Mining", **IEEE Access**, (2025), DOI: <https://doi.org/10.1109/ACCESS.2025.3591712>. (Impact Factor: 3.6)
11. Muhammad Hanif Tunio, Awais Ahmed, Syed Attique Shah, Xiaoyang Zeng, Yingling Li, Abdullahi Yahya Imam, "RiceNet: a robust ensemble attention mechanism for automated rice plant disease classification", **Multimedia Tools and Applications**, (2025), DOI: <https://doi.org/10.1007/s11042-025-20979-9>. (Impact Factor: 5.1)
12. Awais Ahmed, Xiaoyang Zeng, Rui Xi, Mengshu Hou, Syed Attique Shah, "Enhancing multimodal medical image analysis with Slice-Fusion: A novel fusion approach to address modality imbalance", **Computer Methods and Programs in Biomedicine**, Volume 261, April 2025, 108615, (2025), DOI: <https://doi.org/10.1016/j.cmpb.2025.108615>. (Impact Factor: 4.8)
13. Muhammad Hanif Tunio, Jian ping Li, Xiaoyang Zeng, Awais Ahmed, Syed Attique Shah, Hisam-Uddin Shaikh, Ghulam Ali Mallah, Imam Abdullahi Yahya, "Advancing plant disease classification: A robust and generalized approach with transformer-fused convolution and Wasserstein domain adaptation", **Computers and Electronics in Agriculture**, Volume 227, Part 2, December 2024, 109574, (2024), DOI: <https://doi.org/10.1016/j.compag.2024.109574>. (Impact Factor: 8.9)

14. Shahbaz Siddiqui, Sufian Hameed, Syed Attique Shah, Junaid Arshad, Yussuf Ahmed, Dirk Draheim, "A smart-contract-based adaptive security governance architecture for smart city service interoperations", **Sustainable Cities and Society**, Volume 113, 15 October 2024, 105717, (2024), DOI: <https://doi.org/10.1016/j.scs.2024.105717>. (Impact Factor: 10.5)
15. Muhammad Hanif Tunio, Jian ping Li, Xiaoyang Zeng, Awais Ahmed, Syed Attique Shah, Hisam-Uddin Shaikh, Ghulam Ali Mallah, Imam Abdullahi Yahya, "Advancing plant disease classification: A robust and generalized approach with transformer-fused convolution and Wasserstein domain adaptation", **Computers and Electronics in Agriculture**, Volume 227, Part 2, December 2024, 109574, (2024), DOI: <https://doi.org/10.1016/j.compag.2024.109574>. (Impact Factor: 7.7)
16. Xiaoyang Zeng, Qizhen Zhu, Awais Ahmed, Muhammad Hanif, Mengshu Hou, Qiu Jie, Rui Xi, Syed Attique Shah, "Multi-granularity prior networks for uncertainty-informed patient-specific quality assurance", **Computers in Biology and Medicine**, Volume 179, September 2024, 108925, (2024), DOI: <https://doi.org/10.1016/j.compbiomed.2024.108925>. (Impact Factor: 7.0)
17. Mohamed Ben Farah, Yussuf Ahmed, Haithem Mahmoud, Syed Attique Shah, M. Omar Al-kadri, Sandy Taramonli, Xavier Bellekens, Raouf Abozariba, Moad Idrissi, Adel Aneiba, "A survey on blockchain technology in the maritime industry: Challenges and future perspectives", **Future Generation Computer Systems**, Volume 157, August 2024, Pages 618-637, (2024), DOI: <https://doi.org/10.1016/j.future.2024.03.046>. (Impact Factor: 6.2)
18. Vipin Deval, Vimal Kumar Dwivedi, Abhishek Dixit, Alex Norta, Syed Attique Shah, Rahul Sharma, Dirk Draheim, "Mobile Smart Contracts: Exploring Scalability Challenges and Consensus Mechanisms", **IEEE Access**, vol. 12, pp. 34265 - 34288, (2024), DOI: 10.1109/ACCESS.2024.3371901. (Impact Factor: 3.9)
19. Awais Ahmed, Xiaoyang Zeng, Rui Xi, Mengshu Hou, Syed Attique Shah, "MED-Prompt: A novel prompt engineering framework for medicine prediction on free-text clinical notes", **Journal of King Saud University-Computer and Information Sciences**, Volume 36, Issue 2, 101933, (2024), DOI: 10.1016/j.jksuci.2024.101933. (Impact Factor: 6.9)
20. Muhammad Hanif Tunio, Jian Ping Li, Xiaoyang Zeng, Faijan Akhtar, Syed Attique Shah, Awais Ahmed, Yu Yang, Md Belal Bin Heyat, "Meta-knowledge guided Bayesian optimization framework for robust crop yield estimation", **Journal of King Saud University-Computer and Information Sciences**, Volume 36, Issue 1, 101895, (2024), DOI: 10.1016/j.jksuci.2023.101895. (Impact Factor: 6.9)
21. Trung-Viet Nguyen, Lam-Son Lê, Syed Attique Shah, Sufian Hameed, Dirk Draheim, "PenChain: A Blockchain-Based Platform for Penalty-Aware Service Provisioning", **IEEE Access**, vol. 12, pp. 1005-1030, (2023), DOI: 10.1109/ACCESS.2023.3344038. (Impact Factor: 3.9)
22. Awais Ahmed, Rui Xi, Mengshu Hou, Syed Attique Shah, Sufian Hameed, "Harnessing Big Data Analytics for Healthcare: A Comprehensive Review of Frameworks, Implications, Applications, and Impacts", **IEEE Access**, vol. 11, pp. 112891-112928, (2023), DOI: 10.1109/ACCESS.2023.3323574. (Impact Factor: 3.9)
23. Jalal Bhayo, Syed Attique Shah, Sufian Hameed, Awais Ahmed, and Dirk Draheim, "Towards a Machine Learning-based Framework for DDoS Attack Detection in Software-Defined IoT (SD-IoT) Networks", **Engineering Applications of Artificial Intelligence**, Volume 123, 106432, (2023), DOI: 10.1016/j.engappai.2023.106432. (Impact Factor: 8)
24. Shahbaz Siddiqui, Sufian Hameed, Syed Attique Shah, Abdul Kareem Khan, Adel Aneiba, "Smart Contract-based Security Architecture for Collaborative Services in Municipal Smart Cities", **Journal of Systems Architecture**, Volume 135, 102802, (2023), DOI: 10.1016/j.sysarc.2022.102802. (Impact Factor: 4.5)
25. Mizna Khalid, Sufian Hameed, Abdul Qadir, Syed Attique Shah, Dirk Draheim, "Towards SDN-based smart contract solution for IoT access control", **Computer Communications**, Volume 198, Pages 1-31, (2023), DOI: 10.1016/j.comcom.2022.11.007. (Impact Factor: 6)
26. Bushra Qayyum, Atiq Ahmed, Ihsan Ullah, Syed Attique Shah, "A Fuzzy-Logic Approach for Optimized and Cost-Effective Early Warning System for Tsunami Detection", **Sustainability**, Volume 14, Issue no. 21: 14516. (2022), DOI: 10.3390/su142114516. (Impact Factor: 3.9)
27. Ahto Buldas, Dirk Draheim, Mike Gault, Risto Laanoja, Takehiko Nagumo, Märt SAAREPERA, Syed Attique Shah, Joosep Simm, Jamie Steiner, Tanel Tammet, Ahto Truu, "An Ultra-Scalable Blockchain Platform for Universal Asset Tokenization: Design and Implementation", **IEEE Access**, vol. 10, pp. 77284-77322, (2022), DOI: 10.1109/ACCESS.2022.3192837. (Impact Factor: 3.9)
28. Shahbaz Siddiqui, Sufian Hameed, Syed Attique Shah, Ijaz Ahmad, Adel Aneiba, Dirk Draheim, Schahram Dustdar, "Toward Software-Defined Networking-Based IoT Frameworks: A Systematic Literature Review, Taxonomy, Open Challenges and Prospects", **IEEE Access**, vol. 10, pp. 70850-70901, (2022), DOI: 10.1109/ACCESS.2022.3188311. (Impact Factor: 3.9)
29. Ijaz Ahmad, Zeeshan Asghar, Tanesh Kumar, Gaolei Li, Ahsan Manzoor, Konstantin Mikhaylov, Syed Attique Shah, Marko Höyhty, Jarmo Reponen, Jyrki Huusko, Erkki Harjula, "Emerging Technologies for Next Generation Remote Health Care and Assisted Living", **IEEE Access**, vol. 10, pp. 56094-56132, (2022), DOI: 10.1109/ACCESS.2022.3177278. (Impact Factor: 3.9)
30. Rahul Sharma, Minakshi Kaushik, Sijo Arakkal Peious, Alexandre Bazin, Syed Attique Shah, Iztok Fister, Sadok Ben Yahia, Dirk Draheim, "A Novel Framework for Unification of Association Rule Mining, Online Analytical Processing and Statistical Reasoning", **IEEE Access**, vol. 10, pp. 12792-12813, (2022), DOI: 10.1109/ACCESS.2022.3142537. (Impact Factor: 3.9)
31. Hamayoun Shahwani, Syed Attique Shah, Muhammad Ashraf, Muhammad Akram, Jaehoon (Paul) Jeong, and Jitae Shin, "A Comprehensive Survey on Data Dissemination in Vehicular Ad Hoc Networks", **Vehicular Communications**, Volume 34, 100420, ISSN 2214-2096, (2021), <https://doi.org/10.1016/j.vehcom.2021.100420>. (Impact Factor: 6.7)
32. Arbab Sufyan, Muhammad Imran, Syed Attique Shah, Hamayoun Shahwani, and Arbab Abdul Wadood. "A novel multimodality anatomical image fusion method based on contrast and structure extraction", **International Journal of Imaging Systems and Technology**, 32(1): 324-342, (2021); DOI:10.1002/ima.22649 (Impact Factor: 3.3)
33. Jalal Bhayo, Riaz Jafaq, Awais Ahmed, Sufian Hameed, and Syed Attique Shah. "A Time-Efficient Approach Towards DDoS Attack Detection in IoT Network using SDN", **IEEE Internet of Things Journal**, vol. 9, no. 5, pp. 3612-3630, March 1, (2021), DOI: 10.1109/JIOT.2021.3098029. (Impact Factor: 10.6)
34. M. Mazhar Rathore, Syed Attique Shah, Ahmed Awad, Dharendra Shukla, Shanmuganathan Vimal, and Anand Paul, "A Cyber-Physical System and Graph-Based Approach for Transportation Management in Smart Cities", **Sustainability**, Volume 13, Issue 14: 7606, (2021). DOI: 10.3390/su13147606. (Impact Factor: 3.9)
35. M. Mazhar Rathore, Anand Paul, Seungmin Rho, Murad Khan, S. Vimal, and Syed Attique Shah, "Smart Traffic Control: Driving Violation Identification on Fog Devices using Mobile Camera", **Sustainable Cities and Society**, Volume 71, 102986, (2021). Available: <https://www.sciencedirect.com/science/article/pii/S2210670721002729>. DOI: <https://doi.org/10.1016/j.scs.2021.102986>. (Impact Factor: 11.7)
36. Muhammad Bux Laghari, Hamayoun Shahwani, Syed Attique Shah, Raja Asif Wagan, Zahid Rauf, Ihsan Ali, Sultan S. Alshamrani, Jaroslav Frnda, "Towards Enabling Multihop Wireless Local Area Networks for Disaster Communications", **Wireless Communications and Mobile Computing**, Vol. 2021, Article ID 5540480, 14 pages, (2021). DOI: <https://doi.org/10.1155/2021/5540480>. (Impact Factor: 2.146)
37. M. Mazhar Rathore, Syed Attique Shah, Dharendra Shukla, Elmahdi Bentafat, and Spiridon Bakiras, "The Role of AI, Machine Learning, and Big

*Data in Digital Twinning: A Systematic Literature Review, Challenges, and Opportunities*, **IEEE Access**, vol. 9, pp. 32030-32052, (2021).

DOI: 10.1109/ACCESS.2021.3060863. (Impact Factor: 3.9)

38. Sufian Hameed, Syed Attique Shah, Qazi Sarmad Saeed, Shahbaz Siddiqui, Ihsan Ali, Anton Vedeshin, and Dirk Draheim, "A Scalable Key and Trust Management Solution for IoT Sensors Using SDN and Blockchain Technology", **IEEE Sensors Journal**, vol. 21, no. 6, pp. 8716-8733, (2021). DOI: 10.1109/JSEN.2021.3052009. (Impact Factor: 4.325)
39. Jalal Bhayo, Sufian Hameed, Syed Attique Shah, "An Efficient Counter-Based DDoS Attack Detection Framework Leveraging Software Defined IoT (SD-IoT)", **IEEE Access**, vol. 8, pp. 221612-221631, (2020). DOI: 10.1109/ACCESS.2020.3043082. Available: <https://ieeexplore.ieee.org/document/9285245>. (Impact Factor: 3.9)
40. Muhammad Sohaib Roomi, Muhammad Imran, Syed Attique Shah, Ahmad Almogren, Ihsan Ali, Mansour Zuair, "A Novel De-Ghosting Image Fusion Technique for Multi-Exposure, Multi-Focus Images Using Guided Image Filtering", **IEEE Access**, vol. 8, pp. 219656-219671, (2020). DOI: 10.1109/ACCESS.2020.3043048. Available: <https://ieeexplore.ieee.org/document/9285276>. (Impact Factor: 3.9)
41. Jawad Yousaf, Hosang Lee, Muhammad Faisal, Han Junhee, Wansoo Nah, Hamayoun Shahwani, Syed Attique Shah, and Jun Gyu Yang, "Design, analysis, and validation of Radio Research Agency reverberation chamber", **International Journal of Communication Systems**, e4684, (2020). Available: <https://onlinelibrary.wiley.com/doi/full/10.1002/dac.4684>. (Impact Factor: 2.1)
42. Ihsan Ali, Abdelmutilib Ibrahim Abdalla Ahmed, Ahmad Almogren, Muhammad Ahsan Raza, Syed Attique Shah, Anwar Khan, Abdullah Gani, "Systematic Literature Review on IoT-Based Botnet Attack", **IEEE Access**, vol. 8, pp. 212220-212232, (2020). DOI: 10.1109/ACCESS.2020.3039985. Available: <https://ieeexplore.ieee.org/document/9268057>. (Impact Factor: 3.9)
43. Jawad Rasheed, Akhtar Jamil, Alaa Ali Hameed, Usman Aftab, Javaria Aftab, Syed Attique Shah, Dirk Draheim, "A survey on artificial intelligence approaches in supporting frontline workers and decision makers for the COVID-19 pandemic", **Chaos, Solitons & Fractals**, ISSN 0960-0779, Volume 141, 110337, (2020). Available: <http://www.sciencedirect.com/science/article/pii/S0960077920307323>. DOI: <https://doi.org/10.1016/j.chaos.2020.110337>. (Impact Factor: 7.8)
44. Syed Attique Shah, Dursun Zafer Şeker, M. Mazhar Rathore, Sufian Hameed, Sadok Ben Yahia, Dirk Draheim, "Towards Disaster Resilient Smart Cities: Can Internet of Things and Big Data Analytics Be the Game Changers?", **IEEE Access**, vol. 7, pp. 91885-91903, (2019). DOI: 10.1109/ACCESS.2019.2928233. Available: <https://ieeexplore.ieee.org/document/8759905>. (Impact Factor: 3.9)
45. Syed Attique Shah, Dursun Zafer Şeker, Sufian Hameed, Dirk Draheim, "The Rising Role of Big Data Analytics and IoT in Disaster Management: Recent Advances, Taxonomy and Prospects", **IEEE Access**, vol. 7, pp. 54595-54614, (2019). DOI: 10.1109/ACCESS.2019.2913340. Available: <https://ieeexplore.ieee.org/document/8698814>. (Impact Factor: 3.9)

### Submitted Journal Papers Under Review

1. Syed Attique Shah, Shahbaz Siddiqui, Muhammad Ajmal Azad, and Sufian Hameed, "A Systematic Review of Deep Learning Models for AI-Driven Digital Twins in Energy Sector", (Submitted to **ACM Computing Surveys**), Under Review)
2. Awais Ahmed, Syed Attique Shah, Mohamed Ben Farah, Rui Xi, Mengshu Hou, "Deep Transfer Learning for DDoS Attack Detection in Smart Grid: A Framework for Big Data Security", (Submitted to **Internet of Things**, Under Review)

### Conference Papers

- Ahmed, Awais, Mengshu Hou, Rui Xi, Xiaoyang Zeng, and Syed Attique Shah. "Prompt-Eng: Healthcare Prompt Engineering: Revolutionizing Healthcare Applications with Precision Prompts." In Companion Proceedings of the ACM on Web Conference 2024, WWW '24, pp. 1329-1337. 2024. DOI: 10.1145/3589335.3651904 (Core Rank A\* Conference).
- Syed Attique Shah, Xiaoyang Zeng, Awais Ahmed, Shaheed Parvez, Rui Xi, and Mengshu Hou, "Multi-Instance Bias Suppression for Enhanced Generalization in Breast Cancer Diagnosis: Harnessing Histopathological Big Data Insights", 2023 IEEE International Conference on Big Data (BigData), Sorrento, Italy, 2023, pp. 857-864, DOI: 10.1109/BigData59044.2023.10386103. (Core Rank B Conference).
- Syed Attique Shah, Emil Anthony Arputham, Awais Ahmed, Mohamed Ben Farah, Attal Shah, Abdul Aziz, "Sorting the Digital Stream: Big Data-driven Insights into Email Classification for Spam and Ham Detection", 2023 IEEE International Conference on Big Data (BigData), Sorrento, Italy, 2023, pp. 5598-5607, DOI: 10.1109/BigData59044.2023.10386224. (Core Rank B Conference).
- Syed Attique Shah, Sadok Ben Yahia, Keegan McBride, Akhtar Jamil, Dirk Draheim, "Twitter Streaming Data Analytics for Disaster Alerts", 2021 2nd International Informatics and Software Engineering Conference (IISEC), 2021, pp. 1-6, DOI: 10.1109/IISEC54230.2021.9672370.
- Alaa Ali Hameed, Akhtar Jamil, Zeynep Orman, Syed Attique Shah, "Application of Generalized Relevance Linear Vector Quantization for Diabetes Diagnosis," 2021 International Conference on Innovative Computing (ICIC), 2021, pp. 1-5, DOI: 10.1109/ICIC53490.2021.9693077.
- Mahtab Shahin, Sijo Arakkal Peious, Rahul Sharma, Minakshi Kaushik, Sadok Ben Yahia, Syed Attique Shah, and Dirk Draheim. "Big Data Analytics in Association Rule Mining: A Systematic Literature Review". 2021, 3rd International Conference on Big Data Engineering and Technology (BDTE), Singapore, January 16 - 18, 2021. Association for Computing Machinery, 40-49. DOI: <https://doi.org/10.1145/3474944.3474951>
- Mahtab Shahin, Wissem Inoubli, Syed Attique Shah, Sadok Ben Yahia, Dirk Draheim. "Distributed Scalable Association Rule Mining over Covid-19 Data". In: 8th International Conference on Future Data and Security Engineering, (virtual), November 24-26, 2021, Ho Chi Minh City, Vietnam. FDSE 2021. Lecture Notes in Computer Science, vol 13076. Springer, Cham. [https://doi.org/10.1007/978-3-030-91387-8\\_3](https://doi.org/10.1007/978-3-030-91387-8_3)
- Mahtab Shahin, Soheila Saeidi, Syed Attique Shah, Minakshi Kaushik, Rahul Sharma, Sijo A. Peious, Dirk Draheim, "Cluster-Based Association Rule Mining for an Intersection Accident Dataset", 2021 International Conference on Computing, Electronic and Electrical Engineering (ICE Cube), 2021, pp. 1-6, DOI: 10.1109/ICECube53880.2021.9628206.
- Sijo Arakkal Peious, Rahul Sharma, Minakshi Kaushik, Syed Attique Shah, Sadok Ben Yahia, "Grand Reports: A Tool for Generalizing Association Rule Mining to Numeric Target Values", International Conference on Big Data Analytics and Knowledge Discovery, pp. 28-37, DaWaK 2020, Bratislava, Slovakia, September 14-17, 2020
- Syed Attique Shah, Sadok Ben Yahia, Keegan McBride, and Dirk Draheim, "Twitter-based Big Data Analytics for Disaster Alerts: TAGS (Twitter Alert Generation System)", Intermountain Engineering, Technology, and Computing Conference (i-ETC), October 2nd-3rd 2020. Orem, UT, USA
- Syed Attique Shah, Dursun Zafer Şeker, Hande Demirel "A Framework for Enhancing Real-time Social Media Data to Improve Disaster Management Process", 28th International Cartographic Conference. July 2-7, 2017, Washington, DC, USA. Available: <https://ica-proc.copernicus.org/articles/1/101/2018/>, [https://link.springer.com/chapter/10.1007/978-3-319-57336-6\\_6](https://link.springer.com/chapter/10.1007/978-3-319-57336-6_6)

### Posters

- Syed Attique Shah, Dursun Zafer Şeker, Caner Güney "Integrating Data Source Possibilities for Geo-Business Intelligence", GEOSPATIAL WORLD FORUM, World Trade Center, Rotterdam, Netherlands, May 23-26, 2016. (Link Available Here)

## Funded Research Projects

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- **DARe Impact Fellow**

Fellowship Title: DARe's Transport Performance and Risk Analysis Framework (TPRAF) (2026)  
Funded by: National Hub for Decarbonised, Adaptable, and Resilient Transport Infrastructures (DARe), UK  
Allocated Cost: ~£60,000  
Duration: 6 Months  
Summary: Selected as a DARe Impact Fellow to support the integration and adoption of the Transport Performance & Risk Analysis Framework (TPRAF) with transport-sector partners, strengthening knowledge exchange and evidence-based decision-making for resilient, adaptable and low-carbon UK transport infrastructure.  
Link: <https://dare.ac.uk/>

- **Principal Investigator (PI)**

Project Title: AI-Enhanced Digital Twins for Optimising Energy Efficiency in Positive Energy District (2026)  
Funded by: Engineering and Physical Sciences Research Council (EPSRC)-funded under Digital Twinning NetworkPlus: DTNet+  
Lead Research Organisation: The Alan Turing Institute and University of Sheffield (Grant: EP/Y016289/1 and EP/Y016289/2)  
Allocated Cost: ~£50,000  
Duration: 12 Months  
Summary: As Principal Investigator, I secured funding through the EPSRC-funded and Alan Turing Institute-led Digital Twin NetworkPlus (DTNet+) call for a project on AI-enhanced digital twins for improving energy efficiency in Positive Energy Districts. The project aims to integrate real-time data, predictive analytics, and deep learning techniques to optimise energy management, enhance sustainability, and improve system resilience. At Birmingham City University, I lead the project team comprising two research assistants and two academic staff members, overseeing the research design, technical development, and delivery of project outcomes.  
Link: <https://www.dtnetplus.ac.uk/>

- **Co-Principal Investigator (Co-PI)**

Project Title: Privacy-Preserving Governance and Ethical Assurance Framework for Decentralised Agentic AI in Pre-Litigation Analysis (2026)  
Funded by: Engineering and Physical Sciences Research Council (EPSRC) under Responsible AI UK (RAI UK), Collaboration Scheme  
Lead Research Organisation: University of Southampton (Grant: EP/Y009800/1)  
Allocated Cost: £20,000  
Duration: 3 Months  
Summary: As Co-Principal Investigator at Birmingham City University, I support this Responsible AI UK-funded project on privacy-preserving and ethically assured agentic AI for judicial and pre-litigation contexts. My contributions include technical evaluation of zero-knowledge proof methods, training delivery, workshop validation, governance guidance, roadmap development aligned with the AICC CAGE framework, and coordination of collaboration visits to and from academic and industry partners in Finland and Estonia.  
Link: <https://rai.ac.uk/>

- **Principal Investigator (PI)**

Project Title: AI-Powered Strategies for Strengthening UK Transport Systems Against Climate Change (2025)  
Funded by: EPSRC with support from UKRI and Department of Transport (DFT) under National Hub for Decarbonised, Adaptable, and Resilient Transport Infrastructures (DARe), UK  
Lead Research Organisation: Newcastle University (Grant: EP/Y024257/1)  
Allocated Cost: ~£50,000  
Duration: 12 Months  
Summary: As Principal Investigator, I secured funding through the EPSRC-supported National Hub for Decarbonised, Adaptable and Resilient Transport Infrastructures (DARe). This project develops an AI-driven cost-benefit analysis and benchmarking framework to support more resilient and sustainable UK transport systems in the context of climate change. The research is designed to produce a prioritised action plan that aligns infrastructure investment with decarbonisation targets, adaptation needs, and wider economic growth objectives. I lead a collaborative research team comprising three faculty members from Birmingham City University and two faculty members from Ulster University, UK providing strategic direction, research leadership, and oversight of project delivery.  
Link: <https://dare.ac.uk/>

- **Co-Principal Investigator (Co-PI)**

Project Title: Spatial Decision Support System (SDSS) Lab under the National Center of GIS and Space Applications (NCGSA) (2021)  
Capital Cost: 965.121 Million PKR  
Allocated Cost: 69 Million PKR  
Duration: 12 Months  
Summary: As a Co-Principal Investigator (Co-PI) for 12 months, I led a team consisting of 1 research associate, 3 research assistants, and 2 lab technicians in the Spatial Decision Support System Lab (SDSSL) at Balochistan University of Information Technology, Engineering and Management Sciences (BUITEMS), Quetta. The SDSSL focuses on two key areas: Geo-Health and Geo-Forensics. In the Geo-Health domain, our research concentrated on using innovative SDSS techniques for tracking and process mining to improve health service outreach, particularly immunization coverage. In Geo-Forensics, we worked on enhancing digital forensics processes by leveraging spatial data mapping to address the growing threat of cybercrime and digital fraud.  
Link: <http://sdsslslab.org/>

- **Co-Principal Investigator (Co-PI)**

Project Title: Smart Traffic Light Scheduling for Efficient Vehicle Flow (2021)  
Funded by: BUITEMS-ORIC Large-scale Competitive Grants  
Allocated Cost: 2.0 Million PKR  
Duration: 6 Months

Summary: As a Co-Principal Investigator, I led a team that included 2 research assistants. The project focused on the application of machine learning, deep learning and edge computing to reduce traffic congestion and enhance urban mobility.

#### • Project Lead

Project Title: 3PA ICA Adaptation Project on using GIS for food security

(2020)

Funded by: United Nations, World Food Programme (WFP)

Duration: 6 Months

Summary: Led the design and development of a GIS-based application and associated training course to support food security planning and capacity building in underdeveloped countries under the United Nations World Food Programme (WFP) adaptation project.

## Honors & Awards

|      |                                                                                                                                                                         |                            |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 2026 | <b>Selected to attend the British Council ISPF Partnership Development event in Saudi Arabia (Fully-Funded)</b> , Riyadh                                                | Saudi Arabia               |
| 2026 | <b>Invited Session Speaker at AI SEOUL 2026, invited by the Seoul Metropolitan Government and AI Seoul Hub, (Fully-Funded)</b> , Seoul                                  | South Korea                |
| 2025 | <b>Ranked among the top 2% of scientists worldwide for 2025</b> , Stanford University and Elsevier                                                                      | USA                        |
| 2025 | <b>Türkiye Alumni Academic Incentive Program 2025-1 Award winner for high impact research paper</b> , Republic of Türkiye Ministry of Culture and Tourism               | Ankara, Türkiye            |
| 2024 | <b>Ranked among the top 2% of scientists worldwide for 2024</b> , Stanford University and Elsevier                                                                      | USA                        |
| 2024 | <b>I AM BCU Awards</b> , Shortlisted for the Inspirational Teacher of the Year Award                                                                                    | Birmingham, United Kingdom |
| 2021 | <b>HEC Pakistan Research Travel Grant Fund for University Faculty</b> , for attending IEEE 2nd International Informatics and Software Engineering Conference            | Ankara, Türkiye            |
| 2021 | <b>HEC Pakistan Approved PhD Supervisor</b> , Recognized supervisor for doctoral students funded under various HEC PhD Scholarship Programs                             | Islamabad, Pakistan        |
| 2019 | <b>Dora Plus (European Regional Development Fund) Mobility Grant</b> , for doctoral studies at Information Systems Group, Tallinn University of Technology              | TalTech, Estonia           |
| 2018 | <b>Taiwan Elite Internship Program</b> , Funded as visiting scholar at the Department of Computer Science, National Chiao Tung University                               | NCTU, Taiwan               |
| 2017 | <b>International Cartographic Association (ICA) Grant</b> , for presenting research paper as a young scientist at the 28th International Cartographic Conference        | Washington DC, USA         |
| 2017 | <b>Erasmus+ Programme Scholarship</b> , for Fall 2017 to continue doctoral studies at Department of Software Science, Tallinn University of Technology                  | TalTech, Estonia           |
| 2016 | <b>Fully-Funded Student Exchange JTRE Program Scholarship</b> , as a visiting scholar in Resilience Engineering for Energy and Urban Systems at the University of Tokyo | Tokyo, Japan               |
| 2016 | <b>Athens Programme - Athens Network</b> , for a 2-week funded course on GIS as an exchange student at the Technical University of Madrid                               | Madrid, Spain              |
| 2014 | <b>Fully-Funded Türkiye Bursları Scholarship</b> , for Ph.D. studies from 2014-2019 at Istanbul Technical University                                                    | Istanbul, Türkiye          |
| 2013 | <b>Excellence Award for the 2013 Best Teacher</b> , Awarded for overall best teaching evaluations in the Faculty of ICT, BUIITEMS                                       | Quetta, Pakistan           |
| 2013 | <b>Gold Medal</b> , Designated Gold Medal by the Chancellor BUIITEMS for first position in MS (Information Technology)                                                  | Quetta, Pakistan           |
| 2011 | <b>HEC FATA-Balochistan Scholarship</b> , Awarded funding for post graduate studies (not availed)                                                                       | Quetta, Pakistan           |
| 2006 | <b>BUIITEMS Merit Scholarship</b> , Secured first position from 1st to 8th Semester in BS (Information Technology).                                                     | Quetta, Pakistan           |

## Supervisions

### PhD

- PhD Title: Smart Urban Energy Systems: Integrating Deep Learning and Digital Twins for Positive Energy Districts, Fatima Iqbal, Main Supervisor, Birmingham City University, UK. *(PhD to start from May 2026)*
- PhD Title: Efficient and Effective Association Rule Mining on Big Data and Cloud Technology: A Multifaceted Analysis, Mahtab Shahin, Co-Supervision with Prof. Dirk Draheim, Tallinn University of Technology, Tallinn, Estonia. *(PhD successfully completed in September 2024)*
- PhD Title: Big Data Analytics in Healthcare Informatics, Awais Ahmed, Co-Supervision with Prof. Mengshu Hou, University of Electronic Science and Technology of China, Chengdu, China. *(PhD successfully completed in July 2024)*
- PhD Title: Adaptive Security Framework for Interoperable Services in Smart Cities, Shahbaz Siddiqui, Co-Supervision with Prof. Sufian Hammed, National University of Computer and Emerging Sciences (NUCES), Karachi, Pakistan. *(PhD successfully completed in March 2024)*

### MSc

• I have supervised 40+ MSc dissertations spanning topics related to Machine Learning, SDN, network and IoT security, image recognition, smart contracts, cyber-physical systems, and cloud/edge analytics.

## Modules Lead/Taught at Level 4 to 7

- Applied Machine Learning
- Principles of Artificial Intelligence
- Introduction to Big Data
- Database Fundamentals
- Network Technologies
- Software Engineering
- Industrial Internet of Things
- Information Systems
- Computer Systems
- Programming Fundamentals (Python)
- Research Methods and Project Management

## Professional Activities

### Professional Service and External Engagement

|                |                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 2025 - Present | <b>Innovate UK Assessor</b> , as an Expert Assessor for Innovate UK in Advanced Connectivity Technologies, I support national innovation programmes by evaluating high-impact technology proposals ensuring high-quality investment decisions.                                                                                                                                                                                             | UK       |
| 2025 - Present | <b>Member of the EPSRC Peer Review College</b> , Serves as a member of the EPSRC Peer Review College, contributing expert academic judgement to the UK research funding assessment process. The role involves reviewing EPSRC grant and fellowship applications, assessing the quality, originality, feasibility, methodology, resources, impact, and responsible research and innovation considerations of proposed research.             | UK       |
| 2025 - Present | <b>Mentor, Postdoc Academy, University of Cambridge</b> , as a Research Mentor I support postdoctoral fellows through the Mentoring Scheme at University of Cambridge, helping them navigate research development, collaboration, and career progression.                                                                                                                                                                                  | UK       |
| 2025-2029      | <b>External Examiner (2025-2029) - BSc Artificial Intelligence, De Montfort University</b> , Providing independent external oversight of academic standards, assessment quality, marking moderation, and programme enhancement for the BSc Artificial Intelligence programme.                                                                                                                                                              | UK       |
| 2025-2029      | <b>External Examiner (2025-2029) - MSc Data Science (Home Programme, UK) and MSc Data Science (ICBT, Sri Lanka), Cardiff Metropolitan University</b> , Providing external academic oversight for the MSc Data Science Home Programme, UK, and the MSc Data Science programme delivered with ICBT, Sri Lanka, including assessment review, moderation, standards assurance, and programme enhancement.                                      | UK       |
| 2024 - Present | <b>Regional Assessor for Chevening Scholarship Awards</b> , As a Chevening Regional Assessor, I am responsible for reviewing and evaluating scholarship applications from Iran, Afghanistan, and Pakistan. My role involved assessing candidates' leadership potential, academic achievements, and their passion for making a positive impact in their communities, helping select future leaders for the prestigious Chevening Programme. | UK       |
| 2025           | <b>Grant Reviewer, British Council</b> , EU Springboard Programme for France, Spain and Germany                                                                                                                                                                                                                                                                                                                                            | UK       |
| 2025           | <b>Supervisor, Erasmus+ Mobility Programme</b> , Supervised two post-doctoral researchers from Tallinn University of Technology, Estonia, during a two-week exchange programme funded under the Erasmus+ Staff Mobility for Training scheme at Birmingham City University                                                                                                                                                                  | UK       |
| 2025           | <b>Mentor, BCU Mentoring Hub</b> , Mentoring two staff mentees from Birmingham City University, providing guidance on academic development, career planning, and professional growth                                                                                                                                                                                                                                                       | UK       |
| 2024           | <b>Grant Reviewer for British Council International Science Partnerships Fund (ISPF) Grants</b> , British Council                                                                                                                                                                                                                                                                                                                          | UK       |
| 2023           | <b>Quality Assurance and Compliance Lead</b> , School of Computing and Digital Technology, Birmingham City University                                                                                                                                                                                                                                                                                                                      | UK       |
| 2021           | <b>National Computing Education Accreditation Council</b> , Resource person for accreditation of bachelor's degree (BS CS and BS IT) at BUITEMS                                                                                                                                                                                                                                                                                            | Pakistan |
| 2019           | <b>Administrative Member &amp; Organizer</b> , Promoting youth entrepreneurship to advance UN SDG 8 Hub at BUITEMS by supporting sustained, inclusive and sustainable economic growth, productive employment, and decent work for all.                                                                                                                                                                                                     | Pakistan |

### Invited Talks, Media Coverage and Interviews

- Session Chair and Invited Speaker, Blockchain Future Symposium 2026, Ulster University Belfast, covering blockchain cryptography, cybersecurity, and blockchain adoption. Contributed to expert discussions on mainstream finance readiness and barriers to blockchain deployment from concept to practice.
- Delivered a Digital Discovery Day at Ulster University Belfast, engaging 52 pupils from All Saints College and St Genevieve's School through interactive sessions on blockchain, digital trust, and emerging technologies.
- Title of the Interview: "Innovation with Integrity: Ethical AI in Urban Governance - Dr. Shah's Perspective". I was interviewed for the Mayors of Europe platform to discuss the application of AI, digital twins, and smart systems to support sustainable urban futures. (Link Available Here).
- Title of the Talk: "AI-Enabled Digital Twins for Positive Energy Districts: From Real-Time Insight to Predictive Action". FIGURE Conference, which will be held on 2nd December, at the Challenge Lab, STEAMhouse, Birmingham City University.
- Selected Media Coverage: As PI, my project "AI-Powered Strategies for Strengthening UK Transport Systems Against Climate Change" has been featured by multiple industry and news platforms!
  - Rail Business Daily: (Link Available Here).
  - Motor Transport: (Link Available Here).
  - Smart Cities World: (Link Available Here).
  - Techregister: (Link Available Here).

- Translogistics.net: (Link Available Here).
- Transportengineer.org.uk: (Link Available Here).
- Keynote Speaker: “Convergence of AI, IoTs and Data for Future Intelligent Systems” at 3rd International Conference on Artificial Intelligence, Blockchain, and Internet of Things, (AIBThings), Central Michigan University (CMU), USA, on September 06 – 07, 2025. (Link Available Here).
- Title of the Interview: “Drone Deliveries Face Cybersecurity Vulnerabilities. Advanced IoT Systems Are Both Their Risk and Their Defense”. Presented a talk on the cybersecurity vulnerabilities faced by drone delivery systems and explored the role of advanced IoT systems in both posing risks and providing solutions. The presentation was featured in an interview with MarketScale (Link Available Here).
- Title of the talk: “The Rising Role of Big Data Analytics in the Internet of Things: State-of-the-art Advances and Prospects” at 2nd International Conference On Information Science & Communication Technology, 2020, Karachi, Pakistan.
- Title of the talk: “Geo-Forensic and Geo-Health Component of Spatial Decision Support System Lab, National Center of GIS and Space Applications, Pakistan” at Seventh International Conference on Aerospace Science & Engineering (ICASE), 2021, Islamabad, Pakistan.

## Editorial and Reviewer Services (Selected)

- **Area Editor: ACM Journal on Computing and Sustainable Societies (JCSS)** for AI, Machine Learning, and Data Science for Sustainable Societies (Link Available Here), (2026)
- **Editorial Board Member: Nature Scientific Reports**, Springer Nature (Link Available Here), (2025)
- **Special Issue Editor** for a Special issue entitled “Advances in System Design and IoT Based Smart City” in Big Data and Cognitive Computing. Impact Factor (3.7). (Link Available Here), (2024)
- **Guest Editor** for a Special issue entitled “Smart Cities 2.0: How AI and IoT are Transforming Urban Living” in IET Smart Cities Journal. Impact Factor (3.1). (Link Available Here), (2023)
- Served as an **Examiner/Reviewer for a Ph.D. Thesis** on “Security Policy for Mitigating DDoS Attacks on 5G-Enabled IoT Devices” at Macquarie University, NSW 2109, Australia (2023)
- Served as an **Examiner/Reviewer for a Ph.D. Thesis** on “Network-based Analysis and Classification of Autism Spectrum Disorder Using Multi-Site Resting State fMRI” at University of Electronic Science and Technology of China, Chengdu, China (2026)
- **Reviewer** for IEEE Internet of Things Journal, IEEE Access, IEEE Systems Journal, IEEE Networking Letters, IEEE IT Professionals and IEEE Sensors
- **Reviewer** for Elsevier’s Journal of Computer Communications, Future Generation Computer Systems, and Journal of Systems Architecture
- **Reviewer** for ACM Computing Surveys, ACM Transactions on Computer Systems and ACM Transactions on Sensor Networks
- **Reviewer** for various CORE-ranked (A\*, A, and B) conferences (e.g., IEEE ICDM, ACM SIGKDD/KDD, IEEE DSAA, IEEE BigData)

## Conference Program Committees

|      |                                                                                                                                                                                                                                                                                                               |                |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| 2026 | <b>Local Chair</b> , International Conference on Intelligent Computing and Communication Systems (ICICCS-2026), Organised by the Birmingham City University, England, United Kingdom, July 14-16, 2026                                                                                                        | United Kingdom |
| 2026 | <b>International Program Committee</b> , INFUS 2026 : Intelligent and Fuzzy Systems Conference, Ankara, Türkiye, July 07-09, 2026                                                                                                                                                                             | Türkiye        |
| 2026 | <b>Technical Program Committee Member</b> , IEEE/CIC International Conference on Communications in China (ICCC) 7 - 9 August 2026, Wuhan, China                                                                                                                                                               | China          |
| 2026 | <b>Scientific Publications Committee</b> , IEEE International Conference on Cybersecurity, Digital Forensics, and AI Applications (ICCSDFAI), June 25-27, 2026, Istanbul                                                                                                                                      | Türkiye        |
| 2026 | <b>Program Committee Member</b> , PromptEng’26 - Workshop on Prompt Engineering for Pre-Trained Language Models, 3rd PromptEng Workshop at the ACM WebConf’26, April 13th-14th, 2026, Dubai, UAE                                                                                                              | UAE            |
| 2026 | <b>Program Committee Member</b> , IEEE International Conference on Omni-Layer Intelligent Systems (COINS), September 7th to 9th, 2026 in University of Bologna, Italy                                                                                                                                         | Italy          |
| 2026 | <b>Program Committee Member</b> , 11th annual International Conference on Digital Economy (ICDEC), May 14th to 16th, 2026 in Tallinn, Estonia.                                                                                                                                                                | Estonia        |
| 2025 | <b>Session Chair and co-Chair for 3 technical sessions</b> , IEEE International Conference on Intelligent Transportation Systems (ITSC), held from 18–21 November 2025, Gold Coast, Australia                                                                                                                 | Australia      |
| 2025 | <b>Technical Program Committee Member</b> , IEEE/CIC International Conference on Communications in China, 10–13 August 2025, Shanghai                                                                                                                                                                         | China          |
| 2023 | <b>Session Chair for “S8: Machine Learning Algorithms II.”</b> , IEEE International Conference on Big Data (IEEE BigData 2023), Dec 15-18, 2023, Sorrento, Italy                                                                                                                                              | Italy          |
| 2023 | <b>Program Committee Member</b> , 3rd Workshop on Advances in Data Systems Management, Engineering, and Analytics (Megadata) held in 2023 IEEE/ACM 23rd International Symposium on Cluster, Cloud and Internet Computing Workshops (CCGridW), Bangalore, India, DOI Bookmark: 10.1109/CCGridW59191.2023.00010 | India          |
| 2022 | <b>Program Committee Member</b> , IEEE, 2nd International Conference on Computing and Machine Intelligence (ICMI 2022), July 15-16, 2022, Istanbul Atlas University                                                                                                                                           | Türkiye        |
| 2021 | <b>Session Chair- Computing and Intelligent Systems</b> , IEEE ICE CUBE 2021, 26 - 27 October 2021, Quetta                                                                                                                                                                                                    | Pakistan       |
| 2021 | <b>Publicity &amp; Public Relation Committee</b> , IEEE ICE CUBE 2021, 26 - 27 October 2021, Quetta                                                                                                                                                                                                           | Pakistan       |
| 2021 | <b>Program Committee Member</b> , International Conference on Advanced Engineering, Technology and Applications (ICAETA-2021), July 09 - 11, 2021, Istanbul Aydın University                                                                                                                                  | Türkiye        |
| 2017 | <b>Conference Administration Assistant</b> , 28th International Cartographic Conference, Washington, DC July 2-7, 2017                                                                                                                                                                                        | USA            |
| 2016 | <b>Publicity &amp; Public Relation Committee Member</b> , IEEE ICE CUBE 2016, 11 - 12 April, 2016 Quetta                                                                                                                                                                                                      | Pakistan       |

## Conferences and Workshops Participation

- 2026 International Conference on Circuit, Systems and Communication (ICCSC), July 02-03, 2026, Fez, Morocco
- NetDRIVE: Creating a New Reality: A Sustainable Digital Transformation, 22-23 April 2026, Univeristy of Oxford, Oxford, UK

- IEEE International Conference on Intelligent Transportation Systems (ITSC), 18–21 November 2025, Gold Coast, Australia
- IEEE/CIC International Conference on Communications in China, 10–13 August 2025, Shanghai
- Towards Sustainable Digital Futures: two-day symposium, Centre for Machine Intelligence, University of Sheffield, 14-15 May 2025, Sheffield, UK
- IEEE International Conference on Big Data (IEEE BigData 2023), Dec 15-18, 2023, Sorrento, Italy
- 2nd International Informatics and Software Engineering Conference organized by TBD and IEEE. 16-17 December, 2021, Ankara, Turkey
- Seventh International Conference on Aerospace Science & Engineering (ICASE), 14-16 December, 2021, IST, Islamabad, Pakistan
- 4th International Conference on Innovative Computing (ICIC), 9-10 November, 2021, Lahore, Pakistan,
- International Conference on Computing, Electronic and Electrical Engineering (ICECube), 26-27 October, 2021, BUITEMS, Quetta, Pakistan
- 3rd International Conference on Big Data Engineering and Technology (BDET), January 16-18, 2021, Singapore,
- 8th International Conference on Future Data and Security Engineering, (virtual), November 24–26, 2021, Ho Chi Minh City, Vietnam
- International Conference on Big Data Analytics and Knowledge Discovery, September 14–17, 2020, Bratislava, Slovakia
- Intermountain Engineering, Technology, and Computing Conference (i-ETC), October 2-3 2020, Orem, UT, USA
- 2nd International Conference on Information Science and Communication Technology: 8th-9th February 2020, Karachi, Pakistan
- 28th International Cartographic Conference, July 2-7, 2017, Washington, DC, USA
- GEOSPATIAL WORLD FORUM, World Trade Center, May 23-26, 2016, Rotterdam, Netherlands
- International Conference on Computing, Electronic, and Electrical Engineering (ICE Cube), April 11-12, 2016, BUITEMS, Quetta, Pakistan
- ICDIM 2013, IEEE 8th International Conference on Digital Information Management, September 2013, Islamabad, Pakistan
- 3rd International Conference of Computer and Emerging Technologies (ICCET), March 5-7, 2013, Shah Abdul Latif University Khairpur, Pakistan
- 2nd International Conference of Computer and Emerging Technologies (ICCET), April 13-15, 2012, Shah Abdul Latif University Khairpur, Pakistan

## Skills

|                                              |                                                                                          |
|----------------------------------------------|------------------------------------------------------------------------------------------|
| <b>Programming Languages:</b>                | Python, C/C++, Scala                                                                     |
| <b>Machine Learning Libraries and Tools:</b> | scikit-learn, TensorFlow, PyTorch, WEKA                                                  |
| <b>Databases:</b>                            | PostgreSQL, MongoDB, Redis                                                               |
| <b>Big Data Analytics Tools:</b>             | Apache Hadoop Ecosystem, Apache Spark, Hive, Kafka                                       |
| <b>Systems &amp; Environments:</b>           | IoT and (Microsoft Azure, AWS) Cloud-based system deployment and management              |
| <b>Other Tools:</b>                          | ArcGIS, QGIS, Kibana, SAP Power Designer, Packet Tracer, Talend                          |
| <b>Spoken Languages:</b>                     | English, Turkish (C1 Certification), French (A1 Level), Urdu (Regional), Pashtu (Native) |

## Professional Memberships

- Chartered IT Professional (CITP), awarded by British Computer Society (BCS). (Link)
- Fellowship of the Higher Education Academy (FHEA) (PR308632)
- Senior Member, Institute of Electrical and Electronics Engineers - IEEE Senior Member (95702658)
- Professional Member of the British Computer Society, BCS - The Chartered Institute for IT, MBCS (995146113)
- Internet Society (ISOC)- Artificial Intelligence SIG - UK England Chapter (2326965)
- Association for Computing Machinery- ACM Professional Member

## Extracurricular Activities

- Club-Level Cricketer
- Chess Enthusiast
- Second Position in inter-university squash tournament BUITEMS, 2009
- Passionate Traveler: Visited 33 countries (and counting)
- Creating modern abstract paintings, exhibited at various international symposiums

## References

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