



Dr. ASHFAQ HUSSAIN FAROOQI

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Throughout my academic career, I have developed and implemented curriculum enhancements that leverage the latest pedagogical strategies and integrate innovative technology to improve student engagement and comprehension. I am committed to student success, actively supporting students in their academic and career pursuits through personalized mentorship, research guidance, and professional development. In addition to my teaching responsibilities, I have contributed to departmental initiatives, research supervision, and academic publications, all while remaining focused on creating a supportive and challenging learning atmosphere.

RESEARCH INTEREST

Wireless Networks and Internet of Things (IoT), Machine Learning and AI, Software Defined Network and Network Security

EDUCATION

PhD in Computer Science

August 2018

Computer Science, National University of Computer and Emerging Sciences, Islamabad, Pakistan

Thesis: A specification-based distributed intrusion detection framework for wireless sensor networks

Master of Science (Computer Science)

August 2007 – June 2009

Computer Science, National University of Computer and Emerging Sciences, Islamabad, Pakistan

Thesis: A novel intrusion detection framework for wireless sensor networks

Bachelor of Computer Science

February 2003 – March 2007

Computer Science, Allama Iqbal Open University, Islamabad, Pakistan

Final Year Project: Office Anywhere – A Software Solution for Office Automation

PROFESSIONAL EXPERIENCE

Statement: With over 12 years of experience in higher education, I am dedicated to fostering an engaging and inclusive learning environment that encourages intellectual growth and practical skill-building. My teaching philosophy centers around inspiring curiosity, critical thinking, and problem-solving skills in students, ensuring that they leave the classroom with a deeper understanding of course content and a readiness to apply their knowledge to real-world challenges.

Air University, Pakistan

February 2022 – Present

Department of Computer Science, Islamabad Campus

Assistant Professor

COMSATS University Islamabad, Pakistan

December 2012 – February 2022

Department of Computer Science, Islamabad Campus

Lecturer

PROFESSIONAL POSITIONS

Program Manager (BS Computer Science), Department of Computer Science, Air University, Islamabad, Pakistan
March 2023 – Present

Curriculum preparation as per the NCEAC Curriculum Revision Guidelines 2023 and HEC Undergraduate Policy 2023. Working with Course Team Leads and members to prepare Course Guides as per OBE standards. Course load preparation by assigning courses to faculty members as per their expertise and choice. Mentoring newly hired faculty members to guide them about the course execution during the semester, OBE, and other academic and non-academic issues. Meeting with Class CRs to have knowledge about the issues that are facing during the semester and finding a solution.

NCEAC Focal Person (BS Computer Science and BS Information Technology), Department of Computer Science, Air University, Islamabad, Pakistan December 2022 – Present
Filling application using NCEAC portal for the accreditation visits for BS Computer Science and BS Information Technology. Preparing documents and application for the Change of Scope visits. Preparing documents as per the NCEAC Manual 2023 in hard form as well as in soft form. Guiding faculty members to follow OBE standards so that students can solve Complex Computing Problems.

Review and Refinement Committee (BS Computer Science and BS Information Technology), Department of Computer Science, Air University, Islamabad, Pakistan December 2022 – Present
Communicate with the AU Automation team for the preparation of CLO and GA attainment reports after each semester by keeping the KPI 40%. The exit surveys are collected from the coordinator office of the batch that graduated. Calling a meeting of Program Managers and a senior faculty member to have observations on the attainment reports and exit surveys to be forwarded to Chair or HoD for further necessary actions.

Final Year Project Convenor (BS Computer Science and BS Information Technology), Department of Computer Science, Air University, Islamabad, Pakistan September 2022 – Present
In this role, prepared the rubrics for the evaluation of Final Year Projects. It includes rubrics for project proposal, scope document, software requirement specification and software design development documents, and implementation phases (50%, 100%), and the final report. Worked on the FYP policy that got approved in 2023. Follow up of the policy and the execution of FYP as per the defined rubrics is monitored and governed.

Team Lead (PF, OOP, CN, COAL, and DB), Department of Computer Science, Air University, Islamabad, Pakistan September 2022 – Present
Revised the course guides of Programming Fundamentals, Object Oriented Programming, Computer Networks, Computer Organization and Assembly Language, and Databases to have more practical aspects that is as per the OBE standards. Further, evaluation artifacts like Midterm, Lab Project, and Final are vetted to check the course compliance and the standard.

Program Manager (BS Cyber Security), Department of Computer Science, COMSATS University Islamabad, Pakistan March 2021 – February 2022
Curriculum improvement, Course offering for the students, faculty load management, solving day-to-day student issues, and others.

Final Year Project Committee Member, Department of Computer Science, COMSATS University Islamabad, Pakistan March 2012 – February 2022
In this role, evaluated and guided Final year projects in every semester. It includes the evaluation of FYP Proposals, Scope, SRS, and SDS documents and presentations, and demo/VIVA of the implementation phases.

Knowledge Head (ICT, PF, CN, and COAL), Department of Computer Science, COMSATS University Islamabad, Pakistan Feb 2018 – February 2022
Revised the course guides of the Introduction to ICT, Programming Fundamentals, Computer Networks, and Computer Organization and Assembly Language course. Reporting about the course compliance and monitoring of Course Folders as per the OBE standards.

PUBLICATIONS

Total Number of Citations: 322 and h-index 8, based on Google Scholar

June 2024

Patent (International)

1. Sungyoung Lee, Farrukh Aslam Khan, **Ashfaq Hussain Farooqi**, "Intrusion Detection Apparatus and Method for Securing Wireless Sensor Networks", Patent No. KR101262992B1, May 2013.

Journal Publications (International)

1. Waseem Abbas, Muzammil Ahmed Khan, **Ashfaq Hussain Farooqi**, Waqas Nawaz, Nasim Abbas, and Zulfikar Ali, "Optimizing Spectrum Utilization and Security in SAS-Enabled CBRS Systems for Enhanced 5G Performance", *IEEE Access*, vol. 10, pp. 165992-166010, Nov. 2024.
2. **Ashfaq Hussain Farooqi**, Rizwan Ahmad, and Shaharyar Kamal, "ML-Driven Lightweight Botnet Detection System for IoT-Networks", *International Journal of Innovations in Science and Technology*, vol. 6, no. 7, pp. 194-206, Oct. 2024.
3. **Ashfaq Hussain Farooqi**, Shahzaib Akhtar, Hameedur Rahman, Touseef Sadiq, and Waseem Abbass "Enhancing Network Intrusion Detection Using an Ensemble Voting Classifier for Internet of Things." *Sensors*, vol. 24, no. 1, Dec. 2023.
4. Hameedur Rahman, Abdur Rehman Khan, Touseef Sadiq, **Ashfaq Hussain Farooqi**, and Inam Ullah Khan. "A Systematic Literature Review of 3D Deep Learning Techniques in Computed Tomography Reconstruction." *Tomography*, vol. 9, no. 6, pp. 2158-2189. Dec. 2023.
5. Fraidoon Sattari, **Ashfaq Hussain Farooqi**, Z. Qadir, Basit Raza, Hadi Nazari and M. Almutiry, "A Hybrid Deep Learning Approach for Bottleneck Detection in IoT," *IEEE Access*, vol. 10, pp. 77039-77053, July 2022.
6. Farrukh Aslam Khan, **Ashfaq Hussain Farooqi**, Abdelouahid Derhab "A Comprehensive Security Analysis of LEACH++ Clustering Protocol for Wireless Sensor Networks," *Journal of Supercomputing*, vol. 75, no. 4, pp. 2221-2242, April 2019.
7. **Ashfaq Hussain Farooqi**, Farrukh Aslam Khan, "Securing Wireless Sensor Networks for Improved Performance in Cloud-Based Environments," *Annals of Telecommunications*, vol. 72, no. 5-6, pp. 265–282, March 2017.
8. **Ashfaq Hussain Farooqi**, Farrukh Aslam Khan, Jin Wang, Sungyoung Lee, "A Novel Intrusion Detection Framework for Wireless Sensor Networks," *Personal and Ubiquitous Computing*, vol. 17, no. 5, pp. 907-919, June 2013.
9. **Ashfaq Hussain Farooqi**, Farrukh Aslam Khan, "A Survey of Intrusion Detection Systems for Wireless Sensor Networks," *International Journal of Ad Hoc and Ubiquitous Computing*, vol. 9, no. 2, pp. 69-83, Feb. 2012.

Conference Publications

1. Altamash Abbasi and **Ashfaq Hussain Farooqi**, "U-NET based CT Image reconstruction and segmentation using Deep Learning Layer structure", Frontier of Information Technology (FIT), Islamabad, Pakistan, December 2024.
2. Altamash Abbasi and **Ashfaq Hussain Farooqi**, "Comparative analysis of CT Image reconstruction using Deep Learning Layer structures", 19th International Conference on Emerging Technologies (ICET), Topi, Pakistan, November 2024.
3. Fahad Shafique, Tariq Naeem and **Ashfaq Hussain Farooqi**, "Path Tracking and Obstacle Avoidance Control Using Deep Reinforcement Learning for Autonomous Vehicles," 2023 17th International Conference on Open-Source Systems and Technologies (ICOSST), Lahore, Pakistan, 2023, pp. 1-6.
4. Abdur Rehman Khan, Sanaullah Imtiaz and **Ashfaq Hussain Farooqi**, "A Survey of the Resource Discovery Techniques in the Distributed Computing Systems," ICIT 2022 International Conference on IT and Industrial Technologies, Faisalabad, Pakistan, 4 October 2022.
5. **Ashfaq Hussain Farooqi**, Farrukh Aslam Khan, Jin Wang, and Sungyoung Lee, "Specification based Intrusion detection scheme for Wireless Sensor Networks," FTRA International

Symposium on Advances in Cryptography, Security and Applications for Future Computing (ACSA), Jeju, South Korea, December 2011.

6. **Ashfaq Hussain Farooqi**, Jin Wang, Farrukh Aslam Khan and Sungyoung Lee, "Security requirements for Cyber Physical community systems - A Case Study," Invited Paper, in Proceedings of ACM 4th International Symposium on Applied Sciences in Biomedical and Communication Technologies, pp. 1-5, Barcelona, Catalonia, Spain, October 2011.
7. **Ashfaq Hussain Farooqi**, Jin Wang, Farrukh Aslam Khan and Sungyoung Lee, "A Collaborative decision making for distributed detection system," in Proceedings of Korea Computer Congress (KCC2011), South Korea, 2011.
8. Rabia Babar, Ali Munir and **Ashfaq Hussain Farooqi**, "Analysis of rule-based look-ahead strategy using Pacman Testbed," in Proceedings of IEEE International Conference on Computer Science and Automation Engineering (CSAE 2011), pp. 480-483, Shanghai, China, June 2011.
9. **Ashfaq Hussain Farooqi** and Farrukh Aslam Khan, "Intrusion Detection Systems for Wireless Sensor Networks: A Survey," in Proceedings of International Conference on Future Generation Communication and Networking (FGCN), Springer, Volume 56, pp. 234-241, Jeju, South Korea, December 2009.
10. **Ashfaq Hussain Farooqi**, Qurat-ul-Ain, Sidra Batool Kazmi and Farrukh Aslam Khan, "Performance analysis of peer-to-peer overlay architectures for Mobile Ad hoc Networks," in Proceedings of IEEE International Conference on Emerging Technologies (ICET), pp. 471-475, Islamabad, Pakistan, October 2009.
11. **Ashfaq Hussain Farooqi**, Ali Munir and A. Rauf Baig, "The traffic light simulator and optimization using Genetic Algorithm" in Proceedings of International Conference on Telecom Technology and Applications (ICTTA), Manila, Philippine, June 2009.
12. **Ashfaq Hussain Farooqi** and Ali Munir, "Intrusion Detection System for IP Multimedia Subsystem Using K-Nearest Neighbour classifier" in Proceedings of IEEE International Multi Topic Conference (INMIC), pp. 423-428, Karachi, Pakistan, December 2008.

MS/PHD SUPERVISION

MS Supervision:

Sr.	Reg #	Name	Title	Supervision/ Co-Supervision	Status
1.	SP19-RIS-032	Fraidoon Sattari	A hybrid deep learning approach for bottleneck detection in IoT	Supervision	Thesis Defended. 2022
2.	211824	Muhammad Zeeshan Arshad	An authentication framework for the Metaverse using AI-Based Block-Chain Technology	Co-Supervision	Thesis Defended. 2023
3.	220308	Shahzaib Akhtar	Enhance Metaverse Security with Lightweight Anomaly Detection Model Using Machine Learning	Co-Supervision	Thesis Defended. 2023
4.	220259	Mohammad Ijaz	Advanced Anomaly Detection System for IOT Using Feature Reduction Through Machine Learning	Supervision	Thesis Defended. 2024
5.	220255	Fahad Shafique	Deep Reinforcement Learning Based Path Tracking and Obstacle Avoidance Control for Autonomous Vehicles	Supervision	Thesis Defended. 2024
6.	220254	Altamash Ahmad Abbasi	Integrating CT Image Reconstruction, Segmentation and Large Language Models	Supervision	Thesis Defended. 2024

			for Enhanced Diagnostic Insight		
7.	230240	Laiba Zahoor	Human Activity Recognition Based on Deep Hybrid Learning Approach for UAV Surveillance	Supervision	Topic Defended. 2024
8.	230416	Syed Touseeq Ahmed	Anomaly Detection in 6G Network Using Federated Learning	Supervision	Topic Defended. 2024

TEACHING AND TECHNICAL EXPERIENCE

Graduate Courses:

- Advanced Computer Architecture
- Advanced Distributed Computing
- Advanced Wireless Networks
- Security Audit and Compliance

Undergraduate Courses:

- Introduction to Information and Communication Technologies (Python Language)
- Programming Fundamentals (Java Language)
- Object Oriented Programming (C++, Java Language)
- Visual Programming (C#, Asp.Net)
- Computer Organization and Assembly Language (MASM Tool)
- Network Programming (C, Java Language)
- Data Com. and Computer Networks (Socket Programming, Wireshark, Packet tracer)

Technical:

- Network Tools: Wireshark, Cisco Packet Tracer
- Simulation Tool: Raptor, NS-2, MATLAB
- Programming: C, C++, C#, Java, Python

HONORS AND AWARDS

- HEC Approved Supervisor MS/PhD, 24th November 2021.
- Six-month research fellowship awarded by HEC Pakistan to work in Ubiquitous Computing Lab, Kyung Hee University, South Korea, 2011.
- Presented Pakistan in the JENESYS Programme organized by JICE, Japan 2010.
- MS leading to PhD Indigenous HEC Scholarship, awarded in 2007.

PROFESSIONAL ACTIVITIES

Participation and trainings:

- Participant in NCEAC Webinar training on Challenges Faced During the SAR Submission Process and Strategies to Overcome Them 2024.
- Participant in NCEAC Webinar training on Orientation and Discussion of newly developed Curriculum Model of Computing Programs 2023
- Participant in “Pakistan 1st Games Development Conference,” held at Air University, Islamabad on May 09, 2023.

- Participant in “1st International Symposium on Quantum Computing,” held at Air University, Islamabad on September 20, 2022.
- Faculty development Teacher Training Jan 2013- Feb 2013 Certificate Awarded by COMSATS University Islamabad, Pakistan, 2013

Organization:

- PC member (Network, Cyber & Information Security)
 - 19th International Conference on Frontiers of Information Technology, 2022
 - 18th International Conference on Frontiers of Information Technology, 2021
- 2010 IEEE International Conference on Emerging Technologies organizing committee member held at FAST-NUCES, Islamabad, Pakistan.
- 2011 IEEE International Conference on Emerging Technologies organizing committee member held at FAST-NUCES, Islamabad, Pakistan.

Reviewer:

- Reviewer Journal, Springer Nature, 2024
 - Neural computing & applications, ISSN: 0941-0643
 - Peer-to-Peer Networking and Applications, ISSN: 1936-6450
 - Cluster Computing, ISSN: 1573-7543
- Reviewer Journal, Elsevier, 2024
 - Computers & Electrical Engineering, ISSN: 0045-7906
 - Internet of Things, ISSN: 2542-6605
- Reviewer Conference Proceedings, 2023 and 2024 International Conference on IT & Industrial Technologies
- Sub reviewer Conference Proceedings, 13th International Conference on Frontiers of Information Technology, 2015
- Reviewer Journal EURASIP Journal on Information Security, 2013
- Technical Committee Member, 7th International Conference on Emerging Technologies, 2011

REFERENCES

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