



(Shahnwaz Afzal)

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Hyperlinks of (<https://scholar.google.com/citations?user=AyCHwkYAAAAJ&hl=en&oi=ao>,
|0000-0002-9836-670X,58257978500 ,|https://www.researchgate.net/profile/Shahnwaz-Afzal?ev=hdr_xprf, www.linkedin.com/in/shahnawaz-afzal-6a63b3116)

PROFILE

- Ph.D. (thesis submitted) in Computer Science at the Department of Computer Science, Aligarh Muslim University, Aligarh, India. Research topic: **Analysis and Design of a Lightweight Stream Cipher in IoT Devices.**
- Completed Master of Computer Science and Applications (MCA) with First Division from Aligarh Muslim University.
- Completed B.Sc. (Hons.) in Computer Applications with First Division from Aligarh Muslim University.
- Qualified UGC-NET four times in Computer Science and awarded the prestigious Maulana Azad National Fellowship (MANF-JRF). Promoted to Senior Research Fellowship (SRF) during the Ph.D. program.
- Recipient of the University Merit Financial Award (2019) for outstanding academic performance in postgraduate studies.
- Published 20+ research contributions, including SCI/SCIE, ESCI, Scopus-indexed journal articles, IEEE conference papers, book chapters, and a patent.
- Worked as a Research Fellow, with experience in teaching undergraduate courses, mentoring students, and conducting funded research.

RESEARCH INTEREST:

- Lightweight Cryptography
- Internet of Things (IoT) Security
- Artificial Intelligence
- Machine Learning
- Deep Learning
- Medical Image Security
- Medical Image Analysis
- Privacy-Preserving Computing
- Edge Computing
- Secure Communication Systems

- Chaos-based Cryptography
- Network Security
- Healthcare Security
- Data Privacy

SUMMARY OF RESEARCH ACCOMPLISHMENT:

- Published 20+ research publications, including 5 SCI/SCIE, 3 ESCI, 3 Scopus-indexed, 1 peer-reviewed journal, 8 international conference papers, 1 book chapter, and 1 patent.
- Published research articles in reputed international journals, including PLOS ONE, Discover Computing (Springer), SN Computer Science (Springer), Security and Privacy (Wiley), International Journal of Information Technology(Springer), and the Journal of Information and Optimization Sciences (Taylor and Francis).
- Presented research papers at IEEE-sponsored international conferences in the areas of lightweight cryptography, IoT security, machine learning, and graph neural networks.
- Authored a book chapter on feature selection and data balancing techniques for IoT intrusion detection in an edited international book.
- Filed an Indian patent titled "AI-Powered Virtual Reality Headset for Educational Training."
- Conducted research in Lightweight Cryptography, IoT Security, Artificial Intelligence, Machine Learning, Deep Learning, Medical Image Security, Edge Computing, and Privacy-Preserving Computing, with applications in healthcare, smart agriculture, and secure communication systems.
- Developed novel lightweight encryption frameworks integrating chaotic maps, DNA cryptography, NLFSRs, and deep learning for secure IoT communications and medical image protection.
- Served as a Research Fellow at the Department of Computer Science, Aligarh Muslim University, contributing to scholarly publications during the doctoral program.
- Received the University Merit Financial Award (2019), Maulana Azad National Fellowship (MANF-JRF), and Senior Research Fellowship (SRF) in recognition of academic excellence and research contributions.

COURSE TAUGHT:

- Computer Science
- Programming Laboratory
- Undergraduate Practical Courses
- Programming Fundamentals

ADMINISTRATIVE/DEPARTMENTAL RESPONSIBILITY

- Research Fellow, Department of Computer Science, Aligarh Muslim University.
- Assistant Professor, Aligarh College of Education.
- Track In-Charge (Track-4: Emerging Computational Intelligence), Second International Conference on Emerging Computational Intelligence (ICECI-2026), sponsored by IEEE Uttar Pradesh Section.

STUDENTS SUPERVISION

- Guided M.Sc. Cyber Security students in the successful completion of their dissertations and research papers.
- Mentored postgraduate students in research methodology, technical writing, and publication-oriented research.

PUBLISHED/GRANT PATENTS

AI-Powered Virtual Reality Headset for Educational Training (Patent Filed, October 2025).

Inventors: Shaharyar Alam Ansari, Mohammad Luqman, Shahnwaz Afzal, and Dr. Mohd. Aquib Ansari.

PUBLISHED/ACCEPTED SCI/SCOPUS RESEARCH PAPERS

SCIE/SCI

- Khan, I., Bokhari, M. U., Afzal, S., & Alam, S. Distance-Driven Graph Neural Network for Advanced Node Classification Through Feature Augmentation. Discover Computing, Vol. 28, No. 1, Article 70, 2025.
- Afzal, S., Bokhari, M. U., Khan, I., Siddiqui, M. A., Ahmad, A., & Aijaz, M. A Hybrid Encryption Model for Medical Image Security in IoT Healthcare. Discover Computing, Vol. 28, No. 1, Article 321, 2025.
- Afzal, S., Bokhari, M. U., Alam, M., Husain, M. S., Khan, M. Z., & Ashraf, Z. LWLCM: A Novel Lightweight Stream Cipher Using Logistic Chaos Function and Multiplexer for IoT Communications. PLOS ONE, Vol. 20, No. 9, e0330976, 2025.
- Afzal, S., Bokhari, M. U., Alam, S., Khan, I., Shuaib, M., & Ullah, M. Lightweight Deep Learning-Driven Secure Communication Architecture for Internet of Things Enabled Government Applications. Discover Computing, Vol. 29, No. 1, Article 112, 2026 .
- Afzal, S., Bokhari, M. U., Luqman, M., & Hanafi, B. Lightweight CNN-Based Edge Computing with Hybrid Chaotic Encryption for Secure and Efficient Image Transmission in IoT Networks. Discover Computing, Vol. 29, No. 1, Article 65, 2026.

SCOPUS

- Bokhari, M. U., Afzal, S., & Yadav, G. ChaosForge: A Lightweight Stream Cipher Fusion of Chaotic Dynamics and NLFSRs for Secure IoT Communication. International Journal of Information Technology, 2024 .
- Bokhari, M. U., Yadav, G., Zeyauddin, M., & Afzal, S. Enhancing Mental Health Prognosis: An Investigation of Advanced Hybrid Classifiers with Cutting-Edge Feature Engineering and Fusion Strategies. International Journal of Information Technology, 2024 .

- Bokhari, M. U., Afzal, S., Khan, I., & Khan, M. Z. Securing IoT Communications: A Novel Lightweight Stream Cipher Using DNA Cryptography and Grain-80 Cipher. SN Computer Science, Vol. 6, No. 2, Article 88, 2025 .

(ESCI, Web of Science)

- Bokhari, M. U., Ahmad, S. R., Afzal, S., Hanafi, B., & Zeyauddin, M. A Novel Lightweight Cryptographic Framework Based on Hybrid Chaotic Maps and DNA Encoding. Security and Privacy, Vol. 8, No. 5, e70097, 2025.
- Afzal, S., Bokhari, M. U. LightAgriCrypt: A Novel Lightweight Stream Cipher for Enhancing Security in Smart Agriculture Systems. Security and Privacy, Vol. 8, No. 3, e70024, 2025.
- Bokhari, M. U., Afzal, S., Varshney, A., Khan, I., & Khan, Z. Enhanced ChaCha20 for Next-Generation Cryptography: A Secure and Efficient Lightweight Encryption Scheme. Journal of Information and Optimization Sciences, Vol. 47, No. 2, 2026.

PAPERS PUBLISHED IN INTERNATIONAL CONFERENCES

- Bokhari, M. U., Afzal, S., Hanafi, B., & Zeyauddin, M. Comparative Analysis of LFSR and NLFSR-Based Lightweight Stream Ciphers for Use in IoT. 10th International Conference on Computing for Sustainable Global Development (INDIACom 2023), IEEE, New Delhi, India, 2023.
- Bokhari, M. U., & Afzal, S. Performance of Software and Hardware Oriented Lightweight Stream Cipher in Constrained Environment: A Review. 10th International Conference on Computing for Sustainable Global Development (INDIACom 2023), IEEE, New Delhi, India, 2023.
- Bokhari, M. U., Khan, I., Hanafi, B., Afzal, S., & Zeyauddin, M. Augmented Node Features for Graph Convolutional Networks: Applications of Deep Learning-Based Graph Embeddings. Advances in Science, Engineering and Technology, pp. 315–319, 2025.
- Bokhari, M. U., Ahmad, S. R., Afzal, S., Hanafi, B., et al. Privacy-Focused Text Encryption for IoT Using Modified ChaCha and Homomorphic Paillier. International Conference on Intelligent and Secure Engineering Solutions (CISES 2025), August 2025.
- Bokhari, M. U., Ansari, S. A., Afzal, S., & Ahmad, S. A Novel Lightweight Stream Cipher Based on NLFSRs and Chaos Function. Proceedings of the IEEE International Conference on Computational Intelligence, Electronics, Computer Science and Biomedical Informatics (IC3ECSBHI 2026), Greater Noida, India, IEEE, 2026. DOI: 10.1109/IC3ECSBHI67834.2026.11469124.

- Ali, S., Bokhari, M. U., Gautam, S., Afzal, S., & Ali, S. K. A Novel Machine Learning Framework for Diabetes Prediction Using Ensemble Techniques. 2nd Global AI Summit – International Conference on Artificial Intelligence and Emerging Technology (AI Summit 2025), IEEE, pp. 786–791.
- Khan, M. Z., Mustaqeem, M., Khan, T. F., Afzal, S., Ali, S., & Zeyauddin, M. A Lightweight IoT Intrusion Detection Framework with Hybrid HHO and WOA Optimization. IEEE International Conference Proceedings, 2026.
- Ali, S., Ansari, S. A., Nadeem, M. Z., Afzal, S., Khan, M. Z., & Zeyauddin, M. XAI-RMNet: A Novel Explainable Hybrid CNN Transfer Learning Model for Multi-Class Brain Tumor Classification. Second International Conference on Emerging Computational Intelligence (ICECI 2026), IEEE, 2026.

PUBLISHED NON-SCI-SCOPUS BUT PEER-REVIEWED RESEARCH PAPERS

- Aziz, H., & Afzal, S. (2024). Critical Insights into Context-Aware Systems: A Literature Review. International Journal of Convergent Research, 1(1).

BOOK CHAPTERS

- Khan, M. Z., Bokhari, M. U., & Afzal, S. (2026). An Experimental Study on Feature Selection and Data Balancing for Enhanced IoT Intrusion Detection. In AI-Driven Security and Intelligence in Cloud and Internet of Things Systems.
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