

Mohsin Shah

PhD Information Security

Department of Telecommunication,
Hazara University Mansehra, Pakistan

+92-3339277155

syedmohsinshah@gmail.com

About Me

I received the Ph.D. degree in Information and Communication Engineering from the University of Science and Technology of China (USTC) Hefei, China in 2019, the M.Sc degree in Telecommunication Engineering from the University of Engineering and Technology (UET) Taxila Pakistan in 2012 and the B.Sc degree in Telecommunication Engineering from the University of Engineering and Technology (UET) Peshawar Pakistan in 2007. Currently, I am working as Assistant Professor in the Department of Telecommunication, Hazara University Mansehra Pakistan since 2009. I have been able to publish numerous articles on data hiding, image processing and forgery detection in well reputed journals including IEEE Transactions on Services Computing, ACM Transaction on Multimedia Computing Communications and Applications, Journal of Visual Communication and Image Representation, Multimedia Tools and Applications and IET Image Processing. My research interests include information hiding, multimedia security, secure signal processing, image processing and machine learning.

Education

- 2016–2019 **Ph.D. in Information and Communication Engineering (*Information Security*)**, *University of Science and Technology of China*, Hefei-China.
- 2009–2012 **Master in Telecommunication Engineering**, *University of Engineering and Technology Taxila*, Pakistan, *Telecommunication Engineering*.
- 2002–2007 **Bachelor in Telecommunication Engineering**, *University of Engineering and Technology Peshawar*, Pakistan, *Telecommunication Engineering*.

Research Interest

- Information hiding - reversible data hiding, steganography, watermarking
- Privacy-preserving Secure Signal Processing
- Privacy-preserving Machine Learning
- Image Processing
- Image Forensics

Google Scholar Profile

<https://scholar.google.com/citations?user=d1IFIVwAAAAJ&hl=en>

Ph.D. Thesis Title

Paillier Cryptosystem based Reversible Data Hiding with Extended Applications in Encrypted Domain

Master Thesis Title

Generation of Orthogonally Polarized Chaotic Waveforms for Secure Optical Communication

Publications

Journal Publications

1. Mohsin Shah, Weiming Zhang, Honggang Hu, and Nenghai Yu. Paillier cryptosystem based mean value computation for encrypted domain image processing operations. *ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM)*, 15(3):1–21, 2019, IF=5.1, Q1
2. Mohsin Shah, Weiming Zhang, Honggang Hu, Xiaojuan Dong, and Nenghai Yu. Prediction error expansion-based reversible data hiding in encrypted images with public key cryptosystem. *IET Image Processing*, 13(10):1705–1713, 2019, IF=1.773, Q2
3. Mohsin Shah, Weiming Zhang, Honggang Hu, Hang Zhou, and Toqeer Mahmood. Homomorphic encryption-based reversible data hiding for 3d mesh models. *Arabian Journal for Science and Engineering*, 43(12):8145–8157, 2018, IF=2.807, Q2
4. Dong Xiaojuan, Weiming Zhang, Mohsin Shah, and Nenghai Yu. Watermarking-based secure plaintext image protocols for storage, show, deletion and retrieval in the cloud. *IEEE Transactions on Services Computing*, 15(3):1678–1692, 2020, IF=8.1, Q1
5. Toqeer Mahmood, Zahid Mehmood, Mohsin Shah, and Tanzila Saba. A robust technique for copy-move forgery detection and localization in digital images via stationary wavelet and discrete cosine transform. *Journal of Visual Communication and Image Representation*, 53:202–214, 2018, IF=2.6, Q2
6. Muhammad Nawaz Khan, Sokjoon Lee, and Mohsin Shah. Adaptive scheduling in cognitive iot sensors for optimizing network performance using reinforcement learning. *Applied Sciences*, 15(10):5573, 2025
7. Tazila Qazi, Mohsin Shah, Mushtaq Ali, Muhammad Nawaz Khan, Ahmad Ali Alzubi, Abeer Alnuaim, and Tariq Hussain. Overcoming natural similarity: A densenet-based approach for reliable transform copy-move forgery identification. Under review *Applied Sciences*
8. Tazila Qazi, Mohsin Shah, and Mushtaq Ali. Frequency domain manipulation of multiple copy-move forgery in digital image forensics. Under review *PlosOne*
9. Faqir Gul, Mohsin Shah, and Mushtaq Ali. An effective adaptive downsampling method for high-resolution multi-panel image segmentation. *IEEE Access*, 2025
10. Faqir Gul, Mohsin Shah, and Mushtaq Ali. A hybrid multi-panel image segmentation framework for improved medical image retrieval system. *PloS one*, 20(2):e0315823, 2025
11. Mohsin Shah, Mushtaq Ali, and Toqeer Mahmood. A high capacity adaptive information hiding method using pixel intensity range and alpha channel. to be submitted

12. Toqeer Mahmood, Saba Naseem Rehan Ahsraf, Muhamamd Asif, Muhammad Umair, and Mohsin Shah. Recognizing factors effecting the use of mobile banking apps through sentiment and thematic analysis on user reviews. *Neural Computing and Applications (NCAA)*, pages 1–13, 2023, IF=6.0, Q2
13. Tasbeeha Waris, Muhammad Asif, Maaz Bin Ahmad, Toqeer Mahmood, Sadia Zafar, and Mohsin Shah and Ahsan Ayaz. A cnn based automatic helmet voilation detection of motocyclists for intelligent tranportation system. *Mathematical Problems in Engineering*, 2022, 2022, IF=1.43, Q2
14. Muhammad Salman Khan, Mohsin Shah, Asfandyar Khan, Amjad Aldweesh, Mushtaq Ali, Elsayed Tag eldin, Waqar Ishaq, and Lal Hussain. Improved multi model classification technique for sound event detection in urban environments. *Applied Sciences*, 12(19):9907, 2022, IF=2.7, Q2
15. Naheed Akhtar, Mushtaq Ali, Lal Hussain, Mohsin Shah, Toqeer Mahmood, Amjad Ali, and Ala Al-Fuqaha. Diverse pose lip-reading framework. *Applied Sciences*, 12(19):9532, 2022, IF=2.7, Q2
16. Asfandyar Khan, Arif Iqbal Umar, Syed Hamad Shirazi, Waqar Ishaq, Mohsin Shah, Muhammad Assam, and Abdullah Mohamed. Qos-aware cost minimization strategy for ami applications in smart grid using cloud computing. *Sensors*, 22(13):4969, 2022, IF=3.9, Q2
17. Muhammad Ilyas Khan, Mushtaq Ali, Mohsin Shah, and Toqeer Mahmood. Machine learning-based detection and classification of walnut fungi diseases. *Intelligent Automation and Soft Computing*, 30(3):771–785, 2021, IF=0.734, Q2
18. Mushtaq Ali, Muhammad Zubair Asghar, Mohsin Shah, and Toqeer Mahmood. A simple and effective sub-image separation method. *Multimedia Tools and Applications*, 81(11):14893–14910, 2022, IF=3.6, Q2
19. Toqeer Mahmood, Mohsin Shah, Junaid Rashid, Muhammad Wasif Nisar, and Muhammad Asif. A passive technique for detecting copy-move forgeries by image feature matching. *Multimedia Tools and Applications*, 79(43):31759–31782, 2020, IF=3.6, Q2
20. Xiaojuan Dong, Weiming Zhang, Mohsin Shah, Bei Wang, and Nenghai Yu. A restrained paillier cryptosystem and its applications for access control of common secret. *arXiv preprint arXiv:1912.09034*, 2019
21. Amjad Rehman, Tanzila Saba, Toqeer Mahmood, Zahid Mehmood, Mohsin Shah, and Adeel Anjum. Data hiding technique in steganography for information security using number theory. *Journal of Information Science*, 45(6):767–778, 2019, IF=2.4, Q2
22. Toqeer Mahmood, Zahid Mehmood, Mohsin Shah, and Zakir Khan. An efficient forensic technique for exposing region duplication forgery in digital images. *Applied Intelligence*, 48(7):1791–1801, 2018, IF=5.3, Q2

23. Toqeer Mahmood, Tabassam Nawaz, Mohsin Shah, Zakir Khan, Rehan Ashraf, and Hafiz Adnan Habib. Copy-move forgery detection technique based on dwt and hu moments. *International Journal of Computer Science and Information Security (IJCSIS)*, 14(5):156–161, 2016
24. Toqeer Mahmood, Tabassam Nawaz, Aun Irtaza, Rehan Ashraf, Mohsin Shah, and Muhammad Tariq Mahmood. Copy-move forgery detection technique for forensic analysis in digital images. *Mathematical Problems in Engineering*, 2016, 2016, IF=1.43, Q2
25. Zakir Khan, Mohsin Shah, Muhammad Naeem, Toqeer Mahmood, Shah Khan, Noor Ul Amin, and Danish Shahzad. Threshold-based steganography: a novel technique for improved payload and snr. *Int. Arab J. Inf. Technol.*, 13(4):380–386, 2016, IF=1.2, Q2
26. Muhammad Usman Tayyab, Mohsin Shah, Toqeer Mahmood, and Zakir Khan. Design of low dispersion photonic crystal fiber using smoothing filter coefficients. *Journal of Basic and Applied Scientific Research*, pages 2090–4304, 2014

Conference Publications

1. Rehan Ashraf Junaid Rashid Muhammad Umair Saba Naseem, Toqeer Mahmood and Mohsin Shah. Survey on sentiment analysis of user reviews. In *MAJICC'21 (Mohammad Ali Jinnah University Conference on Informatics and Computing 2021)*. IEEE, 2021
2. Toqeer Mahmood, Tabassam Nawaz, Zahid Mehmood, Zakir Khan, Mohsin Shah, and Rehan Ashraf. Forensic analysis of copy-move forgery in digital images using the stationary wavelets. In *2016 Sixth International Conference on Innovative Computing Technology (INTECH)*, pages 578–583. IEEE, 2016
3. Ammad Ul Islam, Faiza Khalid, Mohsin Shah, Zakir Khan, Toqeer Mahmood, Adnan Khan, Usman Ali, and Muhammad Naeem. An improved image steganography technique based on msb using bit differencing. In *2016 Sixth International Conference on Innovative Computing Technology (INTECH)*, pages 265–269. IEEE, 2016
4. Toqeer Mahmood, Tabassam Nawaz, Rehan Ashraf, Mohsin Shah, Zakir Khan, Aun Irtaza, and Zahid Mehmood. A survey on block based copy move image forgery detection techniques. In *2015 International Conference on Emerging Technologies (ICET)*, pages 1–6. IEEE, 2015
5. Abdul Hakeem, Zakir Khan, Adnan Ahmad, Mohsin Shah, Abdul Qadir, and Noor Ul Amin. Magic random bits lsb audio steganography. In *30th Multi Topic International Symposium*. IEEE, 2015
6. Abdul Qadir, Mohsin Shah, Zakir Khan, Toqeer Mahmood, Noor Ul Amin, and Abdul Hakeem. Efficient hybrid image steganography based on pattern matching. In *International Conference on Big Data Analysis and Data Mining*. IEEE, 2015

7. Mazhar Islam, Mohsin Shah, Zakir Khan, Toqeer Mahmood, and Muhammad Jamil Khan. A new symmetric key encryption algorithm using images as secret keys. In *2015 13th International Conference on Frontiers of Information Technology (FIT)*, pages 1–5. IEEE, 2015
8. Zakir Khan, M Shah, Muhammad Naeem, D Shahzad, and Toqeer Mahmood. Lsb steganography using bits complementation. In *International Conference on Chemical Engineering and Advanced Computational Technologies (ICCEACT)*, 2014
9. Abdul Hakeem, Noor Ul Amin, Mohsin Shah, Zakir Khan, and Abdul Qadi. Threshold based lsb audio steganography. In *Int'l Conf. on Chemical Engineering & Advanced Computational Technologies*, pages 88–92, 2014
10. Asif Rehman, Gulzar Ahmed, Amjad Khattak, Jehan Akbar, and Mohsin Shah. Analysis of analog and digital data transmission in bent and cut off plastic optical fibers. In *National Conference on Quantum Technologies: Theory and Applications*,. IEEE, 2015
11. Mohsin Shah, Muhammad Asif Khan, Toqeer Mahmood, Khawar Islam, and Jehan Akbar. Generation of orthogonally polarized chaotic waveforms for secure optical communication. In *2013 IEEE 9th International Conference on Emerging Technologies (ICET)*, pages 1–5. IEEE, 2013
12. Rizwan Akhtar, Noor Ul Amin, Imran Memon, and Mohsin Shah. Implementation of secure aodv in manet. In *International Conference on Graphic and Image Processing (ICGIP 2012)*, volume 8768, page 876803. International Society for Optics and Photonics, 2013

Best Paper Awards

1. Best Paper Award 2020, Journal of Visual Communication and Image Representation

Certificates

1. Udemy Complete Python 3 Ethical Hacking: Beginner to Advanced
2. SimpliLearn Introduction to Data Science
3. Udemy Ethical Hacking: Introduction to Exploits
4. Kaggle Data Cleaning
5. Kaggle Python
6. Kaggle Data Visualization
7. Kaggle Introduction to Machine Learning
8. Kaggle Intermediate Machine Learning
9. Kaggle Introduction to Deep Learning
10. Kaggle Computer Vision
11. Udemy Complete Introduction to Cyber Security

Experience

March 2025–Present **Assistant Professor**, Gachon University, Republic of South Korea.
Serving as Research Professor (Assistant Professor) at the Department of Computer Engineering, Gachon University, Republic of South Korea.

Feb. 2009–Feb. 2025 **Assistant Professor**, Hazara University Mansehra.
Served as Assistant Professor at the Department of Telecommunication Hazara University Mansehra Pakistan.

Major Courses Taught

- Digital Image Processing
- Information Security
- Machine Learning
- Deep Learning
- Computer Vision

Sept. 2008– Feb. 2009 **BSS Engineer**, *Alcatel*, Zong Project.

Dec. 2007– Sept. 2008 **BSS Engineer**, *Nokia*, Telenor Project.

Apr. 2007– Dec. 2007 **Tranmission Engineer**, *NEC*, Telenor Project.

Languages

Pushto	Native language	
Urdu	National language	
English	Good	<i>IELTS 6.5 band</i>
Chines	Basic level	

Honors and Awards

1. Awarded CAS-TWAS President Fellowship for Ph.D study
2. Awarded Frontier Foundation Scholarship in B.Sc Telecommunication at the University of Engineering and Technology Peshawar Mardan Campus.
3. Awarded Fauji Foundation Scholarship in B.Sc Telecommunication at the University of Engineering and Technology Peshawar Mardan Campus

Technical Skills

Programming languages: Python, MATLAB

Text Editors: LaTeX, MS Word

Machine Learning Frameworks: TensorFlow, PyTorch

Data Analysis: Pandas, NumPy, Scikit-learn

Data Visualization: Matplotlib, Seaborn

Other tools: OriginLab, MS Visio

Reference

1. **Prof. Dr. Honggang Hu**, Department of Information Security, School of Information Science and Technology, University of Science and Technology of China.
 - Office: +86-551-63606377
 - Email: hghu2005@ustc.edu.cn
2. **Prof. Dr. Weiming Zhang**, Department of Information Security, School of Information Science and Technology, University of Science and Technology of China.
 - Office: +86-551-63600683
 - Email: zhangwm@ustc.edu.cn
3. **Prof. Dr. Zhaoxia Yin**, School of Communication & Electronic Engineering at East China Normal University.
 - Email: zxyin@cee.ecnu.edu.cn