# ATTA UR REHMAN KHAN

## Academic Rank

Professor

## Qualifications

- PhD, University of Malaya, Malaysia.
- MS(CS), COMSATS University, Pakistan.
- BS(CS) Hons, COMSATS University, Pakistan.

## Research field(s)

- Security
- Cloud Computing
- Mobile Computing
- Ad hoc Networks
- Blockchain

## Publications *(Last five years)*

- Aqsa Rashid, Asif Masood, Atta ur Rehman Khan, " ACS-IoT: Smart Contract and Blockchain Assisted Framework for Access Control Systems in IoT Enterprise Environment," in Wireless Personal Communications, 2024.

- Muhammad Zakarya, Ayaz Ali Khan, Mohammad Reza Chalak Qazani, Hashim Ali, Ali-Bahri Mahmood, Atta ur Rehman Khan, Ahmad Ali, Rahim Khan" Sustainable computing across datacenters: A review of enabling models and techniques," in Computer Science Review, vol. 52, no. 1, pp. 237-254, 2024.

- Syed Shakir Hameed Shah, Norziana Jamil, Atta ur Rehman Khan, Nazik Alturki, Zuhaira Muhammad Zain, "Malred: An Innovative Approach for Detecting Malware Using the Red Channel Analysis of Color Images," in Egyptian Informatics Journal, 2024.

- Abid Mehmood, Abdul Nasir Khan, Muhammad Nasir Mumtaz Bhutta, Iftikhar Ahmed Khan, Atta ur Rehman Khan, " An efficient and compromise-resilient image encryption scheme for resource-constrained environments," in PLoS one, 2024.

- Han Liao, Mohd Zamri Murah, Mohammad Kamrul Hasan, Azana Hafizah Mohd Aman, Jin Fang, Xuting Hu, Atta ur Rehman Khan, " A Survey of Deep Learning Technologies for Intrusion Detection in Internet of Things," in IEEE Access, vol. 12, pp. 4745 - 4761, 2024.

- Aqsa Rashid, Asif Masood, Atta ur Rehman Khan, "Zone of trust: blockchain assisted IoT authentication to support cross-communication between bubbles of trusted IoTs," in Cluster Computing, vol. 26, no. 1, pp. 237-254, 2023.

- Khaldoun Senjab, Sohail Abbas, Naveed Ahmed, Atta ur Rehman Khan, "A survey of Kubernetes scheduling algorithms," in Journal of Cloud Computing, 2023.

- Fatima Zahra, Maha Mohammad Safdar, Raja Wasim Ahmad, Atta ur Rehman Khan, "Blockchain-based Transparent and Secure System for Construction Equipment and Machinery Rental," in 24th IEEE International Arab Conference on Information Technology, December 6-8, 2023, Ajman, UAE.

- Mousab Mohammad Shtayat, Mohammad Kamrul Hasan, Rossilawati Sulaiman, Shayla Islam, Atta ur Rehman Khan, "An Explainable Ensemble Deep Learning Approach for Intrusion Detection in Industrial Internet of Things," in IEEE Access, vol. 11, pp. 115047-115061, 2023.

- Ehzaz Mustafa, Junaid Shuja, Kashif Bilal, Saad Mustafa, Tahir Maqsood, Faisal Rehman, Atta ur Rehman Khan, " Reinforcement Learning for Intelligent Online Computation Offloading in Wireless Powered Edge Networks," in Cluster Computing, vol. 26, no. 2, pp. 1053-1062, 2023.

- Salman Rain Ullah Mir, Yaman Ahmed Atef Kalaji, Raja Wasim Ahmad, Atta ur Rehman Khan, " Blockchain-based System for End-to-End Donations Monitoring," in 24th IEEE International Arab Conference on Information Technology, December 6-8, 2023, Ajman, UAE.

- Umer Zukaib, Nuhman Maray, Mohammed, Mustafa, Saad, Haq, Atta ur Rehman Khan, Faisal Rehman, " Impact of COVID-19 lockdown on air quality analyzed through machine learning techniques," in PeerJ Computer Science, 2023.

- Imtiaz Ali Shah, Abid Mehmood, Abdul Nasir Khan, Mourad Elhadef, Atta ur Rehman Khan, "HeuCrip: A Malware Detection Approach for Internet of Battlefield Things," in Cluster Computing, vol. 26, no. 2, pp. 977-992, 2023.

- Syed Qasim Afser Rizvi, Guojun Wang, Asif Khan, Mohammad Kamrul Hasan, Taher M. Ghazal, Atta Ur Rehman Khan, "Classifying Parkinson's Disease Using Resting State Electroencephalogram Signals and UEN-PDNet," in IEEE Access, 2023.

- Atta ur Rehman Khan, Raja Wasim Ahmad, "Blockchain-based Academic Degrees Issuance and Attestation," in International Conference on IT and Industrial Technologies, October 3-4, 2022, Faisalabad, Pakistan.

- Aqsa Rashid, Atta ur Rehman Khan, "Blockchain-based Autonomous Authentication and Integrity for Internet of Battlefield Things in C3I System," in IEEE Access, 2022.

- Syed Shakir Hameed Shah, Norziana Jamil, Atta ur Rehman Khan, Fiza Abdul Rahim, Zaihisma Che Cob, Lam Kwok Yan, " MalTrans: A Visual Approach of Malware Detection and Classification Using Transfer Learning," in Sensors, 2022.

- Syed Shakir Hameed Shah, Norziana Jamil, Atta ur Rehman Khan, " Performance comparison of visualization-based malware detection and classification techniques," in IEEE 17th International Conference on Emerging Technologies, November 29-30, 2022, Swabi, Pakistan.

- Syed Shakir Hameed Shah, Norziana Jamil, Atta ur Rehman Khan, "Memory Visualization-Based Malware Detection Technique," in Sensors, vol. 22, no. 19, 2022.

- Aqsa Rashid, Asif Masood, Atta ur Rehman Khan, "Zone of trust: blockchain assisted IoT authentication to support cross-communication between bubbles of trusted IoTs," in Cluster Computing, 2022.

- Atta ur Rehman Khan, Raja Wasim Ahmad, "A Blockchain-based IoT-enabled E-Waste Tracking and Tracing System for Smart Cities," in IEEE Access, vol. 10, pp. 86256-86269, 2022.

- Imtiaz Ali Shah, Abid Mehmood, Abdul Nasir Khan, Mourad Elhadef, Atta ur Rehman Khan, "HeuCrip: A Malware Detection Approach for Internet of Battlefield Things," in Cluster Computing, 2022.

- Syed Shakir Hameed Shah, Abd Rahim Ahmad, Norziana Jamil, Atta ur Rehman Khan, " Memory Forensics-Based Malware Detection Using Computer Vision and Machine Learning," in Electronics, vol. 11, no. 16, 2579, 2022.

- Ehzaz Mustafa, Junaid Shuja, Kashif Bilal, Saad Mustafa, Tahir Maqsood, Faisal Rehman, Atta ur Rehman Khan, " Reinforcement Learning for Intelligent Online Computation Offloading in Wireless Powered Edge Networks," in Cluster Computing, 2022.

- Muhammad Faisal Aziz, Abdul Nasir Khan, Junaid Shuja, Iftikhar Ahmed Khan1 Fiaz Gul Khan, Atta ur Rehman Khan, "A lightweight and compromise-resilient authentication scheme for IoTs," in Transactions on Emerging Telecommunications Technologies, vol. 33, no. 3, pp. e3813, 2022.

- Arslan Shafique, Abid Mehmood, Moatsum Alawida, Abdul Nasir Khan, Atta ur Rehman Khan, "A Novel Machine Learning Technique for Selecting Suitable Image Encryption Algorithms for IoT Applications," in Wireless Communications and Mobile Computing, 2022.

- Kottilingam Kottursamy, Atta ur Rehman Khan, Banupriya Sadayappillai, Gunasekaran Raja, "Optimized D-RAN Aware Data Retrieval for 5G Information Centric Networks," in Wireless Personal Communications, vol. 124, no. 2, pp. 1011-1032, 2021.

- Aqsa Rashid, Asif Masood, Atta ur Rehman Khan, "RC-AAM: blockchain-enabled decentralized role-centric authentication and access management for distributed organizations," in Cluster Computing, vol. 24, no. 4, pp. 3551-3571, 2021.

- Sohail Abbas, Qassim Nasir, Douae Nouichi, Mohamed Abdelsalam, Manar Abu Talib, Omnia AbuWaraga, Atta ur Rehman Khan, " Improving Security of the Internet of Things via RF Fingerprinting based Device Identification System," in Neural Computing and Applications, vol. 33, no. 21, pp. 14753-14769, 2021.

- Syed Mohsin Bokhari, Sarmad Sohaib, Ahsan Raza Khan, Muhammad Shafi, Atta ur Rehman Khan, "DGRU based human activity recognition using channel state information," in Measurement, vol. 167, 2021.

- Faruk Baturalp Günay, Ercüment Öztürk, Tuğrul Çavdar, Y. Sinan Hanay, Atta ur Rehman Khan, "Vehicular Ad Hoc Network (VANET) Localization Techniques: A Survey, " in Archives of Computational Methods in Engineering, vol. 28, no. 4, pp. 3001-3033, 2021.

- Hamid R. Alsanad, Osman N. Ucan, Muhammad Ilyas, Atta ur Rehman Khan, Oguz Bayat, "Real-Time Fuel Truck Detection Algorithm Based on Deep Convolutional Neural Network," in IEEE Access, vol. 8, pp. 118808-118817, 2020.

- Ayaz Ali Khan, Muhammad Zakaryaa, Rahim Khan, Izaz Ur Rahman, Mukhtaj Khan, Atta ur Rehman Khan, "An energy, performance efficient resource consolidation scheme for heterogeneous cloud datacenters," in Journal of Network and Computer Applications, vol. 150, pp. 102497, 2020.

- Sohail Abbas, Muhammad Haqdad, Muhammad Zahid Khan, Haseeb Ur Rehman, Ajab Khan, Atta ur Rehman Khan, "Survivability Analysis of MANET Routing Protocols under DOS Attacks," in Transactions on Internet and Information Systems, vol. 14, no. 9, PP. 3639-3662, 2020.

- Sardar Khaliq Uzaman, Atta ur Rehman Khan, Junaid Shuja, Tahir Maqsood, Faisal Rehman, Saad Mustafa, "A Systems Overview of Commercial Data Centers: Initial Energy and Cost Analysis," in International Journal of Information Technology and Web Engineering, vol. 14, no. 1, pp. 41-65, 2019.

- Beenish Gul, Imran Ali Khan, Saad Mustafa, Osman Khalid, Atta ur Rehman Khan, "CPU-RAM-based energy-efficient resource allocation in clouds," in The Journal of Superomputing, vol. 75, no. 11, pp. 7606-7624, 2019.

- Tauqeer Khalid, Abdul Nasir Khan, Mazhar Ali, Adil Adeel, Atta ur Rehman Khan, Junaid Shuja, "A fog-based security framework for intelligent traffic light control system," in Multimedia Tools and Applications, vol. 78, no. 17, pp. 24595-24615, 2019.

- Faiza Qazi, Osman Khalid, Rao N. B. Rais, Imran Ali Khan, Atta ur Rehman Khan, "Optimal Content Caching in Content-Centric Networks," in Wireless Communications and Mobile Computing, 2019.
- Malik Najmus Saqib, Junaid Kiani, Basit Shahzad, Adeel Anjum, Saif ur Rehman Malik, Naveed Ahmad, Atta ur Rehman Khan, "Anonymous and formally verified dual signature based online e-voting protocol," in Cluster Computing, vol. 22, no. 1, pp. 1703-1716, 2019.
- Hafeez Ur Rehman, Usman Habib, Umer Ijaz, Naveed Islam, Atta ur Rehman Khan, Raheel Nawaz, "Identification of Yeast's Interactome using Neural Networks," in IEEE Access, 2019.
- Anum Khurshid, Abdul Nasir Khan, Fiaz Gul Khan, Mazhar Ali, Junaid Shuja, Atta ur Rehman Khan, "Secure-CamFlow: A Device Oriented Security Model to Assist Information Flow Control Systems in Cloud Environments for IoTs," in Concurrency and Computation: Practice and Experience, vol. 31, no. 8, pp. 1-22, 2019.
- Rizwana Irfan, Osman Khalid, Muhammad U. S. Khan, Faisal Rehman, Atta Ur Rehman Khan, Raheel Nawaz, "SocialRec: A Context-aware Recommendation Framework with Explicit Sentiment Analysis," in IEEE Access, vol 7, no. 1, pp. 116295-116308, 2019.
- Sardar Khaliq uz Zaman, Tahir Maqsood, Mazhar Ali, Kashif Bilal, Sajjad A. Madani, Atta ur Rehman Khan, "A load balanced task scheduling heuristic for Large-scale Computing Systems," in International Journal of Computer Systems Science and Engineering, vol. 34, no. 2, pp. 1-12, 2019.
- Qusay F. Hassan, Atta ur Rehman Khan, Sajjad A. Madani, "Internet of Things: Challenges, Advances, and Applications," by Chapman and Hall/CRC, ISBN:9781498778510, 2018. (Book)
- Sohail Abbas, Mohammad Faisal, Haseeb Ur Rahman, Mohammad Zahid Khan, Madjid Merabti, Atta ur Rehman Khan, "Masquerading Attacks Detection in Mobile Ad Hoc Networks," in IEEE Access, vol. 6, no. 1, pp. 55013-55025, 2018.
- Raja Wasim Ahmad, Siti Hafizah Ab Hamid, Abdullah Gani, Mohammad S. Obaidat, Junaid Shuja, Faisal Rehman, Atta Ur Rehman Khan, "Performance Assessment of Dynamic Analysis Based Energy Estimation Tools," in International Symposium on Performance Evaluation of Computer and Telecommunication Systems, pp. 1-12, July 2018, France. (Best Paper Award)
- Hajra Qadir, Osman Khalid, Mohammad Usman Shahid Khan, Atta ur Rehman Khan and Raheel Nawaz, "An Optimal Ride Sharing Recommendation Framework for Carpooling Services," in IEEE Access, vol 6, no. 1, pp. 62296-62313, 2018.
- Raja Wasim Ahmad, Rafi Us Shan, Atta ur Rehman Khan, et al., "An Investigation of Video Communication over Bandwidth Limited Public Safety Network," in Malaysian Journal of Computer Science, vol. 31, no. 2, pp. 85-107, 2018.
- Tassawar Iqbal, Muhammad Tariq Yousafzai, Sabeen Ali, Kinza Sattar, Muhammad Qaiser Saleem, Usman Habib, and Atta ur Rehman Khan, "There's No Such Thing as Free Lunch but Envy among Young Facebookers, " in KSII Transactions on Internet and Information Systems, vol. 12, no. 10, 2018.
- Manzoor Ali and Muhammad Shafi and Umar Farooq, Atta ur Rehman Khan, " Salat Activity Recognition using Smartphone Triaxial Accelerometer," in 5th International Multi-Topic ICT Conference (IMTIC), April 2018.

## Courses Taught *(Last five years)*

- Cloud Computing
- Wireless Networks
- Fundamentals of Information Security
- Introductory programming
- Fundamentals of data communications and networking
- Information systems project
- Advanced computer networks
- Network design and implementation
- Mobile and wireless networks

- Information security
- Advanced computer and network security
- Ethical hacking
- Special topics
- Wireless and Mobile Computing
- Modern programming
- Network management
- Web programming
- Data structures
- Computer communication and networks
- Database fundamentals
- Applied databases
- Software engineering
- Network operating systems
- Computer organization

## Professional Experience

- Aug 2024 - Present, Professor, College of Engineering and Information Technology, Ajman University, UAE.
- Sept 2020 - Aug 2024, Associate Professor, College of Engineering and Information Technology, Ajman University, UAE.
- Sept 2018 - Aug 2020, Postgraduate Program Coordinator/Associate Professor, Faculty of Computing and Information Technology, Sohar University, Oman.
- Aug 2017 - Aug 2018, Director National Cybercrime Forensics Lab/ Head Air University Cybersecurity Center/ Associate Professor, Department of Computer Science, Air University, Islamabad, Pakistan
- Dec 2015 - Aug 2017, Assistant Professor, College of Computer and Information Sciences, King Saud University, Saudi Arabia.
- Aug 2014 - Dec 2015, Assistant Professor, Department of Computer Sciences, COMSATS University, Abbottabad, Pakistan.
- May 2014 - Aug 2014, Lecturer, Department of Computer Sciences, COMSATS University, Abbottabad, Pakistan.
- Sept 2011 - May 2014, Research Associate Faculty of Computer Science & Information Technology , University of Malaya, Kuala Lumpur, Malaysia.
- Sep 2010 - Sep 2011, Lecturer, Department of Computer Sciences, COMSATS University, Abbottabad, Pakistan.
- Sep 2008 - Sep 2010, Research Assistant, Department of Computer Sciences, COMSATS University, Abbottabad, Pakistan.
- Oct 2007 - Sep 2008, Lecturer, Department of Computer Sciences, Qurtuba University, Dera Ismail Khan, Pakistan.

## Committees Work

- Member, Faculty Development Committee and Continuous Education Committee, Ajman University, UAE, 2021- Present.
- Member, Committee for Development of Associate Diploma in Networking, Ajman University, 2022.
- Evaluator for Undergraduate Projects, Ajman University, UAE, 2021-2022.
- Member, TLC committee, Ajman University, UAE, 2021 - Present
- Program Evaluator, National Computing Education Accreditation Council (NCEAC), Pakistan.
- Domain Expert, CONICYT National Commission for Scientific and Technological Research, Santiago, Chile.
- Member, Coordinators Committee, Sohar University, 2019 - 2020.
- Member, Quality Committee, Sohar University, 2019 - 2020.
- Member, University Postgraduate Committee, Sohar University, 2019 - 2020.
- Member, Faculty Hiring and Promotion Committee, Sohar University, 2019 - 2020.
- Member, University Examination Board Committee, Sohar University, 2019 - 2020.
- Head, Faculty Research Development, Sohar University, 2018-2020.
- Founding Director, National Cybercrime Forensics Lab, Pakistan, 2017-2018.
- Head, Air University Cybersecurity Centre, Air University, Pakistan, 2017- 2018.
- Chair, AirTech Hackathon, Pakistan, 2017.
- Conferences Chair, IEEE Islamabad Section, Pakistan, 2017-2018.
- Member, QEC, Air University, 2017-2018.

- Research Committee Chair, College of Computer & Information Science (Muzahmiyah Campus), King Saud University, 2016-2017.
- Head, Mobile and Distributed Computing Research Group, King Saud University, 2016-2017.
- Member, Academic Quality Control Committee, King Saud University, 2016-2017.
- Head, Professional Training Program, COMSATS University, 2015.
- Head, Programming Lab Manual preparation committee, COMSATS University, 2015.
- Head, Ubiquitous and mobile computing research group, COMSATS University, Pakistan, 2014 - 2015.
- Member, Project evaluation committee, COMSATS University, Pakistan, 2014 - 2015.
- Convener, Quiz competition committee, Visions ICT, COMSATS University, Pakistan, 2011.
- Member, Project evaluation committee, COMSATS University, Pakistan, 2010-2011.
- Member, Admissions marketing committee, COMSATS University, Pakistan, 2010-2011.
- Supervisor, Evening programs, Qurtuba University, Pakistan, 2007-2008.

## Honors and Awards

- Senior Member, IEEE
- Senior Member, ACM
- Program Evaluator, ABET
- Cumulative Impact Factor Score of the published journal articles: 220+
- Listed in World's Top 2% Scientists Report, Stanford University, USA, 2023
- Highest Achiever of Continuing Professional Development (Teaching and Learning), Ajman University, 2022
- Listed in World's Top 2% Scientists Report, Stanford University, USA, 2022
- Shield and Certificate for Supervising Best Scientific Research Project, Ajman University, UAE, 2021
- Listed in World's Top 2% Scientists Report, Stanford University, USA, 2020
- Program Evaluator, National Computing Education Accreditation Council (NCEAC), Pakistan
- Domain Expert, CONICYT National Commission for Scientific and Technological Research, Santiago, Chile
- Featured on PrideofPakistan.com
- Research Incentive Award, Sohar University, Oman, 2020
- Research Incentive Award, Sohar University, Oman, 2019
- Best Paper Award, SPECTS, 2018
- Global Goodwill Ambassador, 2018
- Research Incentive Award, Air University, Pakistan, 2018
- Judge, Project Competition, Frontiers of Information Technology, Pakistan, Dec 2017
- Chair, AirTech Hackathon Pakistan, 2017
- Listed in Who's Who in the World 2017
- Certificate of Outstanding Contribution in Reviewing, Elsevier, 2016
- Research Productivity Award, COMSATS University, Pakistan, 2016.
- Judge, Graduate Research Poster Evaluation, Technomoot, Abbottabad, Pakistan, 2015
- Research Productivity Award, COMSATS University, Pakistan, 2015
- GoT Award, University of Malaya, 2014
- PhD Research Paper among top 1% highly cited papers of the academic field of computer science (Clarivate - Web of Science)
- Research Productivity Award, COMSATS University, Pakistan, 2012

- BrightSparks Fellowship, 2011
- DAAD Fellowship, 2011
- Best Research Poster Award, Vision ICT, Pakistan, 2010
- Best Project Award, Vision ICT, Pakistan, 2009
- Best Project Award, Frontiers of Information Technology, Pakistan, 2008.

## Other Contributions and Achievements

- Associate Technical Editor, IEEE Communications Magazine.
- Editor, Elsevier Journal of Network and Computer Applications.
- Associate Editor, IEEE Access.
  Associate Editor, Springer Journal of Cluster Computing.
- Editor, Ad hoc & Sensor Wireless Networks.
- Editor, The Computer Journal.
- Editor, KSII Transactions on Internet and Information Systems.
- Associate Editor, Springer Human-centric Computing and Information Sciences.
- Editor, SpringerPlus.
- Editor, IEEE SDN Newsletter.
- Received research grants of over 1 million USD.
- Served as a Steering Committee Member/ PC Chair/ Track Chair/ Technical Program Committee (TPC) member of over 90 international conferences.
- Delivered numerous keynote talks at international conferences and universities.
- Participated as a panelist at International/national level forums.
- Participated as a judge at national level academic competitions.