Kashif Kifayat

Curriculum Vitae

Personal Details

Name: Professor Kashif Kifayat (Pride of Performance Cyber Security)

Address: University of Khorfakkan, Sharjah, UAE

Email Address: Kashif.Kifayat@ukf.ac.uk

Academic Qualifications

- **2008 - PhD** in Secure Communication for Wireless Sensor Networks, Department of Computer Science, Liverpool John Moores University (LJMU), Liverpool, UK
  - *Thesis: Group based secure communication for Wireless Sensor Networks*
- **2005 - MSc** in Computer Science, University of Liverpool, Liverpool, UK
  - *Thesis: Routing Protocol for Wireless Sensor Networks*
- **2003 - BSc** (Hons, Gold Medallist) in Computer Science, University of Peshawar, Pakistan.
- **2012 - PGCert** Learning and Teaching in Higher Education, Liverpool John Moores University, Liverpool, UK.
  - *Thesis: An investigation of impact factors which could affect or enhance students' learning in practical work module*

Employment History

Previous Experience (Employer, Duration, Role and Responsibilities)

- August 2024 – Present, Vice Chancellor Academic Affairs, Director Research and Innovation, Professor in Cyber Security, University of Khor Fakkan

- July 2018 – July 2024 (6 Years), Director National Centre of Cyber Security, Project Execution as Project Director

- July 2017 – Present (6 Years), Professor in Cyber Security, Department of Cyber Security, Air University

- Dean Faculty of Computing & Artificial Intelligence (FCAI), Air University, Pakistan. September 2019 – August 2023 (4 Years)

- Chair Cyber Security Department, Air University, Pakistan. September 2019 – August 2020 (1 Year)

- Chair Computer Science Department, Air University, Pakistan. September 2017 – September 2019 (2 Years)

- Reader in Cyber Security, Liverpool John Moores University, UK. January 2016 – September 2017 (1.9 Years)

- Senior Lecturer in Cyber Security, Liverpool John Moores University, UK. January 2010 – January 2016 (6.1 Years)

- Research Fellow in Cyber Security, Liverpool John Moores University, UK. September 2008 – January 2010 (1.5 Years)

- IT Manager & Software Developer, Meade-King Robinson & Co. Ltd. Liverpool, UK. January 2003 – September 2008 (5.9 Years)

- Lecturer in Computer Science, CECOS University, Pakistan. January 2000 – January 2003 (3.1 Years)

Professional Membership & Activities

- HEA (Higher Education Academy) Fellow since 2013/14
- Member of European Network and information Security Agency (ENISA) since 2010.
- Member of Cloud Computing Interoperability Forum (CCIF).
- Member of The Information Assurance Adversary Council (IAAC), UK.
- Associate member of European Information Network (EINIRAS).

Teaching Experience

Professor Kashif Kifayat has over 23 years of experience in teaching. He is the awards winner of Amazing Teaching Award 2015 and Amazing Supervisor Award 2017 in the UK.

Module Taught in LJMU UK and Air University Pakistan

- **Introduction to Programming:** BS Cyber Security and Gaming
- **Object Oriented Programming:** BS Cyber Security and Gaming
- **Network Security:** MS and PhD
- **Computer Programming:** BS

- **Ethical Hacking:** PhD
- **Network Security**, 6066COMP, BSc (Level 6), Liverpool John Moores University, 2010-Present (Average number of students 60, 3 hrs/week, semesters 1).
- **Cyber Hacking & Defence**, 6064COMP, BSc (Level 6), Liverpool John Moores University, 2011-Present (Average number of students 10, 3 hrs/week, semesters 1 and 2).
- **Computer Security**, 7071COMP MSc, Liverpool John Moores University, 2010-Present.
- **Advance Topics in Network Security**, MSc, Liverpool John Moores University, 2011.
- **Introduction to Programming**, 4001COMP, BSc (level 4), Liverpool John Moores University, 2010-2013 (Average number of students 200, 2 hrs/week, semesters 1 and 2).
- **Computer Systems Architecture**, 4008COMP, BSc (level 4), Liverpool John Moores University, 2010-2013 (Average number of students 300, 3 hrs/week, semester 1).

Conferences & Workshops

Leading and Founding Conference Chair

- Chair, Pakistan Cyber Security Challenge 2023.
- Chair, Pakistan Games Developer Conference (PGDC) 2023.
- Chair, IEEE International Cyber Security Conference, 2020, 2021, and 2022
- Chair International Conference on Human Factor of the Cyber Security, 2022
- Chair, Pakistan Cyber Security Challenge 2022
- HEA second National Conference on Cyber Security Teaching and Learning 5th and 6th of April 2017, Liverpool, UK.
- Workshop on Cybersecurity Strategy for Maritime, Liverpool John Moores University, National Cybersecurity Centre, and TITAN, at Maritime Knowledge Hub, Birkenhead, 2017
- Workshop on Cybercrime Prevention and Protection, Merseyside Police and Liverpool John Moores University, Open Lab, 2016, Liverpool.
- HEA 1st National Conference on Cyber Security Teaching and Learning, Maple House, Birmingham, UK, 2016.
- UK 1st, 2nd and 3rd National Workshop on Cyber Security Education and Training 2015.
- Annual Postgraduate Symposium on Convergence of Telecommunications Networking and Broadcasting (PGNet), 2008-2013
- Special Session on System of Systems Security, the 6th IEEE International Conference on System of Systems Engineering (SoSE 2011), Albuquerque, New Mexico, USA, 27-30 June 2011.

Research Interests

- Artificial Intelligence and Big Data Analytics
- Digital Forensics
- System-of-System Security and Risk Analysis
- Intrusion Detection, Intrusion Evasion and Prediction Systems
- Access Control
- Key Management
- Security of Cloud Computing
- Security of Wireless Sensor Network
- Security of Complex Systems
- Security of Smart Grid and IoT
- Cybercrime and Digital Forensics
- Cybersecurity Commercialization
- Teaching and Learning in Computing

Research Publications (Books, Journals & Conferences papers)

Edited Journal as an Editor

1. Zhigeng Pan, Adrian David Cheok, Wolfgang Müller, Mingmin Zhang, Abdennour El Rhalibi, Kashif Kifayat: Transactions on Edutainment XV. Lecture Notes in Computer Science 11345, Springer 2019, ISBN 978-3-662-59350-9.

Journals

1. U Muzamil Shah, D Mustafa Minhas, **K Kifayat**, K Ali Shah, G Frey, "Threat Modeling and Attacks on Digital Twins of Vehicles: A Systematic Literature Review", MDPI Smart Cities, 2025.
2. M Mushtaq, **K Kifayat,** "BFL-SDWANTrust: Blockchain Federated-Learning-Enabled Trust Framework for Secure East–West Communication in Multi-Controller SD-WANs", MDPI Sensors, Vol. 15 Issue. 16, 2025.
3. K Alam, **K Kifayat**, GA Sampedro, V Karovic, T Naeem, "SXAD: Shapely eXplainable AI-based Anomaly Detection using Log Data", IEEE Access, 2024.
4. H Rahman, UM Shah, SM Riaz, **K Kifayat**, SA Moqurrab, J Yoo, "Digital twin framework for smart greenhouse management using next-gen mobile networks and machine learning", Future Generation Computer Systems, 2024.
5. M Zafar, **K Kifayat**, A Gul, U Tahir, SA Ghazalah, Complex networks after centrality-based attacks and defense, Complex & Intelligent Systems, Vol 1 Issue 17, 2024,
6. K Bakhat, **K Kifayat,** MS Islam, MM Islam, "Utilizing CPG-3D, graph theory anchored approach to recognize human action recognition", Multimedia Tools and Applications, 1-16
7. M. Sangeen, N. A. Bhatti, **K. Kifayat,** A. Abdullah Alsadhan, H. Wang, "Blind-trust: Raising awareness of the dangers of using unsecured public Wi-Fi networks", Journal of Computer Communication, Vol 209, PP 359-367 (2023)
8. M. A. Anwar, S. F. Tahir, L. G. Fahad, **K. Kifayat**, "Image forgery detection by transforming local descriptors into deep-derived features", Journal of Applied Soft Computing, Vol 147 ,PP 110730, 2023.

9. K. Bakhat, **K. Kifayat**, M S. Islam, M. M. Islam, "Link prediction grounded upon complex networks-based model, based on MJMI-RW", Knowledge-Based Systems, PP p. 110589, 2023.

10. K. Bakhat, **K. Kifayat**, M S. Islam, M M. Islam, "Katz centrality-based approach to perform human action recognition by using OMKZ", Journal of Signal, Image and Video Processing, Vol 17, Issue 4, PP 1677-1685, Springer London, 2023.

11. [*] A. Muhammad, I. Murtza, A. Saadia, K. Kifayat, "Cortex-inspired ensemble-based network intrusion detection system", Journal of Neural Computing and Applications, PP 1-14, Springer London, 2023.

12. M. Ali, M. Hassan, **K. Kifayat**, J. Young Kim, S. Hakak, M. Khurram Khan, "Social media content classification and community detection using deep learning and graph analytics", Technological Forecasting and Social Change, Vol 188, 122252, ISSN 0040-1625, 2023.

13. A.R. Javed, W. Ahmed, M. Alazab, Z. Jalil, **K. Kifayat**, T. Reddy Gadekallu, "A Comprehensive Survey on Computer Forensics: State-of-the-Art, Tools, Techniques, Challenges, and Future Directions. IEEE Access 10: 11065-11089, 2022

14. M. S. Khan, **K. Kifayat,** A. Kashif, M. Hassan, A. Gurtov, "Intelligent intrusion detection system in smart grid using computational intelligence and machine learning", Transactions on Emerging Telecommunications Technologies, vol 32, No 6, 2021 **[1.258].**

15. A. Basit, M. Zafar, X. Liu, A. Rehman Javed, Z. Jalil, K. Kifayat, "A comprehensive survey of AI-enabled phishing attacks detection techniques", Telecommunications. System Vol 76, Issue 1, pp 139-154, 2021 **[2.33]**.

16. [*] T. Rose, **K. Kifayat**, S. Abbas, M. Asim, "A hybrid anomaly-based intrusion detection system to improve time complexity in the Internet of Energy environment", Journal of Parallel and Distributed Computing, Vol 145, November 2020, pp 124-139 **[2.296].**

17. [*] Kirsty E Lever, **K. Kifayat**, "Identifying and mitigating security risks for secure and robust NGI networks", Sustainable Cities and Society, Vol 59, 2020 **[5.268].**

18. [*] H. Nafea, **K. Kifayat**, Q. Shi, K.Qureshi, B.Askwith: "Efficient Non-Linear Covert Channel Detection in TCP Data Streams". IEEE Access vol 8, pp 1680-1690, Jan 2020 **[4.098]**.

19. S. Fahad Tahir, L. Fahad, **K. Kifayat**, "Key feature identification for recognition of activities performed by a smart-home resident. Journal of Ambient Intelligence and Humanized Computing. Vol 11, No 5, pp. 2105-2115, 2020 **[3.42].**

20. R. R. Al-Dahhan, Q. Shi, G. Myoung Lee, **K. Kifayat**, "Survey on Revocation in Ciphertext-Policy Attribute-Based Encryption" Sensors Vol 19, Issue 7, pp.1695, 2019 **[3.51]**.

21. G. Abbas, U. Raza, Z. Halim, **K. Kifayat**, "ARCH: A dual-mode fairness-driven AQM for promoting cooperative behaviour in best effort Internet", **IET Networks**, Vol. 8, No. 6, November 2019, pp. 372–380 **[2.58]**.

22. [*] S. Abbas, M. Merabti, **K. Kifayat**, T. Baker, "Thwarting Sybil Attackers in Reputation-based Scheme in Mobile Ad hoc Networks", KSII Transactions on Internet and Information Systems, Vol 13, Issue 12, pp. 6214-6242 **[0.79].**

23. [*] P. R .McWhirter, **K. Kifayat,** Q. Shi, B. Askwith, "SQL Injection Attack classification through the feature extraction of SQL query strings using a Gap-Weighted String Subsequence Kernel", Journal of Information Security and Applications, vol. 40, pp 199-216, April 2018. **[2.57]**.

24. M. Taylor, M. Baskett, M. Allen, H. Francis, **K. Kifayat**, "Animation as an aid to support the teaching of cyber security concepts", Journal of Innovations in Education & Teaching International, 2017 **[1.37]**.
25. L. Topham, **K. Kifayat,** Y. A. Younis, Q. Shi, and B. Askwith, "Cyber Security Teaching and Learning Laboratories: A Survey", Information & Security: An International Journal, vol. 35, 2016.
26. B. Alohali, **K. Kifayat**, Q. Shi, and W. Hurst, "Group Authentication Scheme for Neighbourhood Area Networks (NANs) in Smart Grids", Journal of Sensor and Actuator Networks, vol. 5, no 2, 2016. **[X][2.75].**
27. [*] K.E. Lever, **K. Kifayat**, "The Challenge of Quantifying and Modelling Risk Elements within Collaborative Infrastructures", International Journal of Risk Assessment and Management (IJRAM), vol. 19, no. 3, pp. 167-193, 2016 **[0.37].**
28. [*] K.E. Lever, **K. Kifayat**, "Risk Assessment and Attack Graph Generation for Collaborative Infrastructures: A Survey", International Journal of Critical Computer-Based Systems, Special issue on Critical Infrastructure Computer Technology and Protection, vol. 6, no. 3, pp. 204-228, 2016. **[Y][0.22].**
29. [*] Y. A. Younis, **K. Kifayat**, and M. Merabti, "An Access Control Model for Cloud Computing," Journal of Information Security Applications, vol. 19, no. 1, pp. 45–60, Feb. 2015 **[X][2.57]**.
30. B. Alohali, **K. Kifayat**, Q. Shi, and W. Hurst, "A Survey on Cryptography Key Management Schemes for Smart Grid," Journal of Computer Sciences and Applications, vol. 3, pp. 27-39, 2015.
31. Á. MacDermott, Q. Shi, M. Merabti, **K. Kifayat**, "Collaborative Intrusion Detection in Federated Cloud Environments", Journal of Computer Sciences and Applications, vol. 3 no. 3A, pp. 10-20, 2015
32. A. MacDermott, Q. Shi, M. Merabti, **K. Kifayat**, "Hosting Critical Infrastructure Services in the Cloud Environment Considerations", International Journal of Critical Infrastructures, vol. 10, no. 3, 2014. **[Y][0.46]**
33. [*] S. Abbas, M. Merabti, D. Llewellyn-Jones, **K. Kifayat**, "Lightweight Sybil Attack Detection in MANETs", IEEE Systems Journal, vol. 7, no. 2, pp. 236-248, 2013 **[Submit to REF 2014]. [W][Gold][5.28]**
34. [*] Q. Shi, N. Zhang, M. Merabti, **K. Kifayat**, "Resource-efficient authentic key establishment in heterogeneous wireless sensor networks", Journal of Parallel and Distributed Computing, vol. 73, no. 2, pp. 235-249, 2013 **[Submit to REF 2014] [W][Bronze][2.296].**
35. **K. Kifayat**, M. Merabti, Q. Shi, S. Abbas, "Component-based security system (COMSEC) with QoS for wireless sensor networks". Journal of Security and Communication Networks, vol. 6, no. 4, pp. 461-472, 2013. **[X][2.04]**
36. A. MacDermott, Q. Shi, M. Merabti, **K. Kifayat**, "An Elastic Scaling Method for Cloud Security", Journal of Internet Technology and Secured Transactions (JITST), vol. 3, no. 3, 2013.**[Y][0.73]**
37. S. T. Farajaa, W. K. Awad, **K. Kifayat,** "Trusted E-Contracts in Collaborative Intra-Cloud Business-To-Business environments". Journal on Communication Engineering and Systems (JCS), vol. 2, no. 3, ISSN – 22775102, 2013.
38. S. T. Farajaa, S. A. Jassim, **K. Kifayat**, "Mediated IBC-Based Management System of Identity and Access in Cloud Computing", Tikrit Journal of Engineering Science (TJES), vol. 20, no. 3, pp. 75-86, 2013.

39. **K. Kifayat,** M. Merabti, Q. Shi, "Future Security Challenges in Cloud Computing", International Journal Multimedia Intelligence and Security (IJMIS), vol. 1, no 4, 2011

40. **K. Kifayat,** M. Merabti, Q. Shi, D. Llewellyn-Jones, "Application Independent Dynamic Group-Based Key Establishment for Large-scale Wireless Sensor Networks", China Communications Journal, vol. 4, no. 1, pp. 14-27, China Institute of Communications, February 2007 **[X][2.30].**

41. **K. Kifayat,** M. Merabti, Q. Shi, D. Llewellyn-Jones, "Group-Based Secure Communication for Large Scale Wireless Sensor Networks", Journal of Information Assurance and Security (JIAS), vol. 2, no. 2, June 2007 **[Y]**.

Book Chapters

1. B. Alohali, **K. Kifayat**, Q. Shi, W. Hurst, "A Key Management Scheme for Secure Communications Based on Smart Grid Requirements (KMS-CL-SG)", Security Solutions and Applied Cryptography in Smart Grid Communications, pp. 242, 2017, IGI Global, ISBN: 978-1-522-51829-7.

2. M. Abdlhamed, **K. Kifayat**, Q. Shi, and W. Hurst, "Intrusion Prediction Systems", Information Fusion for Cyber-Security Analytics, Springer International Publishing, 2017, pp. 155–174, ISBN: 978-3-319-44257-0

3. **K. Kifayat,** T. Baker, M. Mackay, M. Merabti, Q. Shi, "Real Time Risk Management in Cloud Computation", Handbook of Security Engineering for Cloud Computing: Approaches and Tools", 2013, IGI Global, ISBN 978-1-466-62125-1.

4. **K. Kifayat**, M. Merabti, Q. Shi, D. Llewellyn-Jones, "Security in Wireless Sensor Networks", Handbook of Information and Communication Security, Springer Berlin Heidelberg, 23 February 2010. Book Chapter. Eds. Peter Stavroulakis, Mark Stamp. ISBN 978-3-642-04116-7.

Conference Papers

1. Muhammad Sangeen, Naveed Anwar Bhatti, Kashif Kifayat, "PortScout: A Communication Flow-Based Approach to Detect Port Scanning Evasion Attacks", 2025 IEEE International Conference on Communications (ICC): Next-Generation Networking and Internet Symposium, Pages 3045-3050

2. Bilal Ahmed Kamal, Abdul Basit Shahid, Syed Muhammad Sajjad, Kashif Kifayat, Khwaja Mansoor Ul Hassan, "A Novel Technique of Android Stealth Rooting", IEEE 17th International Conference on Development in eSystem Engineering (DeSE), 2024.

3. M Ishaq, K Kifayat, M Zafar, "A Survey on Human Factors in Cyberspace: A New Dimension of Privacy Threats", 2023 International Conference on Communication, Computing and Digital.

4. Akeel A. Thlunoon, Kashif Kifayat, "Enforcing Access Control Models in System Applications by Using Aspect-Oriented Programming", (p 100-105), 10th International Conference on Developments in eSystems Engineering, DeSE 2017, Paris, France, June 14-16, 2017. IEEE 2017, ISBN 978-1-5386-1721-2.

5. Áine MacDermott, Qi Shi, Kashif Kifayat,, "Distributed Attack Prevention Using Dempster-Shafer Theory of Evidence", (p 203-212), 13th International Conference, ICIC 2017, Liverpool, UK, August 7-10, 2017,

6. **K. Kifayat,** "CYPHER: CYPHER: InteraCtive CrYPtograpHic Protocol TEaching and LeaRning", HEA STEM Conference, Manchester, 1-2 February, 2017.

7. Y. A. Younis, **K. Kifayat**, A. Hussain, "Preventing and Detecting Cache Side-Channel Attacks in Cloud Computing", the second International Conference on

Internet of Things, Data and Cloud Computing (ICC 2017), Cambridge UK, 22-23 March, ICPS, (p. 7), 2017

8. B. Alohali, **K. Kifayat**, Q. Shi, W. Hurst, "Replay Attack Impact on Advanced Metering Infrastructure (AMI)", Smart Grid Inspired Future Technologies: First EAI International Conference on Smart Grid Inspired Future Technologies 2016, Liverpool, UK, May 19-20, 2016, Springer International Publishing.

9. B. Alohali, **K. Kifayat**, Q. Shi, Impact of Topology on Service Availability in a Smart Grid Advanced Metering Infrastructure, EMERGING 2016: The Eighth International Conference on Emerging Networks and Systems Intelligence, pp 29-33, 2016, IARIA XPS Press.

10. M. Abdlhamed, **K. Kifayat**, Q. Shi, and W. Hurst, "A System for Intrusion Prediction in Cloud Computing," in proceedings of The International Conference on Internet of things and Cloud Computing (ICC 2016), University of Cambridge, UK, 2016, pp. 1–9.

11. **K. Kifayat**, "Virtual Cloud Based Cyber Security Training Platform", the Annual LJMU Teaching and Learning Conference, Liverpool, UK, 2015.

12. K.E. Lever, **K. Kifayat,** Á. MacDermott, "Modelling Interdependencies and Cascading Failures Using Distributed Attack Graph Generation Methods for Critical Infrastructure Defence", 8th International Conference Developments in eSystems Engineering, 2015.

13. K.E. Lever, **K. Kifayat**, M. Merabti, "Identifying Interdependencies Using Attack Graph Generation Methods", 11th International Conference on Innovations in Information Technology, 2015.

14. K.E. Lever, **K. Kifayat,** Á. MacDermott, "Evaluating Interdependencies and Cascading Failures Using Distributed Attack Graph Generation Methods for Critical Infrastructure Defence", 2015 International Conference on Developments of E-Systems Engineering (DeSE), Dubai, United Arab Emirates , pp. 47-52, 13-14 Dec. 2015.

15. Y. A. Younis, **K. Kifayat**, Q. Shi, and B. Askwith, "A New Prime and Probe Cache Side Channel Attack for Cloud Computing", 13th IEEE International Conference on Dependable, Autonomic and Secure Computing (DASC-2015), pp. 7, Liverpool UK. 2015.

16. Y. A. Younis, **K. Kifayat**, and M. Merabti, "A Novel Evaluation Criteria to Cloud Based Access Control Models", 11th IEEE International Conference on Innovations in Information Technology (IIT'15), pp. 6, Dubai, UAE. 2015.

17. Á. MacDermott, Q. Shi, **K. Kifayat**, "Collaborative Intrusion Detection in a Federated Cloud Environment Using the Dempster-Shafer Theory of Evidence", 14th European Conference on Cyber Warfare and Security, 2015.

18. B. Alohali, and **K. Kifayat**, "A New Key Management Scheme Based on Smart Grid   Requirements", 9th International Conference on Computer Engineering and Applications (CEA '15), Dubai, UAE, 2015

19. Y. A. Younis and **K. Kifayat**, "Cache Side-Channel Attacks in Cloud Computing", second International Conference on Cloud Security Management ICCSM- 2014, pp. 10, Reading, UK, 2014.

20. M. Abdlhamed, **K. Kifayat**, "Security Challenges in Cloud Computing Domains", in Proceedings of the 15th Annual Post Graduate Symposium on the Convergence of Telecommunications, Networking and Broadcasting (PGNet 2014), UK, 2014.

21. K.E. Lever, M. Merabti, **K. Kifayat**, D. Llewellyn-Jones, "Elements of Risk Within Systems-of-Systems", 15th Annual Post Graduate Symposium on the Convergence

of Telecommunications, Networking and Broadcasting (PGNet), Liverpool, UK, 2014.

22. B. Alohali, M. Merabti, and **K. Kifayat**, "A New Key Management Scheme for Home Area Network (HAN) In Smart Grid", 15th Annual Post Graduate Symposium on the Convergence of Telecommunications, Networking and Broadcasting (PGNet), Liverpool, UK, 2014.

23. B. Alohali, M. Merabti, and **K. Kifayat**, "A secure scheme for a smart house based on Cloud of Things (CoT)", 6th Computer Science and Electronic Engineering Conference (CEEC), pp. 115-120, Essex, UK, 2014.

24. B. Alohali, M. Merabti, and **K. Kifayat**, "A Cloud of Things (CoT) Based Security for Home Area Network (HAN) in the Smart Grid", 8th International Conference on Next Generation Mobile Apps, Services and Technologies (NGMAST), pp. 326-330, Oxford, UK 2014.

25. Y. A. Younis, M. Merabti, and **K. Kifayat**, "Cloud Computing Security & Privacy Challenges", 15th Annual Post Graduate Symposium on the Convergence of Telecommunications, Networking and Broadcasting. pp. 6, Liverpool, UK. 2014.

26. A MacDermott, Q Shi, M Merabti, **K Kifayat**, "Security as a Service for a Cloud Federation", 15th Annual Postgraduate Symposium on Convergence of Telecommunications, Liverpool, UK, 2014

27. B. Alohali, M. Merabti, and **K. Kifayat**, "Key Management in Smart Grid: A Survey," 14th Annual Post Graduate Symposium on the Convergence of Telecommunications, Networking and Broadcasting, 2013.

28. Y. A. Younis, M. Merabti, and **K. Kifayat**, "Secure Cloud Computing for Critical Infrastructure: A Survey". 14th Annual Post Graduate Symposium on the Convergence of Telecommunications, Networking and Broadcasting, Liverpool, UK, 24–25 June 2013.

29. K.E. Lever, M. Merabti, and **K. Kifayat**, "Single Points of Failure within Systems-of-Systems", 14th Annual Post Graduate Symposium on the Convergence of Telecommunications, Networking and Broadcasting, pp.183–188, Liverpool, UK, 24–25 June 2013.

30. N. Shone, Q. Shi, M. Merabti, and **K. Kifayat**, "Towards Efficient Collaborative Behavioural Monitoring in a System-of-Systems", 10th IEEE International Conference on Autonomic and Trusted Computing (ATC 2013), Vietri sul Mare, Italy, 2013.

31. N. Shone, Q. Shi, M. Merabti, and **K. Kifayat**, "Misbehaviour Monitoring on System-of-Systems Components", 8th International Conference on Risks and Security of Internet and Systems (CRiSIS 2013), La Rochelle, France, 2013.

32. N. Shone, Q. Shi, M. Merabti, and **K. Kifayat**, "Securing Complex System-of-Systems Compositions", 12th European Conference on Information Warfare and Security (ECIW-2013), Finland, 2013.

33. N. Shone, Q. Shi, M. Merabti, and **K. Kifayat**, "Detecting Behavioural Anomalies in System-of-Systems Components", 14th Annual Postgraduate Symposium on Convergence of Telecommunications Networking and Broadcasting, Liverpool, UK, 24–25 June 2013.

34. Á. MacDermott, Q. Shi, M. Merabti, **K Kifayat**, "Detecting Intrusions in the Cloud Environment", 14th Annual Postgraduate Symposium on Convergence of Telecommunications Networking and Broadcasting, Liverpool, UK, 2013.

35. Á. MacDermott, Q. Shi, M. Merabti, **K. Kifayat**, "Protecting Critical Infrastructure Services in the Cloud Environment", 12th European Conference on Information Warfare and Security (ECIW 2013), Finland, 2013

36. Á. MacDermott, Q. Shi, M. Merabti, **K. Kifayat**, "Considering an Elastic Scaling Model for Cloud Security", 8th International Conference for Internet Technology and Secured Transactions, London, UK, 2013

37. Á. MacDermott, Q. Shi, M. Merabti, **K. Kifayat**, "Intrusion Detection for Critical Infrastructure Protection", 13th Postgraduate Symposium on the Convergence of Telecommunications, Liverpool, UK, 2012

38. N. Shone, Q, Shi, M. Merabti, **K. Kifayat**, "Securing a System-of-Systems From Component Misbehaviour", 13th Annual Postgraduate Symposium on Convergence of Telecommunications Networking and Broadcasting, Liverpool, UK, 2012

39. I. Idowu, Q. Shi, M. Merabti, **K. Kifayat**, "Ad-Hoc Cloud Networks: A Probabilistic Model for Vulnerability Detection in Critical Infrastructure Using Bayesian Networks", 13th Annual Postgraduate Symposium on Convergence of Telecommunications Networking and Broadcasting, Liverpool, UK, 2012.

40. S. Wilson, **K. Kifayat**, "When the Droid became the Bot: Trends, Threats and Investigation of a Mobile Botnet", 13th Annual Postgraduate Symposium on Convergence of Telecommunications Networking and Broadcasting, Liverpool, UK, 2012.

41. S. T. Farajaa, S. A. Jassim, **K. Kifayat**, "Mediated IBC-Based Management System of Identity and Access in Cloud Computing", The 3rd Engineering Conference, College of Engineering, Tikrit University, Iraq, 11-12 December, 2012

42. **K. Kifayat**, M. Merabti, Q. Shi, "Assets Protection in Crisis Management Operations using Body Area Sensor Networks", IEEE International Conference on Computer Networks and Information Technology (ICCNIT), Bara Gali, Abbottabad District, Pakistan,11-13 July 2011.

43. A. Arabo, M. Kennedy, Q. Shi, M. Merabti, D. Llewellyn-Jones, **K. Kifayat**, "Identity Management in System-of-Systems Crisis Management Situation", 6th IEEE International Conference on System of Systems Engineering (SoSE 2011), Albuquerque, New Mexico, USA, 27-30 June 2011.

44. N. Shone, Q. Shi, M. Merabti, **K. Kifayat**, "System-of-Systems Monitoring: A Survey", 12th Annual Postgraduate Symposium on Convergence of Telecommunications Networking and Broadcasting, Liverpool, UK, 2011.

45. **K. Kifayat**, A. Arabo, O. Drew, D. Llewellyn-Jones, M. Merabti, Q. Shi, A. Waller, R. Craddock, G. Jones, "System-of-Systems Security for Crisis Management", Fourth Annual Layered Assurance Workshop (LAW 2010), Austin, Texas, USA, 6-7 December 2010.

46. B. Zhou, O. Drew, A. Arabo, D. Llewellyn-Jones, **K. Kifayat**, M. Merabti, Q. Shi, R. Craddock, A. Waller, G. Jones, "System-of-Systems Boundary Check in a Public Event Scenario", 5th International Conference on Systems of Systems Engineering (SoSE 2010), Loughborough, UK, 22-24 June 2010. Winner of the Conference **[Best Paper Award].**

47. **K. Kifayat**, M. Merabti, Q. Shi, D. Llewellyn-Jones, "Group-based Key Management for Mobile Sensor Networks", 33rd IEEE Sarnoff Symposium (Sarnoff 2010), Princeton, NJ, USA,12-14 April 2010.

48. **K. Kifayat**, P. Fergus, S. Cooper, M. Merabti, "Body area networks for movement analysis in physiotherapy treatments", 24th IEEE International Conference on

Advanced Information Networking and Applications Workshops, Perth, Western Australia, pp. 866–872, 2010,

49. P. Fergus, **K. Kifayat**, S. Cooper, M. Merabti, and A. El Rhalibi, "A Framework for Physical Health Improvement using Wireless Sensor Networks and gaming" International Conference on Pervasive Computing Technologies for Healthcare, (PervasiveHealth), London, UK, pp. 1–4, April 2009.

50. P. Fergus, **K. Kifayat**, M. Merabti, A. Taleb-bendiab, A. El Rhalibi, "Remote physiotherapy treatments using wireless body sensor networks", International Conference Wireless Communications and Mobile Computing: Connecting the World Wirelessly, New York, U.S.A, pp. 1191–1197, 21–24 June, 2009.

51. **K. Kifayat**, M. Merabti, Q. Shi, D. Llewellyn-Jones, "An Efficient Multi-Parameter Group Leader Selection Scheme for Wireless Sensor Networks", First IEEE International Conference on Network and Service Security (N2S), Paris , France , 24th – 26th June, 2009

52. **K. Kifayat**, M. Merabti, Q. Shi, D. Llewellyn-Jones, "Applying Secure Data Aggregation Techniques for a Structure and Density Independent Group Based Key Management Protocol", The Third IEEE International Symposium on Information Assurance and Security (IAS 2007), Manchester, UK, 29-31 August 2007

53. **K. Kifayat**, M. Merabti, Q. Shi, D. Llewellyn-Jones, "The Performance of Dynamic Group-Based Key Establishment (DGKE) under Node Capture Attacks in Wireless Sensor Networks", 2nd Conference on Advances in Computer Security and Forensics (ACSF 2007), Liverpool, UK, 12-13 July 2007.

54. **K. Kifayat**, M. Merabti, Q. Shi, D. Llewellyn-Jones, "Modelling Node Capture Attacks in Wireless Sensor Networks Using Simulation", 23rd Annual UK Performance Engineering Workshop, Edge Hill University, UK, 9-10 July 2007.

55. **K. Kifayat**, M. Merabti, Q. Shi, D. Llewellyn-Jones, "Dynamic Group-Based Key Establishment for Large-scale Wireless Sensor Networks", First International Conference on Communications and Networking in China (Chinacom 2006), Beijing, China, 25-27 October 2006. (Invited).

56. **K. Kifayat**, M. Merabti, Q. Shi, D. Llewellyn-Jones, "Key Management for Wireless Sensor Networks in Building Environments", PGNet 2006, Liverpool, UK, 26-27 June 2006.

57. **K. Kifayat**, M. Merabti, Q. Shi, D. Llewellyn-Jones, "Topology creation and adaptive routing for wireless sensor network in building environment", PGNet 2005, Liverpool, UK, June 2005.

Research, Teaching Grants

1. **RS 14 million**, HEC, Commercialization of Digital Forensics Products (Startup Grant), **Principal Investigator**, 1 January 2024 to 31st Jun 2024.

2. **Rs 39 million,** Ignite, Online Child Protection, **Principal Investigator,** Ministry of Information Technology, January 2024 – December 2025.

3. **€1 million**, Erasmus+, ReCyP:HER (Rethinking Cybersecurity in Pakistan – Human factors' Essential Role), Project Partners: University of Saarland Germany (Project Lead), Boğaziçi University Turkey, Air University (AU), LUMS, NUST, IBA Pakistan, **Principal Investigator** at AU, January 2021 – June 2024

4. **Rs 1.5 billion (600 million phase 1):** National Cyber Security Academy, Pincipal Investigator, September 2023 – September 2026

5. **Rs 1.239 billion**, National Centre of Cyber Security, this project is funded by the Higher Education Commission (HEC) and the Ministry of Planning Development & Special Initiatives Pakistan, **Project Director**, June 2018 – June 2024

6. **Rs 70 million**, National Cybercrime Forensic Lab (NCFL), Research & Development in Digital Forensics, **Principal Investigator**, Higher Education Commission (HEC). January 2019 June 2024.

7. **£18,000,** British Council, Newton Fund, **Co-Investigator,** "A UK-Vietnam research collaboration on smart cyber-attack detection and mitigation in critical network infrastructure", December 2016 – September 2017.

8. **£50,000** This was round two project of the Innovation to Commercialisation of University Research (ICURe) programme, **Principal Investigator**, "Cryptographic Protocol Interactive Teaching and Learning (CYPHER), April 2017 – August 2017

9. **£35,000,** Innovation to Commercialization of University Research (ICURe) programme, **Principal Investigator**, "Cryptographic Protocol Interactive Teaching and Learning (CYPHER)", January 2017 – April 2017.

10. **£229,273** (Higher Education Academy (HEA): £80,000, Industry Support: £9,250, LJMU Match Funding: £149,273), **Principal Investigator**, "Cryptographic Protocol Interactive Teaching and Learning (CYPHER)", 2016-2017.

11. **£129,487.39** (HEA: £40,000, LJMU Match Funding: £89,487.39), **Principal Investigator**, "Virtual Cloud-Based Cyber Security Training Platform", 2015-2016.

12. **£578,193,** Higher Education Funding Council for England (HEFCE) and Home Office, **Co-Investigator**, "Embedding Evidence Based Practice in Public Protection and Crime Prevention: a Multi-disciplinary Partnership", 2015-2017.

13. **€834,000** (LJMU: €123,000), EU Funded Project, **Co-Investigator,** "England's Cybercrime Centre of Excellence Network for Training, Research and Education (ECENTRE)", Project Coordinator: CANTERBURY CHRIST CHURCH UNIVERSITY, 2012-2014.

14. **£4,000,** Faculty of Technology and Environment, **Principal Investigator**, Risk Analysis in System of Systems, 2009 –2010.

15. **£50,000,** Extension of the HEA VIBRANT Project to 250 students, **Principal Investigator,** 2016-2017. This work is currently under process and will be ready for the next year's students.

16. **£45,000,** British Council DelP2HE-Iraq funding, **external supervision for two PhD students**, the leading applicant Dr. Dhiya Al-Jumeily, 2011-2013.

Awards and Recognitions

- **2023/24 Pakistan's Highest National Literacy Civil Award, Pride Of Performance (POP) for his national contributions in field of Cyber Security. Conferred by the President of Pakistan.**
- 2022 Vice Chancellor Commendation Award, Air University, Pakistan
- 2019 Vice Chancellor Commendation Award, Air University, Pakistan
- 2017 Amazing Supervisor Award, Liverpool John Moores University, UK
- 2015 Amazing Teacher Award, Liverpool John Moores University, UK
- 2015 Achieved 100% students' satisfaction in National Student Survey (NSS) UK for BS Cyber Security Programme, Programme Leader of Cyber Security, Liverpool John Moores University, UK.
- 2002 Gold Medal, BS Computer Science, 2002, University of Peshawar, Pakistan.

University & Community Services

1. Keynote Speaker at Air War College, PAF, Karachi, 2023
2. Keynote Speaker, 2023 International Conference on IT and Industrial Technologies (ICIT 2023), Faisalabad, Pakistan
3. Invited Speaker at Global Cybersecurity Forum, 2022 Riyadh KSA, "Security of AI Algorithms".
4. Keynote Speaker, September 2021, 3rd IEEE International Conference on Communication Technologies (ComTech-2021), Pakistan the Next Frontier in Cyber Security.
5. Keynote Speaker at Air War College, PAF, "Cyber Warfare and Digital Revolution", Karachi, 2021 and 2022
6. Invited spotlight speaker at CYBERUK Conference 2017, "Innovative Higher Education Academy (HEA) Cybersecurity Projects", https://www.ncsc.gov.uk/events/cyberuk-2017.
7. Invited speaker at Home Office Conference on Security and Policing 7-9 March 2017, "Emerging technologies – opportunity and threat: IoT", http://www.securityandpolicing.co.uk/
8. Invited speaker at SOCEX (Serious and Organised Crime Exchange) Conference 2016, "Cyber emergence of new issues for policing", 14-18 September 2014. http://socexconference.co.uk/past-events/socex-2016/about-the-event.html .
9. Invited speaker at Ghulam Ishaq Khan (GIK) Institute of Science and Technology, Pakistan, "System of System Security", August 2016.
10. Invited speaker at Ministry of Interior, KPK, Pakistan, "Data Centres' Security Challenges and Countermeasures", December 2016.
11. Invited talks at University of Peshawar, FAST, City University and Edwardes Collage on Wireless Sensor Networks, 2010

Project Advisor for HEA Cyber Security Projects

- Leeds Beckett University, "Randomised capture the flag (CTF) hacking challenges VMs for computer security education". 2015-2017.
- Edge Hill University, "A knowledge exchange model for authentic teaching and learning", 2014-2016.
  - 2018-2023: Dean Faculty of Computing & Artificial Intelligence
  - 2016-2017: Member of LJMU Learning and Teaching Development Panel (LTDP)
  - 2015: Programme development and revalidation of MCOMP Cyber Security
  - 2014: Programme Leader of Cyber Security Programme, Liverpool John Moores University, UK.
  - 2013-present: Cyber Security Open Day Management, School of Computing and Mathematical Sciences, Liverpool John Moores University, UK.
  - 2011: Programme development of BSc Cyber Security
  - 2011-present: Manager of Cyber Security Research Lab, School of Computing and Mathematical Sciences, Liverpool John Moores University, UK.
  - 2011-present: Member of PROTECT research centre, Manager of Cyber Security Lab, School of Computing and Mathematical Sciences, Liverpool John Moores University, UK.