Raja Wasim Ahmad, Ph.D.

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Short Biography: Dr. Raja received his Ph.D. in Mobile Cloud Computing (Computer Science) in 2017 from the Center for Mobile Cloud Computing Research (C4MCCR), Faculty of Computer Science and Information Technology (FSKTM), University of Malaya (QS Ranking: 60), Malaysia, and his master's degree in computer science from COMSATS University Islamabad (CUI), Abbottabad Campus, in 2011. He has been working as an Assistant Professor at the College of Engineering and IT, Ajman University, since January 2022. Previously, Dr. Raja served as a researcher at Khalifa University of Science and Technology, where he was involved in various research projects focused on the digitization of industries through blockchain technology. His work spans multiple sectors, including blockchain applications in Telehealthcare, Aerospace Engineering, Smart Cities, Waste Management, the Food Industry, Oil and Gas, the Automotive Industry, Machine Learning, and Aviation. In addition to blockchain, Dr. Raja conducts research in mobile computing, green computing, IoT, and cloud computing. Dr. Raja has published extensively in leading journals and conferences. His contributions have been recognized at both national and international levels, with one of his papers receiving the Best Paper Award at the SPECTS Symposium in France in 2018. In addition to his research, Dr. Raja serves as a reviewer for several prestigious journals and conferences. He has also held editorial roles, including guest associate editor for IEEE Access and the Journal of Applied Science, and is currently serving as an Associate Editor for the Cluster Computing journal.

Employment History

Jan 2022 – Till date

Assistant Professor in College of Engineering and IT at Ajman University, Ajman, UAE.
Teaching: Teaching undergraduate-level courses primarily focused on networking and programming.
Research: Conducting research on the development of blockchain-based systems.
Program Proposals: I participated in drafting a proposal for a cybersecurity program at Ajman University. I also wrote a proposal for a BS program titled 'Augmented Reality and Metaverse Technologies' at AU.
Course Profiles: I designed the course profiles for several courses including Cybercrime Investigation and Digital Forensics courses.

Sep 2019 – Jan 2022

Researcher in Department of Electrical Engineering and Computer Science at Khalifa University of Science and Technology, Abu Dhabi, UAE
Research Projects: Developed decentralized intelligent architectures across various domains, primarily in healthcare, aviation and aerospace, autonomous automobiles, port logistics and supply chain, spare parts traceability, defective product recall management, smart city waste handling, electric vehicles, oil and gas development, and telehealth and telemedicine industries.
Core Responsibilities: Conducted research activities, presented the findings at high-impact venues, showcased prototypes and viable products, and trained students.
Administrative Activities: Planning, organizing, and tracking research and learning activities of master students and project KPIs (Key Performance Indicators).

Employment History (continued)

Jan 2018 – Sep 2019

Assistant Professor in Department of Computer Science at COMSATS University Islamabad (CUI), Pakistan.
Teaching: Taught two master's level courses: Advanced Topics in Challenged Networks and Advanced Topics in Operating Systems. I also taught five BS-level courses: Introduction to Computer Programming, Object-Oriented Programming, Operating System Concepts, Fundamentals of Network Security, and Data Structures.
Supervision: Supervised two master's research projects and six projects at the undergraduate level.
Academic Advisor: Advised two classes.
Funding: Won a start-up research grant program of HEC [0.5 Million Rupees] as Co-PI.
Course Development: Developed course contents and supporting materials for Advanced Topics in Challenged Networks course.
Committee: Worked as a member of the committee overseeing ABET and NCEAC accreditation matters, the graduate research lab committee overseeing and promoting graduate-level research, the undergraduate final year projects (FYP) evaluation committee, and the departmental accreditation committee.
Examiner: Served as an internal/external examiner to evaluate undergraduate projects and graduate-level theses of master's students at three universities.

Sep 2013 – Mar 2017

Research Assistant and Ph.D. Scholar in Faculty of Computer Science and Information Technology (FSKTM) at the University of Malaya, Malaysia.
Core Responsibilities: Conducted and presented research at various seminars and conferences. I worked with many students (master level) and assisted them in their research projects.
Research Seminars: Participated in four postgraduate research seminars and organized one conference.

Mar 2017 – Jan 2018

Lecturer in Department of Computer Science at COMSATS University Islamabad (CUI), Pakistan.
Teaching: Taught two BS level courses.
Supervision: Supervised three undergraduate level projects.
Academic Advisor: Worked as academic advisor of two classes.
Committee: Member of the departmental projects evaluation committee.

Aug 2011 – Sep 2013

Lecturer in Department of Computer Science at COMSATS University Islamabad (CUI), Pakistan.
Teaching: Taught several courses, including Systems Programming Concepts, Introduction to Computer Programming, Data Structures Basics, Operating System Concepts, Design of Algorithms & Data Structures, Computer Communication and Networking, and Object-Oriented Programming. .
Supervision: Supervised more than ten final-year projects at the undergraduate level.
Academic Advisor: Worked as academic advisor of two classes.
Committee: Member of the departmental projects evaluation committee.
Examiner: Served as internal and external examiner of undergraduate projects (One University).

Summary of Teaching and Research Experience

- **Teaching Experience:** I have taught several Computer Science and Information Technology-related courses at COMSATS University Islamabad and Ajman University, at both the graduate and undergraduate levels, since 2011. I have over eight years of teaching experience at the university level.
- **Research Experience:** I have conducted research on many topics that are mainly related to blockchain, cloud computing, mobile computing, green computing, IoT, smart cities, and edge computing. I have over two years of research experience as a researcher at Khalifa University of Science and Technology.

Education & Trainings

2019 – 2022 — **Researcher, Department of Electrical Engineering and Computer Science, Khalifa University of Science and Technology, Abu Dhabi, UAE**.
Research Areas: Conducting research on various topics related to the role of blockchain technology in healthcare, telehealth, telemedicine, COVID-19 pandemic, port logistics automation, aerospace and defense industry, electric vehicles energy trading, machine learning, automobile products recall management, smart cities waste management, spare parts traceability and, oil and gas development.

2013 – 2017 — **Ph.D. in Mobile Cloud Computing (Computer Science), FSKTM, University of Malaya, Malaysia**.
Thesis title: Lightweight Energy Estimation Framework for Smartphone Applications Using Static Analysis.
Distinction: Graduate-on-time (GoT) award, Bright Spark Scholarship, Best paper presentation award.

2009 – 2011 — **Master of Science in Computer Science (MSCS), COMSATS University Islamabad (CUI), Pakistan**.
Thesis title: Performance Evaluation of Video Codecs on TETRA Enhanced Data Services (TEDS).
Distinction: CGPA: 3.84/4, Silver Medal, Merit-based Scholarship.

2003 – 2007 — **Bachelor of Science in Computer Science (BSCS), University of Azad Jammu & Kashmir, Muzaffarabad, Pakistan**.
Thesis title: Medical Images Analyzer: A Tool to Analyze Image Segmentation Techniques.
Distinction: CGPA: 3.7/4, Bronze medal.

Honors, Awards, and Achievements

2023 — Listed among the top 2% of research scientists worldwide by Stanford University Ranking 2023.

2024 — Listed among the top 2% of research scientists worldwide by Stanford University Ranking 2024.

2024- — One of my articles is the top-cited article published in the International Journal of Medical Informatics.

2023-2024 — One of my articles is the top-cited article published in the Research in Transportation Business & Management (RTBM) journal.

2023 — I have secured (20,000 AED) funding as a PI for a research project at Ajman University, UAE.

2018 — Won Best Paper Award in International Symposium on Performance Evaluation of Computer and Telecommunication Systems (SPECTS 2018), Bordeaux, France.

Honors, Awards, and Achievements (continued)

2018–2019	Won Research Productivity Award at COMSATS University Islamabad (2017, 2018, and 2019) [Cash Prize and Certificates].
2015	Won Best Paper Presentation Award (PGRess Research Symposium 2015) [Cash Prize and Certificates].
2017	Won Pak-HEC's Research Initiation Grant of PKRS 0.5 Million (Co-PI). [2017]
2013–2017	Bright Spark Scholarship Award (like US Full Bright Scholarship), University of Malaya.
2009–2011	Won Merit Scholarship Award for MS in Computer Science.
2017	Awarded Graduate-on-Time (GoT) Award by the University of Malaya.
2015-2021	Distinguished Reviewer Awards and Acknowledgements By JNCA, IJCS, FGCS, and Computer Communication Journals.
2016-2018	One of my research articles remained in the list of the top 10 most cited research articles published by the Journal of Network and Computer Applications (JNCA).
2016-2017	One of my research article remained in the list of top 05 most downloaded research articles published by the International Journal of Communication Systems (IJCS).
2021	One of my research articles is in the list of the top 06 most downloaded research articles published by the International Journal of Medical Informatics (IJMI).
2003	Awarded a Silver Medal on securing Second Position in HSSC exams.
2024	A project supervised by me received the second best prize in a competition organized by Ajman university.

Talks and Tutorials

- Distributed Computing: A Technology Behind Blockchain Networks (COMSATS University, Pakistan)
- Study skills and habits coaching, note-taking and reading strategies (Ajman University, U.A.E)
- Writing and Academic Communication Skills (Ajman University, U.A.E)
- Role of Blockchain Technology in National Defense (UAE armed forces, Khalifa University)
- The Transformative Impact of Blockchain Technologies Across Diverse Industries (COMSATS University, Pakistan)
- Virtual Machine Migration and its Impact on QoS of Cloud Hosted Applications (PGRess 2014, University of Malaya)
- A Static Analysis-Based Framework for Energy Estimation of Smartphone Applications (PGRess 2015, University of Malaya)
- Where Does my Mobile Battery Charge Go (3M Competition, University of Malaya)
- Performance Evaluation of Dynamic-analysis Tools for Energy Estimation of Smartphone Applications (PGRess 2016, University of Malaya)
- Energy Optimization of Mobile-phones Using Computational Offloading Frameworks (Invited Talk, Azad Jammu & Kashmir University)
- Ubiquitous Computing (Invited Talk, Expo 2018 organized by CUI in Kashmir)
- Art of Scientific Writing (Invited Talk, COMSATS University Islamabad)
- Art of Scientific Writing (Invited Talk, Azad Jammu & Kashmir University)

Research Highlights (As of October 25, 2024)

- Impact Factor: **250+**
- Google Scholar Citations Count: **3450+**
- Google Scholar H-index: **28**
- Google Scholar I10-index: **38**
- Article with the highest impact factor published: **20.1**
- Articles published as the first author (Scopus data): **39%**

Research Publications

Journal Articles

1. Hawashin, D., Salah, K., Jayaraman, R., Ahmad, R. W., Kanhere, S., & Damiani, E. (2025). Enhancing sustainability in dairy industry: Blockchain-based waste reduction. *Sustainable Futures*, *9*, 100529.
2. Ahmad, R. W., Ko, K.-M., Rashid, A., & Rodrigues, J. J. (2024). Blockchain for food industry: Opportunities, requirements, case studies, and research challenges. *IEEE Access*.
3. **Ahmad, Raja Wasim**, Ko, K.-M., Rashid, A., & Rodrigues, J. J. P. C. (2024). Blockchain for food industry: Opportunities, requirements, case studies, and research challenges. *IEEE Access*, *12*, 117363–117378. doi:10.1109/ACCESS.2024.3447918
4. Khan, Y., Mustafa, S., **Ahmad, Raja Wasim**, Maqsood, T., Rehman, F., Ali, J., & Rodrigues, J. J. (2024). Content caching in mobile edge computing: A survey. *Cluster Computing*, 1–48.
5. **Ahmad, Raja Wasim**, Salah, K., Jayaraman, R., Yaqoob, I., Ellahham, S., & Omar, M. (2023). Blockchain and COVID-19 pandemic: Applications and challenges. *Cluster Computing*, *26*(4), 2383–2408.
6. ur Rehman, Z., Fatima, M., Khan, A., Shah, S., **Wasim Ahmad, Raja**, Din, A., & Rehman, A. (2023). Energy optimization in a smart community grid system using genetic algorithm. *International Journal of Communication Systems*, *36*(12), e4265.
7. **Ahmad, Raja Wasim**, Al Khader, W., Jayaraman, R., Salah, K., Antony, J., & Swarnakar, V. (2022b). Integrating lean six sigma with blockchain technology for quality management–a scoping review of current trends and future prospects. *The TQM Journal*, (ahead-of-print).
8. Bashir, S., Mustafa, S., **Ahmad, Raja Wasim**, Shuja, J., Maqsood, T., & Alourani, A. (2022). Multi-factor nature inspired sla-aware energy efficient resource management for cloud environments. *Cluster Computing*, 1–16.
9. Khan, A. U. R., & **Ahmad, Raja Wasim**. (2022). A blockchain-based iot-enabled e-waste tracking and tracing system for smart cities. *IEEE Access*, *10*, 86256–86269.
10. Shafay, M., **Ahmad, Raja Wasim**, Salah, K., Yaqoob, I., Jayaraman, R., & Omar, M. (2022). Blockchain for deep learning: Review and open challenges. *Cluster Computing*, 1–25.
11. **Ahmad, Raja Wasim**, Hasan, H., Jayaraman, R., Salah, K., & Omar, M. (2021). Blockchain applications and architectures for port operations and logistics management. *Research in Transportation Business & Management*, 100620.
12. **Ahmad, Raja Wasim**, Hasan, H., Yaqoob, I., Salah, K., Jayaraman, R., & Omar, M. (2021). Blockchain for aerospace and defense:Opportunities and open research challenges. *Computers & Industrial Engineering*, *151*, 106982.
13. **Ahmad, Raja Wasim**, Salah, K., Jayaraman, R., Hasan, H. R., Yaqoob, I., & Omar, M. (2021). The role of blockchain technology in aviation industry. *IEEE Aerospace and Electronic Systems Magazine*, *36*(3), 4–15.

14 **Ahmad, Raja Wasim**, Salah, K., Jayaraman, R., Yaqoob, I., Ellahham, S., & Omar, M. (2021). The role of blockchain technology in telehealth and telemedicine. *International Journal of Medical Informatics*, 104399.

15 **Ahmad, Raja Wasim**, Salah, K., Jayaraman, R., Yaqoob, I., & Omar, M. (2021a). Blockchain for waste management in smart cities: A survey. *IEEE Access*, 22.

16 **Ahmad, Raja Wasim**, Salah, K., Jayaraman, R., Yaqoob, I., & Omar, M. (2021b). Blockchain in oil and gas industry: Applications, challenges, and future trends.

17 **Ahmad, Raja Wasim**, Salah, K., Jayaraman, R., Yaqoob, I., Omar, M., & Ellahham, S. (2021). Blockchain-based forward supply chain and waste management for COVID-19 medical equipment and supplies. *IEEE Access*, *9*, 44905–44927.

18 Khalid, T., Abbasi, M. A. K., Zuraiz, M., Khan, A. N., Ali, M., **Ahmad, Raja Wasim**, … Aslam, M. (2021). A survey on privacy and access control schemes in Fog computing. *International Journal of Communication Systems*, *34*(2), e4181.

19 Pratyush Kumar, P., **Ahmad, Raja Wasim**, Salah, K., Yaqoob, I., Jayaraman, R., & Omar, M. (2021). Blockchain-based solution for product recall management in the automotive supply chain. IEEE Access.

20 Al-Saif, N., **Ahmad, Raja Wasim**, Salah, K., Yaqoob, I., Jayaraman, R., & Omar, M. (2021). Blockchain for electric vehicles energy trading: Requirements, opportunities, and challenges. IEEE Access.

21 Shafay, M., **Ahmad, Raja Wasim**, Salah, K., Yaqoob, I., Jayaraman, R., & Omar, M. (2021). Blockchain for deep learning: Review and open challenges. Cluster Computing.

22 Hasan, H. R., Salah, K., Jayaraman, R., **Ahmad, Raja Wasim**, Yaqoob, I., & Omar, M. (2020). Blockchain-based solution for the traceability of spare parts in manufacturing. *IEEE Access*, *8*, 100308–100322.

23 Khan, M. K., Shuja, J., Jararweh, Y., Yu, G., Guizani, M., Verikoukis, C., & **Ahmad, Raja Wasim**. (2020). IEEE access special section editorial: Mobile edge computing and mobile cloud computing: Addressing heterogeneity and energy issues of compute and network resources. *IEEE Access*, *8*, 163769–163774.

24 Rehman, F., Khalid, O., Haq, N. u., Maqsood, T., Ali, M., **Ahmad, Raja Wasim**, … Madani, S. A. (2020). A scalable model for real-time venue recommendations using mapreduce. *Concurrency and Computation: Practice and Experience*, *32*(21), e5597.

25 **Ahmad, Raja Wasim**, Naveed, A., Rodrigues, J. J., Gani, A., Madani, S. A., Shuja, J., … Saeed, S. (2018). Enhancement and assessment of a code-analysis-based energy estimation framework. *IEEE Systems Journal*, *13*(1), 1052–1059.

26 **Ahmad, Raja Wasim**, us Shan, R., Bilal, K., Shuja, J., Sarwar, S., Altameem, T. A., Madani, S. A. et al. (2018). An investigation of video communication over bandwidth limited public safety network. *Malaysian Journal of Computer Science*, *31*(2), 85–107.

27 Ali, J., **Ahmad, Raja Wasim**, Maqsood, T., Rodrigues, J. J., Ul Haq, N., Sarwar, S., … Madani, S. A. (2018). Network selection in heterogeneous access networks simultaneously satisfying user profile and QoS. *International Journal of Communication Systems*, *31*(13), e3730.

28 Ibrahim, F. I., Nasir, M. H. N. M., Ab Hamid, S. H., **Ahmad, Raja Wasim**, & Iqbal, J. (2018). FSI DRIVENERGY: Mitigating smartphone energy consumption using fuzzy inference. *Malaysian Journal of Computer Science*, *33*(3), 188–201.

29 Irshad, T., Shan, R.-u., **Ahmad, Raja Wasim**, Khalid, A., & Ab Hamid, S. H. (2018). MULTI-RAT-based adaptive quality of service (QOS) management in wban. *Malaysian Journal of Computer Science*, *33*(4), 252–269.

30 Rathore, M. M. U., Gul, M. J. J., Paul, A., Khan, A. A., **Ahmad, Raja Wasim**, Rodrigues, J., & Bakiras, S. (2018). Multilevel graph-based decision making in big scholarly data: An approach to identify expert reviewer, finding quality impact factor, ranking journals and researchers. *IEEE Transactions on Emerging Topics in Computing*.

31 Rehman, A., Rathore, M. M., Paul, A., Saeed, F., & **Ahmad, Raja Wasim**. (2018). Vehicular traffic optimisation and even distribution using ant colony in smart city environment. *IET Intelligent Transport Systems*, *12*(7), 594–601.

32 **Ahmad, Raja Wasim**, Bashir, R. S., Saeed, S., Lee, Y., Ko, K., & Son, Y. (2017). Online cloud-based battery lifetime estimation framework for smartphone devices. *Procedia Computer Science*, *110*, 70–77.

33 **Ahmad, Raja Wasim**, Gani, A., Ab Hamid, S. H., Naveed, A., Ko, K., & Rodrigues, J. J. (2017). A case and framework for code analysis-based smartphone application energy estimation. *International Journal of Communication Systems*, *30*(10), e3235.

34 **Ahmad, Raja Wasim**, Gani, A., Hamid, S. H. A., Shojafar, M., Ahmed, A. I. A., Madani, S. A., … Rodrigues, J. J. (2017). A survey on energy estimation and power modeling schemes for smartphone applications. *International Journal of Communication Systems*, *30*(11), e3234.

35 Shuja, J., **Ahmad, Raja Wasim**, Gani, A., Ahmed, A. I. A., Siddiqa, A., Nisar, K., … Zomaya, A. Y. (2017). Greening emerging IT technologies: Techniques and practices. *Journal of Internet Services and Applications*, *8*(1), 1–11.

36 Shuja, J., Mustafa, S., **Ahmad, Raja Wasim**, Madani, S. A., Gani, A., & Khan, M. K. (2017). Analysis of vector code offloading framework in heterogeneous cloud and edge architectures. *IEEE Access*, *5*, 24542–24554.

37 Sobral, J. V., Rodrigues, J. J., Kumar, N., Zhu, C., & **Ahmad, Raja W**. (2017). Performance evaluation of routing metrics in the LOADNG routing protocol. *Journal of Communications Software and Systems*, *13*(2), 87–95.

38 Syed, H. J., Gani, A., **Ahmad, Raja Wasim**, Khan, M. K., & Ahmed, A. I. A. (2017). Cloud monitoring: A review, taxonomy, and open research issues. *Journal of Network and Computer Applications*, *98*, 11–26.

39 Yeow, K., Gani, A., **Ahmad, Raja Wasim**, Rodrigues, J. J., & Ko, K. (2017). Decentralized consensus for edge-centric Internet-of-Things: A review, taxonomy, and research issues. *IEEE Access*, *6*, 1513–1524.

40 Khan, S. U. R., Lee, S. P., **Ahmad, Raja Wasim**, Akhunzada, A., & Chang, V. (2016). A survey on test suite reduction frameworks and tools. *International Journal of Information Management*, *36*(6), 963–975.

41 Shuja, J., Gani, A., Shamshirband, S., & **Ahmad, Raja Wasim** and Bilal, K. (2016). Sustainable cloud data centers: A survey of enabling techniques and technologies. *Renewable and Sustainable Energy Reviews*, *62*, 195–214.

42 Yousafzai, A., Gani, A., Noor, R. M., Naveed, A., **Ahmad, Raja Wasim**, & Chang, V. (2016). Computational offloading mechanism for native and android runtime based mobile applications. *Journal of Systems and Software*, *121*, 28–39.

43 **Ahmad, Raja Wasim**, Gani, A., Hamid, S. H. A., Shiraz, M., Xia, F., & Madani, S. A. (2015). Virtual machine migration in cloud data centers: A review, taxonomy, and open research issues. *The Journal of Supercomputing*, *71*(7), 2473–2515.

44 **Ahmad, Raja Wasim**, Gani, A., Hamid, S. H. A., Xia, F., & Shiraz, M. (2015). A review on mobile application energy profiling: Taxonomy, state-of-the-art, and open research issues. *Journal of Network and Computer Applications*, *58*, 42–59.

45 **Ahmad, Raja Wasim** and Gani, A., Hamid, S. H. A., Shiraz, M., Yousafzai, A., & Xia, F. (2015). A survey on virtual machine migration and server consolidation frameworks for cloud data centers. *Journal of Network and Computer Applications*, *52*, 11–25.

46 Shiraz, M., Gani, A., Shamim, A., Khan, S., & **Ahmad, Raja Wasim**. (2015). Energy efficient computational offloading framework for mobile cloud computing. *Journal of Grid Computing*, *13*(1), 1–18.

47 Shiraz, M., Gani, A., **Ahmad, Raja Wasim**, Shah, S. A. A., Karim, A., & Rahman, Z. A. (2014). A lightweight distributed framework for computational offloading in mobile cloud computing. *PloS one*, *9*(8), e102270.

Conference Proceedings

1. Mutafa, E., Shujah, R. W., Junaid and et al. (2024). Towards blockchain-based decentralized employee transfer system (accepted). In *2024 international conference on blockchain computing and applications (bcca)* (pp. 0–0). IEEE.
2. Zaib, A., Mustafa, E., Khan, A., Khattak, H. A., Ibrahim, I. A., Namoun, A., … Ahmad, R. W. (2024). Towards blockchain-based decentralized employee transfer system. In *2024 6th international conference on blockchain computing and applications (bcca)* (pp. 611–616). doi:10.1109/BCCA62388.2024.10844383
3. Mir, S. R. U., Kalaji, Y. A. A., **Ahmad, Raja Wasim** et al. (2023). Blockchain-based system for end-to-end donations monitoring. In *2023 24th international arab conference on information technology (acit)* (pp. 1–5). IEEE.
4. Zahra, F., Safdar, M. M., Ahmad, R. W. et al. (2023). Blockchain-based transparent and secure system for construction equipment and machinery rental. In *2023 24th international arab conference on information technology (acit)* (pp. 1–5). IEEE.
5. **Ahmad, Raja Wasim** et al. (2022a). Blockchain-based academic degrees issuance and attestation. In *2022 international conference on it and industrial technologies (icit)* (pp. 1–6). IEEE.
6. Salah, K., Alfalasi, A., Alfalasi, M., Alharmoudi, M., Alzaabi, M., Alzyeodi, A., & **Ahmad, RW**. (2020). IoT-enabled shipping container with environmental monitoring and location tracking. In *2020 ieee 17th annual consumer communications & networking conference (ccnc)* (pp. 1–6). IEEE.
7. **Ahmad, Raja Wasim**, Ab Hamid, S. H., Gani, A., Obaidat, M. S., Shuja, J., Rehman, F., & Khan, A. U. R. (2018). Performance assessment of dynamic analysis based energy estimation tools. In *2018 international symposium on performance evaluation of computer and telecommunication systems (spects)* (pp. 1–12). IEEE.
8. Bashir, R. S., Lee, S. P., Yung, C. C., Alam, K. A., & **Ahmad, Raja Wasim**. (2017). A methodology for impact evaluation of refactoring on external quality attributes of a software design. In *2017 international conference on frontiers of information technology (FIT)* (pp. 183–188). IEEE.

Books and Chapters

1. Saleem, M. A., Shuja, J., Humayun, M. A., Ahmed, S. B., & Ahmad, R. W. (2024). Machine learning based extractive text summarization using document aware and document unaware features. In *Intelligent systems modeling and simulation iii: Artificial intelligent, machine learning, intelligent functions and cyber security* (pp. 143–158). Springer.
2. Ali, J., **Ahmad, Raja Wasim**, Maqsood, T., Shuja, J., Chong, Y., Kim, S., & Ko, K. (2017). Adaptive opportunistic routing over DTMANETS: Proposals and issues. In *Advances in computer science and ubiquitous computing* (pp. 1126–1133). Springer.

Current Academic Projects (Submitted/Under Review Articles)

Blockchain-based Research Projects:

- **Automating Services for Agricultural Waste-to-Energy Conversion Using Blockchain and Smart Contracts**.
  Description: This article presents a decentralized solution based on blockchain and InterPlanetary File System (IPFS) that automates activities among all parties involved in converting agricultural waste into energy. The system ensures complete transparency, security, reliability, and traceability. [REVISION RECEIVED]

Current Academic Projects (Submitted/Under Review Articles) (continued)

- **A Decentralized Employee Transfer System Based on Blockchain and Smart Contracts**.
  Description: The Decentralized Employee Transfer System is an innovative solution that uses blockchain and smart contracts to streamline employee transfers between organizations. By decentralizing the process, it eliminates intermediaries, ensuring faster, more efficient transfers. Blockchain's immutable ledger ensures all transfer data is secure and tamper-proof, while smart contracts enforce transfer conditions automatically. [CONFERENCE VERSION ACCEPTED]
- **Food Governance and Waste Reduction using Ethereum-based Smart Contracts**.
  Description: The aim of this research is to propose a blockchain-based system to reduce food waste at various levels, including food distributors and retailers. We developed a working prototype of the system by implementing the proposed smart contracts on the Ethereum platform.
- **Design and Implementation of a Blockchain-based Solution for Oil and Gas-based Products Distribution**.
  Description: The solution leverages blockchain technology to track and verify transactions, ensuring authenticity and reducing the risk of fraud. By implementing smart contracts, the system automates processes such as order management, payments, and delivery confirmations. The approach aims to improve traceability from production to distribution, minimizing errors and delays.
- **Ethereum-based Smart Contracts for Traceability of Medical Waste**.
  Description: This research presents a blockchain-based solution to securely and transparently track and trace healthcare waste generated by hospitals. We developed a working prototype of the system by implementing the proposed smart contracts on the Ethereum platform.

Cloud/Edge Computing-based Research Projects:

- **Virtual Machine Placement Solution using RAM and CPU Energy Estimation Models**.
  Details: This research has proposed and implemented various algorithms that have considered CPU and RAM energy consumption models while selecting an appropriate physical machine for VM placement.
- **Optimizing Energy Consumption of Social Media Applications using Edge Computing**.
  Details: Through cache analysis and clustering algorithms, this research aims at assisting the social media application users to reduce the energy consumption rate of their applications.
- **Energy Consumption Behavior of Fine-granular Software Operations on Different ARM Architectures**.
  Details: This research aims at quantifying the energy consumption rate of software operations in social media applications deployed on ARM-7 and ARM-8 based architectures.

Skills Summary & Areas of Interests

Research	Problem Analysis, Solution Design, Experimental Evaluation, Presentation at International Venues.
Languages	Java, Solidity, Python, Assembly, C++, C, C#, LaTeX, …
Frameworks	.Net, Android SDK, Ethereum.
Distributed Computing	Blockchain, OpenStack (basics).
Tools	Valgrind, Lacky, ARM-7 Cache analyzer.
Research Areas	Blockchain, Mobile/Wireless Environments, Mobile Edge Cloud Computing, Cloud Computing, VM Migration, Resource Scheduling, Green Computing, Recommendation Systems, Internet of Things, Mobile Distributed Systems.

Courses Taught

BS Level Courses

2024–2025	Fundamentals of Information Security (Spring 2024)
2024	Network Design and Management (Spring 2024)
2022	Wireless Networks (Spring 2023)
2022-2023	Discrete Mathematics (Fall 2024)
2023-2024	Fundamentals of Web Systems (Fall 2024)
2011–2012	System Programming Concepts (Fall 2011, Spring 2012)
2023	Network Operating Systems (Spring 2024)
2017-2018	Operating System Concepts (SP17, FA17, SP18)
2012–2013	Introduction to Computer Programming (SP13, SP12, FA13, SP12)
2011–2012	Object Oriented Programming (FA11, FA12)
2018	Design of Algorithms and Data Structures (FA18, SP18)
2017	Data Structures (FA17)
2011 & 2019	Java Programming Fundamentals (SP11, SP19)
2012 & 2017	Introduction to ICT and Computer Programming (FA17, FA12)
2018	Computer Communication and Networking (SP18)
2019	Fundamentals of Network Security (FA19)

MS and Ph.D. Level Courses

2017-2018	Advanced Topics in Operating Systems (FA18, SP17)
2019	Advanced Topics in Challenged Networks (SP19)

Miscellaneous

2018	Advanced Topics in Wireless Networks (Invited Lectures)
2017–2019	Art of Scientific Writing (Invited Talks)

Graduate/Undergraduate Students Supervision

MS/Ph.D. Level Students Supervision

- Energy-efficient and SLA aware virtual machine placement for cloud data centers (MS Thesis by Sonia Bashir: **Completed and graduated**)
- A scheduler for optimizing the energy consumption of social media applications using Edge computing (MS Thesis by Humma Aftab: **Completed and graduated**)

BS Level Students Supervision (Selected)

- Lab Guard: A desktop-based application to minimize cheating cases in labs (**Completed**)
- Blockchain-based electronic voting system (**Completed**)
- Android application for ride sharing (**Completed**)
- Peer tutoring management system for Ajman University (**Completed**)
- Blockchain-based system for vehicles management in U.A.E (**Completed**)
- Blockchain-based system for end to end donations monitoring (**Completed**)
- Blockchain-based system for electronic health record sharing (**Completed**)

Graduate/Undergraduate Students Supervision (continued)

- Blood and organs donations management system (**Completed**)
- Development of a smartphone-based application to assist visually impaired people (**Completed and graduated**)
- Help Seeker: Assisting rescue teams during vehicle accidents (**Completed and graduated**)
- Software-based real-time lab systems and computer components monitoring "**Distinction:** This project secured the second position in all Pakistan project exhibitions organized by CUI "(**Completed and graduated**)
- Buzzer-based system for real-time monitoring of passengers luggage (**Completed and graduated**)
- Vehicles theft detection and monitoring system (**Completed and graduated**)
- FreQJAM: A frequency jammer system for cellular networks (**Completed and graduated**)
- LUDO game development for Android-based smartphones (**Completed and graduated**)
- Smart Homes (**Completed and graduated**)
- Dual-mode android application to track illegal activities within university premises (**Completed and graduated**)
- Android application for fashion recommendations (**Completed and graduated**)
- Parental controller system: An android-based mobile phone application (**Completed and graduated**)

Professional Services (As Reviewer/Editor)

- **Associate Editor:** Cluster Computing Journal (2019-Till date)
- **Guest Editor:** IEEE Access journal (2018-2019)
- **Reviewer:** IEEE Transaction on Multimedia
- **Reviewer:** IEEE Transactions on Industrial Informatics
- **Reviewer:** IEEE Networks
- **Reviewer:** IEEE Communication Magazine
- **Reviewer:** Journal of Networks and Computer applications
- **Reviewer:** Future Generation Computer Systems (FGCS)
- **Reviewer:** IEEE Access
- **Reviewer:** Journal of Ad-Hoc networks
- **Reviewer:** International journal of communication systems
- **Reviewer:** Journal of Sustainable Cities and Society
- **Reviewer:** Journal of software and practices
- **Reviewer:** IEEE Systems Journal
- **Reviewer:** IEEE IoT Journal
- **Reviewer:** IEEE Adhoc Networks
- **Reviewer:** KSII Transactions on Internet and Information Systems
- **Reviewer:** International Journal of Distributed Sensor Networks
- **Reviewer:** Transactions on Parallel and Distributed Systems
- **Reviewer:** International Journal of E-Health and Medical Communications (IJEHMC)
- **Reviewer:** IEEE Aerospace and Electronic Systems Magazine
- **Reviewer:** Arabian Journal for Science and Engineering (AJSE)

Thesis Evaluation Services

- **Ph.D. Thesis Examiner**, Nada Ebrahim Ahmed Ebrahim, Thesis title "Policy Interventions for Blockchain Service Innovation: Bahrain Customs Affairs Case Study", De Montfort University Leicester
- **External Examiner**, University of Azad Jammu and Kashmir (UAJ&K), DCS&IT
- **External Examiner**, Mirpur University of Science and Technology (MUST), DCS&IT (External Examiner)
- **External Examiner**, University of Poonch (Rawalakot), DCS&IT (External Examiner)
- Senior Member of Thesis Evaluation Committee, COMSATS University Islamabad, Computer Science Department, Abbottabad Campus
- Member of BS Projects Evaluation Committee, COMSATS University Islamabad, Computer Science Department, Abbottabad Campus

Academic Research Projects & Fundings

- **PI:** AU Funded Research Grants AY 2024-25 (2024-2025);Blockchain-enabled Telemedicine Services for Medical Tourism Using Smart Contracts; 2024-IRG-ENIT-19 (In progress).
- **PI:** AU Funded Research Grants AY 2023-24 (2023-2024);Machine Learning and recursive feature elimination-based IoT attack detection system with MLP optimization; 2023-IRG-ENIT-26 (Completed).
- **CO-PI:** AU Funded Research Grants AY 2024-25 (2024-2025);A Trusted and Transparent Blockchain-Based Traceability System for Fresh Food Products; 2024-IRG-ENIT-13 (In Progress).
- **Co-PI:** Establishment of Mobile Cloud Computing Research Lab (2017-2018); Funded by HEC, Pakistan, Approved Amount: 500000 PKRS (Project Completed).
- **Participant:** Big Data and Mobile Cloud Computing for Collaborative Experiments: High Impact Research (2013-2017); Funded by Ministry of Education, Malaysia, Project Number: RP012C-13AFR (Project Completed).
- **Participant:** Research Center for Digital Supply Chain and Operation Management (2019-2022); Funded by Government of UAE, Project Number: RCII-2019-002 (Project completed).

Trainings/Workshops/Certifications (Selected)

- TPC Member, IWCMC 2024 IoT & Wireless Sensors (IWCMC 2024 IoT & Wireless Sensors Symposium
- Technical Session Chair, 24th International Arab Conference on Information Technology (ACIT 2023)
- Organizer, First Malaysian National Cloud Computing Conference (MNCC), December 2015.
- Participant, Post Graduate Research Seminar PGRess, UM 2015.
- Participant, IEEE Conference on Frontiers of Information Technology, FIT 2009, FIT 2010, FIT 2011, and FIT 2012.
- Participant, The 14th International Conference on Mobile Systems and Pervasive Computing (MobiSPC 2017), Belgium
- TPC Member, International Conference on Emerging Technology, ICET, Taxila Pakistan, 2019
- TPC Member, International Conference on Information Society and Smart Cities (ISC 2018) Fitzwilliam College, University of Cambridge, United Kingdom
- Participant, Post Graduate Research Seminar PGRess, UM 2014 and 2016
- TPC Member, IEEE Conference on Frontiers of Information Technology, FIT 2017
- TPC Member, IEEE Conference on Frontiers of Information Technology, FIT 2018

Trainings/Workshops/Certifications (Selected) (continued)

- TPC Member, ACM/IEEE International Conference on Human-Robot Interaction (HRI) - Daegu, Korea (South), 2019
- TPC Member, WCMC 2021 Wireless Sensors & IoT

References (0)

References will be furnished upon request.