

Sajjad Ahmad KHAN

ASSISTANT PROFESSOR, KOCAELI UNIVERSITY

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| 🎓 Google Scholar | ORCID: 0000-0002-0787-1357 | 📅 Born on April 11, 1984, Bannu, Pakistan



"I believe in continuous learning and collaboration as the key to success in any career. I enjoy working and collaborating with international institutes to enrich educational experiences."

Cover Letter

I obtained my Ph.D. in Computer Engineering from Kocaeli University and my Postdoc in Telecommunications and Wireless Networking Systems from Istanbul Technical University (ITU) in 2020 and 2022, respectively. Currently, I am an Assistant Professor in the Department of Software Engineering at Kocaeli University, Turkey. I have over 10 years of experience in research and teaching. I have gained research experience at prestigious institutions, including Hoseo University in South Korea and Adam Mickiewicz University in Poland. I have authored more than 35 research papers and secured a U.S. patent. My research interests are advancing the fields of computer engineering, telecommunications, and wireless networking. I am dedicated to integrating my research findings with practical applications to enhance educational experiences and foster innovation in these dynamic disciplines.

Education

Kocaeli University

Izmit, Turkey

PH.D. IN COMPUTER ENGINEERING

2014 - 2020

- **Thesis Title:** *A Novel Radio Resource Management (RRM) Technique for Interference Management in LTE-A HetNets*
- **Supervisor Name:** Prof. Dr. Adnan Kavak

CGPA: 3.53

IQRA University

Islamabad, Pakistan

M.S. IN TELECOMMUNICATION NETWORKS

2008 - 2011

- **Research Topic:** *A Spatial Diversity Technique in OFDMA Based MIMO*
- **Supervisor Name:** Assist. Prof. Dr. Khawaja Tauseef Tasneem

CGPA: 3.32

University of Engineering and Technology (UET)

Peshawar, Pakistan

B.Sc. IN INFORMATION TECHNOLOGY

2003 - 2007

- **Final Project:** *An Online Database Management System for Outdoor Patients*
- **Project Advisor:** Assist. Prof. Dr. Imran Khalil

CGPA: 3.20

Experience

Kocaeli University

Izmit (41001), Turkiye

ASSISTANT PROFESSOR

January 2025 - Present

- Teaching Computer Software Engineering Subjects
- Research and Publications
- Train and guide BS and MS level students.
- Involved in Research and Developments

University of Sialkot (USKT)

Sialkot, Pakistan

ADJUNCT. ASSISTANT PROFESSOR (ONLINE)

December 2020 - December 2023

- Digital Communications and Networking
- Data Structure and Programming
- Deep Convolution Neural Networks
- Introduction to Machine Learning
- Advanced Probability and Statistics
- Advanced Digital Image Processing

Hoseo University

Asan-si, Rep. of Korea

SENIOR RESEARCHER

April 2022 - February 2024

- Research on "Intelligent Data Forwarding Schemes for NDN-based Vehicular Networks Using Deep Reinforcement Learning," a project funded by the National Research Foundation (NRF) of Korea
- Design and conduct experiments, analyze data, and publish findings in peer-reviewed journals
- Collaborate with industry partners to ensure the practical relevance of the research
- Develop and implement the Object detection schemes in the self-driving cars

Istanbul Technical University (ITU)

Istanbul, Turkiye

POSTDOCTORAL RESEARCHER

April 2020 - March 2022

- Lead the research team in handover and mobility management of mobile devices in 5G and beyond wireless networks
- Test and validate the proposed solutions using experiments and data analysis
- Prepare high-quality research papers for publication in SCIE journals and conferences
- Collaborate with other researchers around the globe in research projects related to wireless networking and machine learning
- Assist Professors in teaching advanced digital communication, signal and system, and machine learning courses, including advanced probability and statistics

Kocaeli University (KOU)

Izmit, Turkiye

PH.D. RESEARCHER

February 2014 - February 2020

- Conduct research under TUBITAK 1003-FATİH, YTB, and BAP projects
- Collaborate with other scholars and researchers
- Develop and apply various techniques and tools for binary analysis
- Assist my supervisor in courses related to computer engineering, such as signal processing, digital communication, probability and statistics, etc.

Adam Mickiewicz University

Poznani, Poland

VISITING RESEARCHER

September 2017 - February 2018

- Engage with students and staff of the host institution and create opportunities for further collaboration
- Prepare and participate in different talks, seminars, and workshops related to my research field and interests
- Conduct and analyze data in the state-of-the-art labs of the host university using advanced equipment and software tools
- Discuss with the host university's leading professors and prepare a report on the findings and implications of my research

Ali Trust College (ATC)

Islamabad, Pakistan

LECTURER

September 2009 - October 2013

- Introduction to Computer
- Introduction to Computer Programming
- Data Structure and Algorithms
- Computer Networks and Data Communications
- Network Administrator at Computer Lab

Allama Iqbal Open University (AIU)

Islamabad, Pakistan

INTERNSHIP (NATIONAL)

March 2007 - February 2008

- Learn and apply the latest trends in hardware, software, and communication technologies
- Participate in seminars and workshops
- Assist the computer science department in administrative and academic tasks

Professional Certificates

2012	CCNA , CISCO (Online)	U.S.A
2013	CCNP , CISCOM, Rawalpindi	Pakistan
2011	MCITP , CISCOM, Rawalpindi	Pakistan
2007	GRE (GAT) , National Testing Service (NAT), Islamabad	Pakistan

Honors & Awards

2020	Outstanding Researcher Scholarship , 2232 - International Fellowship Program (TUBITAK)	Turkiye
2019	International Student Award , President of Kocaeli Municipality	Turkiye
2018	BAP Scholarship , Scientific Research Projects Unit, Kocaeli University	Turkiye
2017	Exchange Student Award , Erasmus+ Exchange Program	Poland
2016	Merit Scholarship , Federation of International Student Associations (UDEF)	Turkiye
2015	Success Scholarship , Yabancı Turkiye Bursleri (YTB)	Turkiye
2014	Professor Scholarship , 1003-Öncelikli Alanlar Arastirma Projeleri Destekleme Programı, FATİH	Turkiye
2008	Indigenous Scholarship , Higher Education Commission (HEC)	Pakistan

PATENT

1. Lim, Huhnkuk., Khan, Sajjad Ahmad., and Chaudhry, Shehzad Ashraf., "SYSTEM FOR ADVANCED USER AUTHENTICATED KEY MANAGEMENT FOR 6G-BASED INDUSTRIAL APPLICATIONS," *U.S. Patent*, Application Number: 20240275604, Type: A1, Code:A118/462,404, August (2024).

SCIE JOURNALS

1. **Khan, Sajjad Ahmad.**, Kavak, Adnan., Colak A., Sultan., Küçük, Kerem., Asshad, Muhammad., and Lim, Huhnkuk., "Enhancing Radio Resource Management in Ultra-Dense 5G Heterogeneous Networks using Fractional Frequency Reuse," *Journal of Network and Systems Management*, submitted (2025).
2. Ashraf, Nausheen, Shahzad Amin Sheikh, Mahrukh Liaqat, and **Sajjad Ahmad Khan.** "Performance Analysis of SWIPT-Assisted Cooperative NOMA Network with Non-Linear EH, Interference and Imperfect SIC." *IEEE Access* (2025).
doi:10.1109/ACCESS.2025.3563111
3. Lim, Huhnkuk., **Khan, Sajjad Ahmad.**, "Toward Infotainment Services in Vehicular Named Data Networking: A Comprehensive Framework Design and Its Realization", *IEEE Transactions on Intelligent Transportation Systems*, (2025).
doi: 10.1109/TITS.2025.3527256
4. **Khan, Sajjad Ahmad**, Huhnkuk Lim, and Shehzad Ashraf Chaudhry. "Adaptive Data Forwarding Scheme for Diverse Infotainment Services in Vehicular Named Data Networking." *IEEE Transactions on Vehicular Technology* (2024).
doi:10.1109/TVT.2024.3524122
5. **Khan, Sajjad Ahmad.** and Lim, Huhnkuk, "Real-Time Vehicle Tracking-Based Data Forwarding Using RLS in Vehicular Named Data Networking," *IEEE Transactions on Intelligent Transportation Systems*, (2024).
doi: 10.1109/TITS.2024.3395184
6. Retta, E.A., Sutcliffe, R., Mahmood, J., Berwo, M.A., Almekhlafi, E., **Khan, Sajjad Ahmad.**, Chaudhry, S.A., Mhamed, M. and Feng, J., "Cross-Corpus Multilingual Speech Emotion Recognition: Amharic vs. Other Languages." *Applied Sciences*, 13-23, 2023.
doi:10.3390/app132312587
7. **Khan, Sajjad Ahmad.**, Lee, Hyun Jun., and Lim, Huhnkuk., "Enhancing Object Detection in Self-Driving Cars Using a Hybrid Approach." *Electronics*, 12, no. 13, 2023.
doi:10.3390/electronics12132768
8. Ullah, Yasir, Roslee, Mardeni Binl, Mitani, Sufian Mousa., **Khan, Sajjad Ahmad.**, and Jusoh, Mohamad Huzaimey., "A Survey on Handover and Mobility Management in 5G HetNets: Current State, Challenges, and Future Directions" *Sensors*, 23, no. 11, 2023.
doi:10.3390/s23115081
9. **Khan, Sajjad Ahmad.**, Lim, Huhnkuk., "Novel Fuzzy Logic Scheme for Push-based Critical Data Broadcast Mitigation in VNDN", *Sensors*, 22(20), 2022.
doi:10.3390/s22208078
10. Ashraf, Nausheen, Sheikh, Shahzad Amin., **Khan, Sajjad Ahmad.**, "Performance analysis of SWIPT Assisted Cooperative Internet of Things (IoT) Network under Optimal and Adaptive Power Splitting Schemes," *Internet of Things*, Elsevier, 20, 2022.
doi:10.1016/j.iot.2022.100630
11. Darman, Ijaz., Chaudhry, Mahmood, Musaria Karim., Shehzad Ashraf., **Khan, Sajjad Ahmad.**, Lim, HuhnkukNosheen., "Designing an Enhanced User Authenticated Key Management Scheme for 6G-based Industrial Applications," *IEEE Access*, IEEE, Volume 10, 2022.
doi:10.1109/ACCESS.2022.3198642
12. **Khan, Sajjad Ahmad.**, Shayea, Ibraheem., Ergen, Mustafa., Hafizal Mohamad., "Handover Management over Dual Connectivity in 5G Technology with Future ultra-dense Mobile Heterogeneous Networks: A Review," *En-*

gineering Science and Technology, an International Journal, Elsevier, 2021.
doi:10.1016/j.jestch.2022.101172

13. Chaudhry, Shehzad Ashraf., Irshad, Azeem., Khan, Muhammad Asghar, **Khan, Sajjad Ahmad.**, Nosheen, Summera., AlZubi, Ahmad Ali., Zikria, Yousaf Bin., "A Lightweight Authentication Scheme for 6G-IoT Enabled Maritime Transport System," *IEEE Transactions on Intelligent Transportation Systems*, vol. 24, no. 2, pp. 2401-2410, 2021.
doi:10.1109/TITS.2021.3134643.
14. Mahmood, Jabar, Duan, Zongtao., Xue, Heng., Yang, Yun., Micheal Abebe Berwo., **Khan, Sajjad Ahmad.**, and Yassin, Abd al Kader Ahmed., "Secure Message Transmission for V2V Based on Mutual Authentication for VANETs," *Wireless Communications and Mobile Computing*, Volume, 2021.
doi:10.1155/2021/3400558
15. Ashraf, Nausheen., Sheikh, Shahzad Amin, **Khan, Sajjad Ahmad**, Shayea, Ibraheem., Jalal Marium, "Simultaneous Wireless Information and Power Transfer with Cooperative Relaying for Next-Generation Wireless Networks: A Review," *IEEE Access*, Volume: 9, pp. 71482-71504, 2021.
doi:10.1109/ACCESS.2021.3078703
16. Asshad, Muhammad., Kavak, Adnan., Küçük, Kerem., and **Khan, Sajjad Ahmad.**, "Comparative Performance Analysis of Cooperative and Multi Dual-Hop Relay Networks using MGF Approach", *International Journal of Communication Systems (IJCS)*, Volume 33, pp. e4545, 2020.
doi:10.1002/dac.4545
17. Asshad, Muhammad., Kavak, Adnan., Küçük, Kerem., and **Khan, Sajjad Ahmad.**, "Using Moment Generating Function for Performance Analysis in Non-Regenerative Cooperative Relay Networks with Max-Min Relay Selection", *AEU International Journal of Electronics and Communications*, Volume 116, pp. 153066, 2020.
doi:10.1016/j.aeue.2020.153066
18. **Khan, Sajjad Ahmad.**, Kavak, Adnan., Çolak, Sultan Aldırmaz., and Küçük, Kerem., "A Novel Fractional Frequency Reuse Scheme for Interference Management in LTE-A HetNets," *IEEE Access*, Volume: 7, pp. 109662-109672, 2019.
doi:10.1109/ACCESS.2019.2933689
19. Asshad, Muhammad., **Khan, Sajjad Ahmad.**, Kavak, Adnan., Küçük, Kerem., and Msongaleli Dawson Ladislaus., "Cooperative Communications using Relay Nodes for Next-Generation Wireless Networks with Optimal Selection Techniques: A Review," *IEEJ Transactions on Electrical and Electronic Engineering*, Volume: 14, pp. 658-669, 2019.
doi:10.1002/tee.22852

SCOPUS JOURNALS

1. Sadeq, Asan Abbas., Kavak, Adnan., and **Khan, Sajjad Ahmad.**, "A Data Transmission Scheme Using K-Means and Fuzzy Logic for IOT Sensor Based Forest Fire Detection System." *International Journal of Emerging Trends in Engineering Research*, Volume 10, No. 10, 2022.
doi:10.30534/ijeter/2022/0110102022
2. Erdoğan, Hamdi. Küçük, Kerem. and **Khan, Sajjad Ahmad.**, "Design and Implementation of Low-Cost Modbus/MQTT Gateway for Industrial IoT Cloud Applications" *Bilecik Seyh Edebali University Journal of Science*, Volume 7, pp. 170-183, 2020.
doi:10.35193/bseufbd.708445
3. **Khan, Sajjad Ahmad.**, Asshad, Muhammad., Küçük, Kerem., and Kavak, Adnan., "A Power Control Algorithm (PCA) and Software Tool for Femtocells in LTE-A Networks," *Sakarya University Journal of Science*, Volume 22, pp. 1124-1129, 2018.
doi:10.16984/saufenbilder.373293

BOOK CHAPTERS

1. Nassim, Iqteit, Yahya, Khalid, and **Khan, Sajjad Ahmad.**, "Wireless power charging in electrical vehicles." *Wireless Power Transfer – Recent Development, Applications and New Perspectives*, IntechOpen, 2021.
2. Yahya, Khalid, Mohammed, Salem, Nassim, Iqteit, and **Khan, Sajjad Ahmad.**, "A Thermoelectric Energy Harvesting System." *Renewable Energy-Resources, Challenges and Applications*, IntechOpen, 2020.

INTERNATIONAL CONFERENCES

1. **Khan, Sajjad Ahmad.**, Lim, Huhnkuk., "Push-Based Forwarding Scheme Using Fuzzy Logic to Mitigate the Flooding Effect in VNDN," *Artificial Intelligence and Mobile Services–AIMS 2022: 11th International Conference, Held as Part of the Services Conference Federation, SCF 2022*, Honolulu, HI, USA, December 10–14, 2022, Proceedings, pp. 3-17. Cham: Springer International Publishing, 2022.
2. Ashraf, Nausheen, Sheikh, Shahzad Amin., **Khan, Sajjad Ahmad.**, "Performance Analysis of Dual Hop Half Duplex SWIPT based Cooperative Internet of Things (IoT) Network," *2nd International Informatics and Software Engineering Conference (IISEC)*, Ankara, Turkey, IEEE, 2021, doi:10.1109/IISEC54230.2021.9672344
3. **Khan, Sajjad Ahmad.**, Shayea, Ibraheem., Ergen, Mustafa., El-Saleh, Ayman A. and Roslee, Mardeni., "An Improved Handover Decision Algorithm for 5G Heterogeneous Networks" in *IEEE 15th Malaysia International Conference on Communication (MICC)*, IEEE, Selangor, Malaysia, 1-5, Dec, 2021. doi:10.1109/MICC53484.2021.9642076.
4. Mohamed, Yasmin Nasser., Shayea, Ibraheem., **Khan, Sajjad Ahmad.**, El-Saleh, Ayman A. and Roslee, Mardeni., "Power Quality Controller using Remote Control System" in *IEEE 15th Malaysia International Conference on Communication (MICC)*, IEEE, Selangor, Malaysia, 1–2 Dec, 2021, doi:10.1109/MICC53484.2021.9642153.
5. Kasim, Ahmad Nezh., Shayea, Ibraheem., **Khan, Sajjad Ahmad.**, Alhammadi, Abdulraheeb., and Ergen, Mustafa., "Evolutionary Paths towards Mobility Management in 5G Heterogeneous Networks" in *Workshop on Microwave Theory and Techniques in Wireless Communications (MTTW'20)*, IEEE, Riga, Latvia, 1-4, Oct, 2020.
6. Sözmez, Şafak., Shayea, Ibraheem., **Khan, Sajjad Ahmad.**, and Alhammadi, Abdulraheeb., "Handover Management for Next-Generation Wireless Networks: A Brief Overview" in *Workshop on Microwave Theory and Techniques in Wireless Communications (MTTW'20)*, IEEE, Riga, Latvia, 1–2 Oct 2020.
7. **Khan, Sajjad Ahmad.**, Sultan Aldırmaz Çolak., Kavak, Adnan., and Küçük, Kerem., "A User Location Distribution Based FFR Strategy for Efficient Utilization of Radio Resources in LTE-A HetNets" in *International Informatics and Software Engineering Conference (UBMYK)*, IEEE, Ankara, Turkey, 06-07 November 2019.
8. Asshad, Muhammad., **Khan, Sajjad Ahmad.**, Kavak, Adnan., and Küçük, Kerem., "Performance Analysis of Multi-Node Cooperative Network with Amplify and Forward Relay Protocol" in *International Informatics and Software Engineering Conference (UBMYK)*, IEEE, Ankara, Turkey, 06-07 November 2019.
9. Asshad, Muhammad., **Khan, Sajjad Ahmad.**, Kavak, Adnan., and Küçük, Kerem., "Evaluation of Multi Dual-Hop and Cooperative Relay Networks using MGF Based Analysis" in *International Informatics and Software Engineering Conference (UBMYK)*, IEEE, Ankara, Turkey, 06-07 November, 2019.
10. **Khan, Sajjad Ahmad.**, Kavak, Adnan., Küçük, Kerem., and Asshad, Muhammad. "A New Fractional Frequency Reuse Method for Interference Management in LTE-A HetNets" in *27th Signal Processing and Communications Applications Conference (SIU)*, IEEE., Sivas, Turkey, 24-26 April 2019.
11. Yengi, Yeliz., **Khan, Sajjad Ahmad.**, and Küçük, Kerem., "Design and performance analysis of information centric network for Internet of Things" in *25th Signal Processing and Communications Applications Conference (SIU)*, IEEE., Antalya, Turkey, 15-18 May, 2017.
12. **Khan, Sajjad Ahmad.**, Asshad, Muhammad., Kavak, Adnan., and Küçük, Kerem., "A novel Radio Resource Management (RRM) technique for Femtocells in LTE-Pro Networks" in *International Engineering Research Symposium (UMAS)*, Duzce, Turkey, 11-13 September 2017.

13. **Khan, Sajjad Ahmad.**, Kavak, Adnan., Asshad, Muhammad., and Fidan, Kaya., "Transmit Power Control (TPC) Algorithm for LTE-A Femtocell Networks" in *International Conference on Advanced Technology and Sciences (ICAT)*, Konya, Turkey, 01-03 September, 2016.

Professional Skills

TECHNICAL SKILLS

- All kinds of Microsoft Windows and Server Applications such as AD, DHCP, DNS, etc.
- Linux Based Ubuntu and RedHat
- Computer Networking using switches, routers, VPN, and Frame Relay
- Computer programming using MATLAB, Python, C, C++, MySQL, etc.
- Network simulations using Vienna LTE-A System Level Simulator, CupCarbon, NS3, NDNsim, SUMO, OPNET, etc.
- Graphics using CorelDRAW, Adobe Photoshop, MS Visio, Canva, draw.io, etc.
- Documentation using Microsoft Office (MS Word, MS Excel, MS Access, PowerPoint), \LaTeX , Notion, Google Docs, etc.

SOFT SKILLS

- Preparation and publication of research papers in peer-reviewed SCIE journals and conferences
- Teaching and training of students in various computer science topics and skills
- Consultation and collaboration with customers and colleagues on various projects and tasks
- Writing and presentation of reports, proposals, and presentations for various audiences and purposes
- Proofreading and revising of project-related reports and manuscripts
- Prompt engineering to extract data from Open AI ChatGPT, Microsoft Bing, Google Bard, Typeset.io, Google Scholar, Anthropic Claude AI, etc.

LANGUAGE SKILLS

- **English** (Advanced level)
- **Urdu/Hindi** (Native language)
- **Turkish** (Intermediate level)
- **Pashto** (Mother tongue)

References

Prof. Dr. Adnan Kavak

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U.A.E

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kkucuk@kocaeli.edu.tr

Turkiye

Prof. Dr. Mustafa Ergen

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING, ISTANBUL TECHNICAL UNIVERSITY

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