

# Sajjad Ahmad Khan (Ph.D.)

Born on April 11, 1984, Bannu (KPK), Pakistan.

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## Summary

**Summary** ■ Sajjad Ahmad Khan received his Ph.D. degree in Computer Engineering from Kocaeli University, Turkey, in 2020. Currently, he is serving as a research associate at Istanbul Technical University (ITU), Istanbul, Turkey. He is a highly passionate and motivated researcher and has published numerous publications in SCI journals. He is also an active reviewer for several international journals. He has a strong willingness to participate in attaining excellence in the fields of wireless and mobile networks, data communication, and telecommunication.

**Major Subjects** ■ Machine Learning for Signal Processing, Computer Networks, Data Communication and Networking, Computer Architecture, Data Structure and Algorithms, Advanced Programming, Digital Signal Processing, Wireless Communication, Probability Theory and Stochastic, Digital Logic Design, Signal and System, Digital Communications, and Digital Image Processing.

**Research Interests** ■ Handover and Mobility Management in 5G and 6G, Internet of Things (IoT), Vehicle to Vehicle (V2V) Communications, 5G and Beyond Heterogeneous Networks (HetNets), Load Balancing and Radio Resource Management (RRM), Cooperative Communications, Security and Cryptography, OFDMA, SDMA, massive MIMO, and mmWave, etc.

## Education

2014 – 2020 ■ **Ph.D. (Computer Engineering), Kocaeli University, Turkey**

CGPA = 3.53

*Thesis Title: A Novel Radio Resource Management (RRM) Technique for Interference Management in LTE-A HetNets*

2009 – 2011 ■ **MS(TN) Telecommunication & Networks, IQRA University, Islamabad, Pakistan**

CGPA = 3.32

*Thesis Title: A Spatial Diversity Technique in OFDMA Based MIMO*

2003 – 2007 ■ **B.Sc. (Hons) Information Technology (IT), University of Engineering and Technology, Peshawar, Pakistan**

CGPA = 3.20

*Final Project: An Online Database Management System for Outdoor Patients*

## Research Experience

Apr 2020 – Present ■ **Researcher Associate** at Istanbul Technical University (ITU), Istanbul, Turkey.

## Research Experience (continued)

- 2015 – 2020    **PhD Researcher:** under a BAP project at Kocaeli University, Kocaeli, Turkey
- Feb 2014 – Jan 2015    **Researcher:** under a TUBITAK 1003-FATİH Project at Kocaeli University, Turkey
- Sep 2017 – Mar 2018    **Visiting Researcher:** under Erasmus+ exchange program at Adam Mickiewicz University, Poznań, Poland, through Erasmus+ Program
- Aug 2007 – Jul 2008    **Internship:** at AIOU, Islamabad, Pakistan under NIP
- Feb 2006 – Feb 2007    **Internship:** IT Section, Lady Reading Hospital, Peshawar, Pakistan

## Academic Experience

- Apr 2020 – Present    **Research Associate** at Istanbul Technical University (ITU), Turkey.
- Oct 2009 – Oct 2013    **Lecturer:** Ali Trust Cadet College, Islamabad, Pakistan.
- Sept 2008 – Oct 2009    **Lecturer:** Government College Shahkot, Shaikhpora, Pakistan.

## Research Publications

### INTERNATIONAL JOURNALS (SCI)

1. Chaudhry, Shehzad Ashraf., Irshad, Azeem., Khan, Muhammad Asghar., **Khan, Sajjad Ahmad.**, Nosheen, Summera., AlZubi, Ahmad Ali., and Zikria, Yousaf., "A Lightweight Authentication Scheme for 6G-IoT Enabled Maritime Transport System," *IEEE Transactions on Intelligent Transportation Systems*, IEEE, 2021, doi: 10.1109/TITS.2021.3134643.
2. 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.
3. **Khan, Sajjad Ahmad.**, Shayea, Ibraheem., Ergen, Mustafa., Hafizal Mohamad., "Handover Decision Management Over Dual Connectivity in Future Ultra-Dense Mobile Heterogeneous Networks: A Review," *Engineering Science and Technology, an International Journal*, under review, 2021.
4. 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.
5. **Khan, Sajjad Ahmad.**, Kavak, Adnan., Sultan Aldırmaz Çolak., Küçük, Kerem., and Asshad, Muhammad., "An Improved FFR Technique for LTE-A HetNets using User Location Distribution." *AEUE - International Journal of Electronics and Communications*, Major Revision, 2021.
6. 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

7. 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.
8. **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.
9. 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.

#### INTERNATIONAL JOURNALS (Scopus)

10. 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.
11. **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 Üniversitesi Fen Bilimleri Enstitüsü Dergisi*, Volume 22, pp. 1124-1129, 2018.

#### INTERNATIONAL BOOK CHAPTERS

12. 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.
13. 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

14. **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, 1-2 Dec, 2021, doi: 10.1109/MICC53484.2021.9642076.
15. 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.
16. Kasim, Ahmad Nezh., Shayea, Ibraheem., **Khan, Sajjad Ahmad.**, Alhammedi, Abdulaqeb., 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, 1-2 Oct, 2020.
17. Sözmez, Şafak., Shayea, Ibraheem., **Khan, Sajjad Ahmad.**, and Alhammedi, Abdulaqeb., "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.
18. **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.

19. 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.
20. 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.
21. **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.
22. 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.
23. **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.
24. **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 Certificates

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- 2013    **CCNP:** CISCOM Rawalpindi, Pakistan
- 2012    **CCNA:** Online Exam, Cisco Certified
- 2011    **MCITP:** Ciscom, Rawalpindi, Pakistan
- 2007    **GRE (GAT):** National Testing Service, Pakistan

## Professional Skills

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- Software Expertise    **■** Installation and Configuration of Microsoft Windows 2012 Server, AD, DHCP, and DNS, etc. Linux Based Ubuntu and RedHat. CorelDRAW, Adobe Photoshop, Microsoft Office (Word, Excel, PowerPoint, Access) and L<sup>A</sup>T<sub>E</sub>X, etc.
- Computer Networking    **■** Configuration of Switches, Routers, and Troubleshooting. Monitoring the Network Performance and Network Traffic, Implementing VPN and Frame Relay, etc.
- Programming/Coding    **■** MATLAB, Python, LabVIEW, Visual Basic.NET, C, C++, etc.
- Network Simulations    **■** Vienna LTE-A System Level Simulator, OMNET++, NS3, and OPNET, etc.
- Miscellaneous    **■** Academic Research, Teaching, Training, Consulting, Proofreading, and Report Writing, etc.
- Languages    **■** Advanced level of English, Urdu, Hindi, and Pashto. Intermediate level of Turkish and Elementary level of Polish

## Awards and Achievements

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- 2019 📌 **Shield**, awarded by the President of Kocaeli Municipality, Turkey
- 2017-2018 📌 **Erasmus+**, visited Poznan, Poland
- 2016-2018 📌 **BAP Project**, Sponsored by Scientific Research Projects Unit, Kocaeli University, Turkey
- 2016-2017 📌 **Merit Award**, Federation of International Student Associations (UDEP) Scholarship Program
- 2015-16 📌 **Success Scholarship**, Sponsored by Yabancı Türkiye Bursları (YTB), Turkey.
- 2014-2015 📌 **Fatih (1003) Project**, Sponsored by TUBITAK, Turkey
- 2008-2010 📌 **Indigenous Scholarship**, Sponsored by Higher Education Commission (HEC), Pakistan

## References

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- Dr. Adnan Kavak 📌 Professor at the Department of Computer Engineering, Kocaeli University, Turkey. (akavak@kocaeli.edu.tr)
- Dr. Kerem Kucuk 📌 Professor at the Department of Software Engineering, Kocaeli University, Turkey. (kkucuk@kocaeli.edu.tr)
- Dr. Shehzad Ashraf 📌 Associate Professor at the Department of Computer Engineering, Faculty of Engineering and Architecture, Istanbul Gelisim University, Istanbul, Turkey. (sashraf@gelisim.edu.tr)
- Dr. Yousaf Bin Zikria 📌 Assistant Professor at Department of Information and Communication Engineering, Yeungnam University, Gyeongsan 38541, South Korea. (yousafbinzikria@ynu.ac.kr)