CURRICULUM VITAE

Muhammad Asif Khan, PhD

Qatar Mobility Innovations Center (QMIC), Qatar University, Doha, Qatar
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Research Interest

- Mobile edge computing and edge intelligence in B5G/6G, and IoT
- Distributed machine learning and federated learning
- Deep learning optimization

Education

Dec 2019   Ph.D. Electrical Engineering, Qatar University, Doha, Qatar.
Mar 2013   M.Sc. Telecommunication Engineering, University of Engineering & Technology Taxila.
Sep 2009   B.Sc.Telecommunication Engineering, University of Engineering & Technology Peshawar

Research Experience

Dec'21-Present Postdoctoral Fellow at Qatar Mobility Innovations Center (QMIC), Qatar University.
Jun'20-Oct'21   Postdoctoral Fellow at Electrical Engineering Department, Qatar University
Jan'16-Dec'16   Research Assistant at Qatar Mobility Innovations Center (QMIC), Qatar University.
Aug'14-Jul'15   Graduate Assistant at Qatar Transportation and Traffic Safety Center, Qatar Univ.

Industry Experience

May'21-Nov'21 Tender Manager at Intelligent Data Communication, Doha, Qatar
Jul'10-Apr'21   Senior Business Development Engineer at QDOM, Doha, Qatar
Jan'16-Jul'19   Lead Planning Engineer, at QD-SBG, Doha, Qatar.
Mar'13-Jan'16   Low Current Engineer, at QD-SBG, Doha, Qatar.
Jul'12-Feb'13   Contact Center Executive, Wi-Tribe Pakistan
May'11-Dec'11 Fixed Network Engineer, Netkom Technologies, (Huawei-PTCL) Project, Pakistan
Jan'10-Dec'10 Trainee at National Telecommunication Corporation (NTC), Islamabad, Pakistan

Teaching and Mentoring

2015-Present   Community Mentor at Coursera (Deeplearning.ai)
Jun'23   Research Mentor at Qatar University Young Scientists Center (QUYSC)
Jun'23   Research Mentor at Qatar Mobility Innovation Center (QMIC)

Scholarships and Awards

2022   Certification of Appreciation / Spot Award, Qatar Mobility Innovations Center (QMIC)
2021   Post Doctoral Research Award (PDRA), Qatar National Research Fund, USD. 200,000
2014   Graduate Assistant Award, Qatar University, USD. 40,000
2009   Best Undergraduate Final Year Project, University of Engineering and Technology Peshawar

Publications

For an updated list, please visit my **Google Scholar:**
https://scholar.google.com/citations?user=BgUrPm8AAAAJ&hl=en

Journal Papers

[J16] **M. A. Khan**, H. Menouar, and R. Hamila, "Curriculum for Crowd Counting - Is it Worthy?" in IEEE Transactions on Artificial Intelligence [submitted].

[J15] **M. A. Khan**, H. Menouar, and R. Hamila, "Visual Crowd Analysis - Open Research Problems," in AI Magazine [submitted].

[J14] **M. A. Khan,** K. Shaaban, H. Menouar, and R. Hamila, "Transmitting More Than Signals: How Visible Light Communication and Sensing Enables Safer and Smarter Mobility" [Submitted]

[J13] **M. A. Khan**, H. Menouar, and R. Hamila, "LCDnet: A Lightweight Crowd Density Estimation Model for Real-time Video Surveillance," in Journal of Real-Time Image Processing., 20, 29, 2023. **(IF: 3.0)**

[J12] **M. A. Khan**, H. Menouar, & R. Hamila, Revisiting Crowd Counting: State-of-the-art, Trends, and Future Perspectives. In Image and Vision Computing., 129, 104597, 2022 **(IF: 4.7)**

[J11] **M. A. Khan**, H. Menouar, A. Eldeeb, A. Abu-Dayya, and F. D. Salim, "On the Detection of Unauthorized Drones—Techniques and Future Perspectives: A Review," in IEEE Sensors Journal, vol. 22, no. 12, pp. 11439-11455, 15 June 15, 2022. **(IF: 4.3)**

[J10] **M. A. Khan**, R. Hamila, A. Erbad, and M. Gabbouj, "Distributed Inference in Resource-Constrained IoT for Real-Time Video Surveillance," in IEEE Systems Journal, 2022 **(IF: 4.4)**

[J9] **M. A. Khan**, A. Erbad, R. Hamila and E. Baccour, "CODE: Computation Offloading in D2D-Edge System for Video Streaming" in IEEE Systems Journal, 2022 **(IF: 4.4)**

[J8] **M. A. Khan**, E. Baccour, Z. Chkirbene, A. Erbad, R. Hamila, H. Hamdi, and M. Gabbouj, "A Survey on Mobile Edge Computing for Video Streaming: Opportunities and Challenges," in IEEE Access, vol. 10, pp. 120514-120550, 2022. **(IF: 3.47)**

[J7] **M. A. Khan**, R. Hamila, A. Gastli, S. Kiranyaz, and N. A. Al-Emadi, "ML-based Handover Prediction and AP Selection in Cognitive Wi-Fi Networks", Journal of Network and Systems Management. 2022 Oct;30(4):1-21 **(IF: 3.6)**

[J6] D. Unal, M. Hammoudeh, **M. A. Khan**, A. Abuarqoub, G. Epiphaniou, R. Hamila, "Integration Of Federated Machine Learning and Blockchain for the Provision of Secure Big Data Analytics for Internet of Things", Computers & Security, Jul. 2021 **(IF: 5.6)**

[J5] **M. A. Khan**, R. Hamila, N. A. Al-Emadi, M. S. Kiranyaz, and M. Gabbouj, "Real-time Throughput Prediction for Cognitive Wi-Fi Networks", J. Netw. Comput. Appl., vol. 150, pp. 245-258, Sep. 2020. **(IF: 8.7)**

[J4] **M. A. Khan**, R. Hamila and M. O. Hasna, "Optimal Group Formation in Dense Wi-Fi Direct Networks for Content Distribution," in IEEE Access, vol. 7, pp. 161231-161245, 2019. **(IF: 3.47)**

[J3] **M. A. Khan**, R. Hamila, M. S. Kiranyaz, and M. Gabbouj, "A Novel UAV-Aided Network Architecture Using Wi-Fi Direct", in IEEE Access, vol. 7, pp. 67305-67318, 2019. **(IF: 3.47)**

[J2] K. Shaaban, **M. A. Khan**, R. Hamila and M. Ghanim, "A Strategy for Emergency Vehicle Preemption and Route Selection", Arabian Journal for Science and Engineering 83 (2019): 1-9. **(IF: 2.9)**

[J1] **M. A. Khan**, W. Cherif, F. Filali and R. Hamila, "Wi-Fi direct research-Current status and future perspectives", J. Netw. Comput. Appl., vol. 93, pp. 245-258, Sep. 2017. **(IF: 8.7)**

Conference Papers

[C19] **M. A. Khan**, H. Menouar, and R. Hamila, "Accelerating Learning with Fixed Time Budget", submitted to AAAI 2024

[C18] **M. A. Khan**, H. Menouar, and R. Hamila, "MMCount: Multimodal Crowd Counting with

Pix2Pix GANs", submitted to IAAI 2024

[C17] I. Mrad, E. Baccour, R. Hamila, **M. A. Khan**, A. Erbad, M. Hamdi, "RL-CEALS: Reinforcement Learning for Collaborative Edge Assisted Live Streaming," in 28th IEEE Symposium Computers and Communications (ISCC) 9 -12 July, Tunis Tunisia. [accepted].

[C16] **M. A. Khan**, R. Hamila, and H. Menouar, "CLIP: Train Faster with Less Data, 2023 IEEE International Conference on Big Data and Smart Computing (BigComp), Jeju, Korea, Republic of, 2023, pp. 34-39.

[C15] **M. A. Khan**, H. Menouar, and R. Hamila, "Crowd Density Estimation Using Imperfect Labels", 2023 IEEE International Conference on Consumer Electronics (ICCE), Las Vegas, NV, USA, 2023, pp. 1-6.

[C14] **M. A. Khan**, H. Menouar, and R. Hamila, "DroneNet: Crowd Density Estimation using Self-ONNs for Drones", 2023 IEEE 20th Consumer Communications & Networking Conference (CCNC), Las Vegas, NV, USA, 2023, pp. 455-460.

[C13] **M. A. Khan**, H. Menouar, A. Eldeeb, A. Abu-Dayya, and F. Salim, "Detecting Unauthorized Drones–Experiments and Prototypes" in IEEE International Conference on Industrial Technology (ICIT) 2022 Aug 22 (pp. 1-6), 2022

[C12] **M. A. Khan**, H. Menouar, and R. Hamila, "Drones-aided Asset Maintenance in Hospitals", in IEEE 2nd International Conference on Computers and Automation (CompAuto) 2022 Aug 18 (pp. 1-5), 2022

[C11] K. Shaaban, **M. A. Khan**, I. Kim and R. Hamila, "Queue Discharge at Freeway On-Ramps Using Coordinated Operation of a Ramp Meter and an Upstream Traffic Signal", Procedia Computer Science, Volume 170, 2020, Pages 347-353, ISSN 1877-0509

[C10] K. Rahman, S. Mallick, **M. A. Khan**, "Travel Time Estimation using Multivariate Regression Model", In Qatar Foundation Annual Research Conference Proceedings Volume 2018 Issue 1 2018 Mar 21, Vol. 2016, No. 1, p. EEPD1051.

[C9] W. Cherif, **M. A. Khan**, F. Filali, S. Sharafeddine, Z. Dawy, "P2P Group Formation Enhancement for Opportunistic Networks with Wi-Fi Direct", Proc. IEEE Wireless Commun. Netw. Conf. (WCNC), pp. 1-6, Mar. 2017.

[C8] **M. A. Khan**, W. Cherif, F. Filali and R. Hamila, "Realization of Dual-Hop Networks in Wi-Fi Direct and Performance Evaluation" 2017 IEEE International Conference on Internet of Things (iThings) and IEEE Green Computing and Communications (GreenCom) and IEEE Cyber, Physical and Social Computing (CPSCom) and IEEE Smart Data (SmartData), Exeter, 2017, pp. 552-559.

[C7] **M. A. Khan**, W. Cherif, F. Filali, "Group Owner Election in Wi-Fi Direct", Proc. IEEE Annu. Ubiquitous Comput. Electron. Mobile Commun. Conf. (UEMCON), pp. 1-9, Oct. 2016.

[C6] K. Shaaban, **M. A. Khan**, and R. Hamila, "Literature Review of Advancements in Adaptive Ramp Metering", Procedia Computer Science 83 (2016): 203-211.

[C5] **M. A. Khan**, R. Hamila and K. Shaaban., "Mitigation of Traffic Congestion Using Ramp Metering on Doha Expressway", In Qatar Foundation Annual Research Conference Proceedings Volume 2016 Issue 1 2016 Mar 21, Vol. 2016, No. 1, p. ICTSP2224.

[C4] M. Shah, **M. A. Khan**, T. Mahmood, K. Islam, and J. Akbar, "Generation of orthogonally Polarized chaotic waveforms for secure optical communication" 2013 IEEE 9th International Conference on Emerging Technologies (ICET), Islamabad, 2013, pp. 1-5.

[C3] **M. A. Khan**, S. Zakiuddin and J. Ahmad, "Cross-layer optimization of dynamic source routing protocol using IEEE 802.11e based medium awareness", 2013 3rd IEEE International Conference on Computer, Control, and Communication (IC4), Karachi, 2013, pp. 1-6.

[C2] M. S. Khan, S. Bashir, **M. A. Khan**, and K. Asaf, "Design and integration of dual-band textile antenna with high impedance surface", 2013 IEEE 9th International Conference on Emerging Technologies (ICET), Islamabad, 2013, pp. 1-6.

[C1] **M. A. Khan** and S. Zakiuddin, "Research review of the development of novel routing Algorithms for mobile Ad-hoc networks", Eighth International Conference on Digital Information Management (ICDIM 2013), 2013, pp. 61-66

Book Chapters

[B1] **M. A. Khan,** and M. A. Ahmadon, "Mobile Edge Computing for the Next Generation Massive Internet of Things" in Evolution of Information, Communication and Computing System, 2023

Invited Talks / Tutorials / Interviews

[E5] Tutorial entitled "Mobile Edge Computing for Massive IoT (MIoT) Systems" at 10th IEEE International Symposium on Networks, Computers, and Communications, Doha, Qatar.
[E4] Invited Talk entitled "Machine Learning in Mobile Edge Computing - Recent Trends, Opportunities, and Challenges" at The 2nd International Conference on Machine Learning and Intelligent Systems (MLIS2020), October 25-28, 2020.
[E3] Magazine column, entitled "ABC of AI" published in Facilitate, the official IWFM magazine, October 2020 Issue
[E2] Interview, "Career Ladder" published in Facilities Management Journal, July 2020 Issue
[E1] Magazine column, "Artificial Intelligence in FM", published in Facilitate, the official IWFM magazine, Mar 2021 Issue

Editorials and Technical Committees

Journal Editorial Committee

● IEEE Future Direction Newsletter
● Frontiers in Communication and Networks

Journal Reviewer

● Nature Scientific Reports
● IEEE Transactions on Artificial Intelligence (TAI)
● IEEE Communication Magazine (COMMAG)
● IEEE Wireless Communication Magazine (WCM)
● IEEE Communication Standards Magazine (COMSTD)
● IEEE Transactions on Emerging Topics in Computing (TETC)
● IEEE Transactions on Systems, Man, and Cybernetics (SMC)
● IEEE Transactions on Consumer Electronics (TCE)
● IEEE Transactions on Microwave Theory and Techniques (T-MTT)
● IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
● IEEE Communications Surveys and Tutorials (COMST)
● IEEE Internet of Things Journal (IOT)
● IEEE Internet of Things Magazine (IOTMAG)
● IEEE Systems Journal (ISJ)
● IEEE Sensors Letters (SENSL)
● IEEE Access
● IEEE Open Journal of the Communication Society (OJ-COMS)
● IEEE China Communications
● IET Communications
● Elsevier Future Generation Computer Systems (FGCC)
● Elsevier ICT Express (ICTE)
● Elsevier Computers and Electrical Engineering (COMPELECENG)
● Springer Wireless Personal Communication (WPC)
● IET Intelligent Transportation System
● KSII Transactions on Internet and Information Systems

Conference Chair/Co-chair

- Tutorial Chair at IEEE Gaming, Entertainment, and Media Conference (GEM) 2023
- Program Co-chair at the 3rd International Conference on Computers and Automation, Paris
- Workshop Co-chair at Sensing, Communication, and Localization in 6G at 6GIoTT 2022, Fuzhou
- Session chair at 2nd International Conference on Computers and Automation, Paris, France
- Session chair at IEEE Consumer Communications and Networking Conference 2023, Las Vegas

Technical Program Committees

- IEEE International Conference on Communications (ICC 2021-2024)
- IEEE Vehicular Technology Conference (VTC2023-Fall)
- IEEE Consumer Communications and Networking Conference (CNCC 2021-2023)
- International Conference on Consumer Electronics (ICCE Berlin 2023)
- Asia Conference on Computer Vision, Image Processing, and Pattern Recognition (CVIPPR'24)
- IEEE BigData 2020
- IEEE Conference on Technologies for Sustainability (SusTech 2020-2024)
- IEEE Sensors 2020
- IEEE International Conference on Acoustics, Speech & Signal Processing (ICASSP 2020)
- International Conference on Machine Learning and Intelligent Systems (MLIS 2020-23)
- International Workshop on Signal Processing and Machine Learning (WSPML 2020)
- International Conference on Computing Science, Communication and Security
- IEEE 4th World Forum on Internet of Things (WF-IoT 2018)
- ICTIS2020, CTISC2020, BDML2020.

Examiner/Evaluator

2023   External examiner for the senior design project, Qatar University
2022   Judge at IET Presentin10 competition

Supervision and Co-Supervision

2023   Co-supervisor of Mr. Samiullah, M.Phil thesis, Abdul Wali Khan University, Mardan, Pakistan

Training/Certifications

- TensorFlow Specialization, Deeplearning.ai
- Deep Learning Specialization, Deeplearning.ai
- Machine Learning, Stanford University at Coursera
- Machine Learning School 2019 organized by BigML and QCRI, Doha, Qatar
- Supervising Doctoral Studies, Epigeum, Oxford University Press.
- Certified Peer Reviewer, Elsevier and Web of Science Academy
- Mentor Community and Training, Coursera
- IBM Maximo, Asset Management, Inventory Management, Work Order Management
- Energy Efficiency and Building Automation Systems, Schneider Electric
- Juniper Networks Certified Internet Associate - JNCIA
- IPv6 Forum Certified Network Engineer, IPv6 Forum
- 4G Mobile and Future Internet, ITU Academy
- Mobile Broadband: LTE/LTE-Advanced, WiMAX and WLAN, ITU Academy
- Future Internet, ITU Academy
- Digital Terrestrial Television Broadcasting, ITU Academy
- Migration to IPv6, ITU Academy

Conferences Attended

- IEEE Consumer Communications and Networking Conference 2023, Las Vegas, USA
- IEEE 41st International Conference on Consumer Electronics, 2023, Las Vegas, USA
- IEEE International Conference on Big Data and Smart Computing, 2023, Jeju, South Korea
- IEEE 23rd IEEE International Conference on Industrial Technology, 2022, Shanghai, China
- International Conference on Computers and Automation, 2023, Paris, France
- International Conference on Innovation and Technological Advances for Sustainability,2023, Doha, Qatar.

References

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- **Fethi Filali**, Head of Technology Development & Applied Research, QMIC, Qatar.
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