




AALIM MUHAMMED SALEGH COLLEGE OF ENGINEERING

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

NAME& INITIALS	MOHAMMED USMAN	
DESIGNATION	PROFESSOR	
EDUCATIONAL QUALIFICATION	B.E., M.S., PhD	
EXPERIENCE	20 YEARS	
DATE OF JOINING	12/12/2023	
EMAIL ID	drmdusman@aalimec.ac.in	
AREA OF SPECIALISATION	Wireless Communication, Signal Processing, Artificial Intelligence	

EDUCATIONAL QUALIFICATION

DEGREE	BRANCH / SPECIALIZATION	INSTITUTION	UNIVERSITY	YEAR
Certificate	Machine Learning	Coursera	Stanford University	2020
PhD	Wireless Communication	University of Strathclyde, Glasgow	University of Strathclyde, Glasgow.	2008
M.S	Communication and Signal Processing	University of Strathclyde, Glasgow.	University of Strathclyde, Glasgow	2003
B.E	ECE	Hindustan College of Engineering	University of Madras	2002

PROFESSIONAL MEMBERSHIPS

Senior Member, IEEE

Member IET

NPTEL COURSES ATTENDED

no

FDP ATTENDED

FDP on “**Open source learning management system: Modular, Object-Oriented, Dynamic Learning Environment (MOODLE)**”, Aligarh Muslim University in association with **Spoken Tutorial Project, IIT Bombay**, 16 – 20 June 2020.

WORKSHOPS ATTENDED

Workshop on “**Strategic planning, KPI’s and Learning Outcomes**”, Development and Quality Unit, **King Khalid University**, 28 November 2019.

SEMINARS/WEBINARS ATTENDED

- **Seminar** on 'Speech as a biomedical signal using artificial intelligence', Initiative in faculty members Teaching-Learning process, 4th December 2019, King Khalid University.
- Expert Lecture on ‘**Speech as a Biomedical signal**’ at Aligarh Muslim University (AMU) under the Technical Education Quality Improvement Program (**TEQIP – III**) by Ministry of Human Resource Development (MHRD), India, on 14th August 2018.

PUBLICATION DETAILS

- Sequential touch based text and audio conversion system with artificial intelligence in hindi unicode for blind community, Mishra, Gupta, Rathore, **Mohammed Usman** et. al., Patent No. 2021104954, IP Australia, **GRANTED** 20-April-2022.

Representative journal publications

1. Sheeba, P., Muneer, P., Thafasalijyas, V.P. **Usman M.** and Wajid M., Equalization Techniques for SC-FDMA Systems Under Radio Imbalances at Both Transmitter and Receiver. *Wireless Personal Communications* 129, 2563–2581 (2023). <https://doi.org/10.1007/s11277-023-10246-1>
2. Sathish, K.; Hamdi, M.; Chinthaginjala, R.; Pau, G.; Ksibi, A.; Anbazhagan, R.; Abbas, M.; **Usman, M.** Reliable Data Transmission in Underwater Wireless Sensor Networks Using a Cluster-Based Routing Protocol Endorsed by Member Nodes. *Electronics* 2023, 12, 1287. <https://doi.org/10.3390/electronics12061287>
3. Y.A. Khan, S. Imamuddin, Y.P. Singh, M. Wajid, **M. Usman**, M. Abbas, “Artificial Intelligence Based Approach for Classification of Human Activities Using MEMS Sensors Data”, *Sensors* 23(3), 1275, 22-Jan-2023, <https://www.mdpi.com/1424-8220/23/3/1275>
4. **Mohammed Usman**, Vinit Kumar Gunjan, Mohd Wajid, Mohammed Zubair, Kazy Noor-e-alam Siddiquee, "Speech as a Biomarker for COVID-19 Detection Using Machine Learning", *Computational Intelligence and Neuroscience*, vol. 2022, Article ID 6093613, 2022. <https://doi.org/10.1155/2022/6093613>, Impact factor: 3.633
5. **M. Usman**, M. Zubair, Z. Ahmad, M. Zaidi, T. Ijyas, M. Parayangat, M. Wajid, M. Shiblee, S.J. Ali, “Heart rate detection and classification from speech spectral features using machine learning”, *Archives of Acoustics*, vol 46, no. 1, pp. 41 – 53, 2021. doi: 10.24425/aoa.2021.136559, Impact factor: 0.913
6. **M. Usman**, M. Zubair, H.S. Hussein, M. Wajid, M. Farrag, S.J. Ali, M. Shiblee, M.S Habeeb, Empirical Mode Decomposition for Analysis and Filtering of Speech Signals, *IEEE Canadian Journal of Electrical and Computer Engineering* vol. 44, issue 3, pp. 343 – 349, July 2021. doi: 10.1109/ICJECE.2021.3075373, Impact factor: 1.434.
7. I. Bouazzi, M. Zaidi, **M. Usman**, M.Z.M. Shamim, “A new medium access control mechanism for energy optimization in WSN: traffic control and data priority scheme. *Eurasip Journal on Wireless Communication and Networking*, vol. 2021, issue 1, Article 42, February 2021. doi: 10.1186/s13638-021-01924-4, Impact factor: 2.455.
8. H. S. Hussein, T. M. Alanazi, M. Z. Shamim, M. S. Habeeb, **M. Usman** and M. Farrag, "Fully Quadrature Subcarrier-Index Shift Keying for Efficient Underwater Acoustic Communications," in *IEEE Access*, vol. 9, pp. 46975-46984, 2021, doi: 10.1109/ACCESS.2021.3067878, Impact factor: 3.367.
9. Monji Zaidi, Imen Bouazzi, **Mohammed Usman**, Mohammed Zubair Mohammed Shamim, Ninni Singh, Vinit Kumar Gunjan, "Cooperative Scheme ToA-RSSI and Variable Anchor Positions for Sensors

- Localization in 2D Environments", *Complexity*, vol. 2022, Article ID 5069254, 11 pages, 2022. <https://doi.org/10.1155/2022/5069254>, Impact factor: 2.833.
10. M. Farrag, M. Z. Shamim, **M. Usman** and H. S. Hussein, "Load Balancing Scheme in Hybrid WiGig/LiFi Network," in *IEEE Access*, vol. 8, pp. 222429-222438, 2020, doi: 10.1109/ACCESS.2020.3044529, Impact factor: 3.367.
 11. A. A. Sathar, P. Muneer, V. P.T. Ijyas, **M. Usman**, M. Z. Shamim, M. Shiblee, "Filter-Bank Modulation Based Signal Design and Transmission Techniques for Intensity Modulated MIMO Visible Light Communication Systems", *Wireless Personal Communications*, vol. 111, issue 2, pp. 1129 – 1150, March 2020. DOI: <https://doi.org/10.1007/s11277-019-06905-x>, Impact factor: 0.929.
 12. Imen Bouazzi, Monji Zaidi, **Mohammed Usman**, Mohammed Zubair Mohammed Shamim, Vinit Kumar Gunjan, Ninni Singh, "Future Trends for Healthcare Monitoring System in Smart Cities Using LoRaWAN-Based WBAN", *Mobile Information Systems*, vol. 2022, Article ID 1526021, 12 pages, 2022. <https://doi.org/10.1155/2022/1526021>, Impact factor: 1.802.
 13. Zaidi, M, Bouazzi, I, Al-Rayif, MI, Shamim, MZM, **Usman, M**. Low power hardware design and its mathematical modeling for fast-exact geolocalization system in wireless networks. *Int J Commun Syst*. 2022; 35(9):e5128. doi:10.1002/dac.5128, Impact factor: 2.047.
 14. S.A. Ali, M. Wajid, **M. Usman**, M.S. Alam, A High-Order EMSIW MIMO Antenna for Space-Constrained 5G Smartphone, *Sensors*, vol. 21, issue 24, article no. 8350, Dec. 2021., doi: 10.3390/s21248350, Impact factor: 3.576.
 15. F. Alam, **M. Usman**, H.I. Alkhamash, M. Wajid, Improved Direction-of-Arrival Estimation of an Acoustic Source Using Support Vector Regression and Signal Correlation. *Sensors*. 2021; 21(8):2692. doi: 10.3390/s21082692, Impact factor: 3.576.
 16. **M. Usman**, M.Z.M. Shamim, "Probabilistic Modeling of Speech with high spectral resolution using maximum likelihood estimation", *National Academy Science Letters*, vol. 43, issue 3, pp 225-227, June 2020, DOI: 10.1007/s40009-019-00842-w, Impact factor: 0.416.
 17. M. Wajid, M. Kumari, **M. Usman**, O. Farooq, "Estimation of mixing coefficients using the joint probability distribution of mixed signals", *IETE Journal of Research*, Taylor and Francis, Nov. 2019, DOI: 10.1080/03772063.2019.1682073, Impact Factor: 0.829.
 18. **M. Usman**, M. Zubair, M. Shiblee, P. Rodrigues and S. Jaffar, "Probabilistic Modeling of Speech in Spectral Domain using Maximum Likelihood Estimation", *Symmetry-Basel*, vol.10, issue 12, article 750, December 2018. DOI: <https://doi.org/10.3390/sym10120750>, Impact factor: 2.713.
 19. **M. Usman**, Mohammed I. Al-Rayif, "Threshold Detection for Visible Light Communication using

Parametric Distribution Fitting”, International Journal of Numerical Modeling: Electronic Networks, Devices and Fields, Wiley, vol. 31, issue 3, May/June 2018 DOI: 10.1002/jnm.2305, Impact Factor: 1.296.

20. **M. Usman**, “Convolutional Fountain distribution over Fading Wireless Channels”, International Journal of Electronics, Taylor and Francis, Volume 99, Issue 8, 2012, DOI:10.1080/00207217.2011.651694, Available online: 6th February 2012, Impact Factor: 1.336.

CONFERENCE DETAILS

1. R. Muzammil, M. Wajid and **M. Usman**, "Design of a Linear Equalizer using Regression Model and Maximum A posteriori Estimation," 2021 Sixth International Conference on Image Information Processing (ICIIP), 2021, pp. 137-141, doi: 10.1109/ICIIP53038.2021.9702624.
2. M. Zaidi, I. Bouazzi, **M. Usman**, M.Z.M. Shamim, “Virtual Prototype of a wireless sensor node using VHDL-AMS”, 4th IEEE World Conference on Smart Trends in Systems, Security and Sustainability (WS4 – 2020), 27 -28 July 2020, London, UK.
3. M. Wajid, F. Alam, S. Yadav, M. A. Khan and **M. Usman**, "Support Vector Regression based Direction of Arrival Estimation of an Acoustic Source," 2020 International Conference on Innovation and Intelligence for Informatics, Computing and Technologies (3ICT), 2020, pp. 1-6, doi: 10.1109/3ICT51146.2020.9311948.
4. **M. Usman**, Z. Ahmad, M. Wajid, “Dataset of Raw and Pre-processed Speech Signals, Mel Frequency Cepstral Coefficients of Speech and Heart Rate Measurements”, 5th IEEE International Conference on Signal Processing, Computing and Control (ISPCC-2019), 10 -12 October 2019, Solan, India. DOI: 10.1109/ISPCC48220.2019.8988438
5. **M. Usman**, M.D. Ansari, M. Wajid, “On the Complementary Relationship Between Sampling and Double Sideband-Suppressed Carrier modulation”, 5th IEEE International Conference on Signal Processing, Computing and Control (ISPCC-2019), 10 -12 October 2019, Solan, India. DOI: 10.1109/ISPCC48220.2019.8988480
6. **M. Usman**, “Concatenated Convolution-Polar codes over Rayleigh Channels degraded as Erasure Channels”, 10th IEEE International Conference on Intelligent Systems and Control 2016 (ISCO-2016), 7 – 8 January 2016, Coimbatore, India.
DOI: 10.1109/ISCO.2016.7727053

ACHIEVEMENT DETAILS

- Successfully completed six funded research projects to the tune of Rs 1 crore.
- Receptient of University of Strathclyde EEE department **PhD research scholarship**.
- **Keynote speaker**- Springer International Conference on Artificial Intelligence and Data Science (ICAIDS-2022), 11-12 March 2022, Hyderabad, India.
- **Keynote speaker** - Springer International Conference on Data Science, Machine Learning & Applications (ICDSMLA - 2019), 29-30 March 2019, Hyderabad, India.
- Research Excellence Award from College of Engineering, King Khalid University, 2020.
- Academic Excellence Award from College of Engineering, King Khalid University, 2015 – 2016.
- Expert Lecture on '**Speech as a Biomedical signal**' at Aligarh Muslim University (AMU) under the Technical Education Quality Improvement Program (**TEQIP – III**) by Ministry of Human Resource Development (MHRD), India, on 14th August 2018.