

Muhammad Usman Ghani Khan

Chairman and Professor, Department of Computer Science
University of Engineering & Technology, Lahore
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SUMMARY

Over 19 years of research experience specifically in the areas of image processing, computer vision, bioinformatics, medical imaging, computational linguistics and machine learning. Chairman Computer Science Department at UET Lahore. Director of Intelligent Criminology research lab under the National Center of Artificial Intelligence, AlKhwarizmi Institute of Computer Science, KICS, UET. Director and founder of five research labs including, Computer vision & Machine learning Lab, Bioinformatics Lab, Virtual Reality & Gaming Lab, Data Science Lab, and Software Systems Research Lab at KICS, UET Lahore. A well groomed teacher and mentor for subjects related to Artificial Intelligence, Machine Learning and Deep Learning. Recorded freely available video lectures on youtube for courses of Bioinformatics, Image Processing, Data Mining & Data Science and Computer Programming.

EDUCATION

- **Ph.D. in Computer Science** The University of Sheffield, UK, 2012
Thesis title: Natural Language Descriptions of Video Streams. let the game begin
- **M.Sc. in Computer Science** UET, Lahore, Pakistan, 2007
Major in Artificial Intelligence, Computer Vision and Natural Language Processing.
- **B.Sc.(Hons) in Computer Science** UET, Lahore, Pakistan, 2004
- **Intermediate Pre-Engineering** Cadet College Hasan Abdal, Pakistan, 1997-1999
- **Matriculation** Cadet College Hasan Abdal, Pakistan, 1997

EMPLOYMENT

Educational Experience

Chairman, Department of Computer Science, UET, Lahore¹, Pakistan
December 2022 - Current Chair

Professor, Department of Computer Science, UET, Lahore², Pakistan
March 2021 - currently employed

Associate Professor, Department of Computer Science & Engineering, UET, Lahore³, Pakistan
October 2014 - February 2021

Director, National Center for Artificial Intelligence⁴, UET Lahore
February 2018 - currently employed

Senior Research Consultant, Al-Khwarizmi Institute of Computer Science⁵, UET Lahore
October 2012 - currently employed, Founded and managing five labs
Software Systems Research Lab
Bioinformatics and Medical Imaging Lab.
Computer Vision and Machine Learning Lab
Game Design and Development Lab
Data Science Lab

Visiting Professor

- Department of Biotechnology, Virtual University, Lahore, Pakistan
Video Lectures⁶ recording for **Advanced Bioinformatics** Course, February 2015 - August 2015
- Department of Computer Science, Virtual University, Lahore, Pakistan
Video Lectures recording for **Data Mining** Course, August 2017 - on going ⁷

Assistant Professor (TTS), Department of Computer Science & Engineering, UET, Lahore, Pakistan
December 2012 - September 2014

Visiting Lecturer, Sheffield, International College, Sheffield, UK August 2010 - August 2012

¹<https://cs.uet.edu.pk/>

²<http://www.uet.edu.pk/faculties/facultiesinfo/facultyinfo?fac;d=142>

³<http://www.uet.edu.pk/faculties/facultiesinfo/facultyinfo?fac;d=142>

⁴<http://ncai.kics.edu.pk/>

⁵<http://kics.edu.pk/>

⁶These lectures are available on <https://www.youtube.com> and www.vulms.vu.edu.pk

⁷Lectures are available at www.vulms.vu.edu.pk

Teaching Assistant & Lab Demonstrator, Department of Computer Science, The University of Sheffield, UK
October 2008 - September 2012.

Instructor, Department of Computer Science, The University of Sheffield, UK October 2010 - May 2011.

Lecturer, Department of Computer Science, UET, Lahore, Pakistan May 2006 - November 2012

Manager Software Hut project, Spring 2011-12, Department of Computer Science, The University of Sheffield, UK: Worked as a manager for 4 teams - comprising of 4 students each - while the students build software for external business clients. Database and E-Commerce related projects were developed using PHP, MySQL, ASP.Net and SQL Server softwares. Duties included meeting with the teams, checking on their progress, recording their progress and liaising with Professor Mike Holcombe⁸. **Manager Darwin Research projects**, 2010-11-12 Department of Computer Science, The University of Sheffield: Worked as a supervisor for 2 teams - comprising of 4 to 7 students each - Master students worked on research projects for a complete year. Duties included supervising students in writing project proposals, implementation, evaluation and writing research papers based on their work.

- Speaking person identification in videos.
- Video fingerprinting and digital video watermarking.

Second supervisor in Masters and Undergrad Projects, Department of Computer Science, The University of Sheffield: Working with Dr. Yoshi Gotoh⁹ in helping his undergrad and masters students to help them complete their projects. I mostly help them in coding and evaluation procedures during software development.

Professional Experience

Consultant, Punjab Police, Lahore CPO
Computer Expert for Mobile Jammers, software development committees.

Consultant, FSK Pvt Ltd. Lahore¹⁰
Software development and training courses expert.

Consultant, Center for Language Engineering¹¹, UET Lahore
October 2012 - April 2013
Expert, Urdu Optical Character Recognition project

Research Assistant, Al-Khwarizmi Institute of Computer Science, Lahore, Pakistan
October 2007 - September 2008

Lab Engineer / Teaching Assistant, Department of Computer Science, UET, Lahore, Pakistan
March 2005 - April 2006

Senior Software Engineer, PowerSoft19 Pvt. Ltd., Lahore, Pakistan¹²
September 2006 - September 2007

Software Engineer, Accountancy Outsourcing Services, Lahore, Pakistan¹³
December 2003 - August 2006

TAUGHT COURSES

UET Lahore

- Natural Language Processing, MS session 2015, 2016
- Theory of Computation, MS Session 2014, 2016, 2017
- Data mining Concepts and Techniques, BS Session 2011-12.
- Machine Learning, MS session 2014-16.
- Data Mining and Knowledge Discovery, MS session 2012-13.
- Bioinformatics Computing, BS Session 2011, MS session 2012-13.
- Computer graphics and Image Processing, BS Session 2011. MS session 2012-13.
- Concepts in Bioinformatics Computing, BS Session 2010
- Web Engineering, MS Session 2011.
- Software Engineering, BS Session 2010.
- Computer Vision, MS Session 2011, 2013, 2014, 2016, 2017
- Computer graphics and Image Processing, BS Session 2009.
- Digital Image Processing, MS Session 2012.
- Software Engineering, Session 2005.

⁸<http://www.dcs.shef.ac.uk/~wmlh/>

⁹<http://www.dcs.shef.ac.uk/cgi-bin/makeperson?Y.Gotoh>

¹⁰<http://fsk.com.pk/web/>

¹¹<http://http://cle.org.pk/>

¹²(<http://www.powersoft19.com/>)

¹³(<http://www.aoserv.com/>)

- Database systems and Applications, Session 2005.
- Internet Based Software Development, CS-2003, Lab.
- Object Oriented Programming CS-2003(F) Theory & Lab
- Computer Graphics & Image Processing, CS-2004, Theory & Lab
- Computer Programming CS-2004 Theory & Lab.
- Artificial Intelligence CS-2004 Theory & Lab.
- Programming in JAVA CS-2003 Theory & Lab.
- Data Structures & Algorithms CS/CSE 2005 Theory.
- Computer Graphics & Image Processing, CS-2005 Theory & Lab
- Numerical Methods and Analysis Mech-2003,2004,2005 Theory.

The University of Sheffield

Teaching Assistant Department of Computer Science.

- COM2006 Machine Learning, Prof. Rob Gaizauskas, Spring, 2010, 2011.
- COM6101 - Advanced Java Programming, Dr. Jon Barker, Spring 2009
- COM2001 - Advanced Programming Topics, Prof. Phil Green, Autumn 2009.
- COM6050 - Java and UML for Programmers, Dr Richard Clayton, Autumn 2010.
- COM1004 - Web and Internet Technology, Dr Steve Maddock , Autumn 2010.
- COM6470 - Foundations of Object Orientated Programming, Dr. Jon Barker, Spring 2010.
- COM2004 - Data Driven Computing, Dr. Yoshi Gotoh , Spring 2011.
- Com165 - Data Analytics, Dr. Neil Lawrence, Autumn 2011.
- COM4220 - Speech Technology, Dr. Thomas Hain, Spring 2010, 2011.
- Com2005 - Bio-Inspired Computing, Prof. Roger Moore, Spring 2012.
- Com162 - Object-Oriented Design & Java Programming, Dr. Siobhan North, Spring 2012.

Visiting Courses

- Computer Organization and Architecture, ITU Lahore
- Machine Learning, GCU, Lahore
- Data Mining, Lahore Leads University
- Machine Learning, Lahore Leads University
- Advanced Bioinformatics, Virtual University, Lahore
- Data Mining, Virtual University, Lahore
- Data Structures and Algorithms, BZU Lahore Campus

Sheffield International College

- Fundamentals of Computer Programming, Spring 2011.
- Theory of Computation, Autumn 2011.
- Introduction to Java Programming, Spring 2012.

PUBLICATIONS

Journal Publications

Impact Factor Journals

1. Z Naz, A Azam, MUG Khan, T Saba, S Al-Otaibi, A Rehman. 2024 **Development and evaluation of immersive VR laboratories of organic chemistry and physics for students education** *Physica Scripta* 99 (5), 056101.
2. Maham, Shiza, Abdullah Tariq, Muhammad Usman Ghani Khan, Faten S. Alamri, Amjad Rehman, and Tanzila Saba. "ANN: adversarial news net for robust fake news classification." *Scientific Reports* 14, no. 1 (2024): 7897.
3. F Mehmood, H Ghafoor, MN Asim, MU Ghani, W Mahmood, A Dengel, 2024 **Passion-Net: a robust precise and explainable predictor for hate speech detection in Roman Urdu text** *Neural Computing and Applications* 36 (6), 3077-3100
4. MA Hassan, MUG Khan, R Iqbal, O Riaz, AK Bashir, U Tariq, 2024 **Predicting humans future motion trajectories in video streams using generative adversarial network** *Multimedia Tools and Applications* 83 (5), 15289-15311
5. F Ahmad, K Javed, A Tahir, MUG Khan, M Abbas, M Rabbani, MZ Shabbir. 2024 **Identifying key soil characteristics for *Francisella tularensis* classification with optimized Machine learning models** *Scientific Reports* 14 (1), 1743
6. H Mukhtar, MUG Khan. 2024. **CMOT: A cross-modality transformer for RGB-D fusion in person re-identification with online learning capabilities** *Knowledge-Based Systems* 283, 111155.
7. H Mukhtar, MUG Khan. 2024 **Transformer Network for Multi-Person Tracking and Re-Identification in Unconstrained Environment** arXiv preprint arXiv:2312.11929.
8. MUG Ghani Khan, A Mehmood, M Elhadef, SA Chaudhry. 2024. **Fake News Classification: Past, Current, and Future.** *Computers, Materials & Continua* 77 (2)
9. MA Hassan, M Elhadef, MUG Khan. 2023. **Collaborative Traffic Signal Automation Using Deep Q-Learning** *IEEE Access* 11, 136015-136032
10. H Mukhtar, MUG Khan. 2023. **STMMOT: Advancing multi-object tracking through spatiotemporal memory networks and multi-scale attention pyramids** *Neural Networks* 168, 363-379
11. Ahmad, F., Khan, M.U.G., Tahir, A. and Masud, F., 2023. **Deep ensemble approach for pathogen classification in large-scale images using patch-based training and hyper-parameter optimization.** *BMC bioinformatics*, 24(1), p.273.
12. Dilawari, A., Khan, M.U.G., Saleem, S. and Shaikh, F.S., 2023. **Neural Attention Model for Abstractive Text Summarization Using Linguistic Feature Space.** *IEEE Access*, 11, pp.23557-23564.
13. Naz, Z., Khan, M.U.G., Saba, T., Rehman, A., Nobanee, H. and Bahaj, S.A., 2023. **An Explainable AI-Enabled Framework for Interpreting Pulmonary Diseases from Chest Radiographs.** *Cancers*, 15(1), p.314.
14. Ahmad, F., Ghani Khan, M.U., Tahir, A., Tipu, M.Y., Rabbani, M. and Shabbir, M.Z., 2023. **Two phase feature-ranking for new soil dataset for *Coxiella burnetii* persistence and classification using machine learning models.** *Scientific Reports*, 13(1), p.29.
15. Mehmood, F., Shahzadi, R., Ghafoor, H., Asim, M.N., Ghani, M.U., Mahmood, W. and Dengel, A., 2023. **EnML: Multi-label Ensemble Learning for Urdu Text Classification.** *ACM Transactions on Asian and Low-Resource Language Information Processing*.
16. Waqar, S., Khan, U.G., Waseem, M.H. and Qayyum, S., 2022. **The utility of datasets in crowd modelling and analysis: a survey.** *Multimedia Tools and Applications*, 81(30), pp.43947-43978.
17. Alorf, A. and Khan, M.U.G., 2022. **Multi-label classification of Alzheimer's disease stages from resting-state fMRI-based correlation connectivity data and deep learning.** *Computers in Biology and Medicine*, 151, p.106240.
18. Khan, M.U.G., Tariq, A., Saba, T., Rehman, A. and Kolivand, H., 2022. **VCFN: Virtual Cloth Fitting Try-On Network.** *IT Professional*, 24(6), pp.20-26.
19. Mehmood, F., Ghani, M.U., Ghafoor, H., Shahzadi, R., Asim, M.N. and Mahmood, W., 2022. **EGD-SNet: A computational search engine for predicting an end-to-end machine learning pipeline for Energy Generation & Demand Forecasting.** *Applied Energy*, 324, p.119754.
20. Tariq, A., Mehmood, A., Elhadef, M. and Khan, M.U.G., 2022. **Adversarial Training for Fake News Classification.** *IEEE Access*, 10, pp.82706-82715.
21. Nazir, M.S., Khan, U.G., Mohiyuddin, A., Al Reshan, M.S., Shaikh, A., Rizwan, M. and Davidekova, M., 2022. **A novel CNN-inception-V4-based hybrid approach for classification of breast cancer in mammogram images.** *Wireless Communications and Mobile Computing*, 2022, pp.1-10.
22. Khan, M.U.G., Elhadef, M. and Mehmood, A., 2022. **Intelligent Urban Cities: Optimal Path Selection Based on Ad Hoc Network.** *IEEE Access*, 11, pp.19259-19268.
23. Khan AR, Saba T, Khan MZ, Fati SM, Khan MU. **Classification of human's activities from gesture recognition in live videos using deep learning.** *Concurrency and Computation: Practice and Experience*. 2022 May 1;34(10):e6825.
24. Khan AR, Mukhtar H, Saba T, Riaz O, Khan MU, Bahaj SA. **Scene Graph Generation With Structured Aspect of Segmenting the Big Distributed Clusters.** *IEEE Access*. 2022 Feb 28;10:24264-72.
25. Mahmood N, Khan MU. **Prediction of Extremist Behaviour and Suicide Bombing from Terrorism Contents Using Supervised Learning.** *CMC-COMPUTERS MATERIALS & CONTINUA*. 2022 Jan 1;70(3):4411-28.
26. Younis H, Anwar MW, Khan MU, Sikandar A, Bajwa UI. **A new sequential forward feature selection (SFFS) algorithm for mining best topological and biological features to predict protein complexes from protein-protein interaction networks (PPINs).** *Interdisciplinary Sciences: Computational Life Sciences*. 2021 Sep;13(3):371-88.
27. Sajjad, M., Ramzan, F., Khan, M. U. G., Rehman, A., Kolivand, M., Fati, S. M., & Bahaj, S. A. (2021). **Deep convolutional generative adversarial network for Alzheimer's disease classification using positron emission tomography (PET) and synthetic data augmentation.** *Microscopy Research and Technique*, 1– 12. (IF 2.769)

28. M. Z. Khan, M. U. G. Khan, T. Saba, I. Razzak, A. Rehman and S. A. Bahaj, "Hot-Spot Zone Detection to Tackle Covid19 Spread by Fusing the Traditional Machine Learning and Deep Learning Approaches of Computer Vision," in IEEE Access, vol. 9, pp. 100040-100049, 2021, doi: 10.1109/ACCESS.2021.3094720. (IF 3.367)
29. Irshad O., & M. U. G. Khan **A Comparative Analysis of Biological Data Integration Systems Famous for Data Exploitation and Knowledge Discovery** Current Bioinformatics, Volume 16 , Issue 5 , 2021, DOI : 10.2174/1574893615999210101125442 (IF 3.543)
30. Ibrahim M.; Khan, M.U.G. ; Mehmood, F; Asim M. N & Mahmood, W.; **GHS-NET a generic hybridized shallow neural network for multi-label biomedical text classification** Journal of Biomedical Informatics, 116, 2021. (IF: 3.256)
31. Rehman, H. A.; Ramzan F.; Basharat, Z.; Shakeel M., Khan, M. U. G., & Ishtiaq A.; **Comprehensive comparative genomic and microsatellite analysis of SARS, MERS, BAT-SARS, and COVID-19 coronaviruses** Journal of Medical Virology. 2021. (IF: 2.021)
32. Ahmad, F.; Khan, M. U. G.; Javed, K.; **Deep learning model for distinguishing novel coronavirus from other chest related infections in X-ray images**, Journal of Computers in biology and medicine, 134, pages:104401, 2021, Pergamon Publishers. (IF: 3.434)
33. Dilawari, A.; Khan, M. U. G.; Al-Otaibi, Y.; Rehman, Z.; Rahman, A.; Nam, Y.; **Natural Language Description of Videos for Smart Surveillance** Journal of Applied Sciences, 11(9), pages:3730, 2021, Multidisciplinary Digital Publishing Institute (IF: 2.474)
34. Irshad, O.; Khan, M. U. G.; **Formalization and Semantic Integration of Heterogeneous Omics Annotations for Exploratory Searches**. Current Bioinformatics. 16(1). pages:162-178. 2021. Bentham Science Publishers. (IF: 0.770)
35. Ahmad, F.; Farooq, A.; Khan, Khan, M. U. G.; **Deep Learning Model for Pathogen Classification Using Feature Fusion and Data Augmentation**, CURRENT BIOINFORMATICS. 16(3). pages: 466-483. 2021.BENTHAM SCIENCE PUBLISHERS. (IF: 0.770)
36. Khan, Khan, M. U. G.; Naz, Z.; Khan, J.; Saba, T.; Abunadi, I.; Rehman, A.; Tariq, U.; **Cognitive Skill Enhancement System Using Neuro-Feedback for ADHD Patients**. CMC-COMPUTERS MATERIALS & CONTINUA. 68(2). pages:2363-2376. 2021 TECH SCIENCE PRESS. (IF: 4.89)
37. Rehman, A.; Saleem, S.; Khan, M. U. G.; Jabeen, S.; Shafiq, O.; **Scene Recognition by Joint Learning of DNN from Bag of Visual Words and Convolutional DCT Features** Journal of Applied Artificial Intelligence. 2021. Taylor & Francis. (IF: 1.172)
38. G Khan, MU Ghani, A Siddiqi, S Seo, SW Baik, I Mehmood **Egocentric visual scene description based on human-object interaction and deep spatial relations among objects**, Multimedia Tools and Applications, 79 (23), 15859-15880. 2020 (IF:2.313)
39. F Ramzan, MUG Khan, S Iqbal, T Saba, A Rehman, **Volumetric segmentation of brain regions from MRI scans using 3D convolutional neural networks**. IEEE Access, 8, 103697-103709. 2020 (IF:3.745)
40. F Ahmad, A Farooq, MU Ghani Khan, MZ Shabbir, M Rabbani, I Hussain. **Identification of most relevant features for classification of Francisella tularensis using machine learning**. Current Bioinformatics 15 (10), 1197-1212. 2020 (IF: 0.77)
41. MZ Khan, MUG Khan, O Irshad, R Iqbal. **Deep learning and blockchain fusion for detecting driver's behavior in smart vehicles**. Internet Technology Letters 3 (6). 2020
42. F Mehmood, MU Ghani, MA Ibrahim, R Shahzadi, W Mahmood, MN Asi. **A precisely xtreme-multi channel hybrid approach for roman urdu sentiment analysis** IEEE Access. 8(4), 192740-192759. 2020. (IF:3.745)
43. MN Asim, MU Ghani, MA Ibrahim, W Mahmood, A Dengel, S Ahmed **Benchmarking performance of machine and deep learning-based methodologies for Urdu text document classification** Neural Computing and Applications, 1-33. 2020 (IF: 4.774)
44. S Jabeen, UG Khan, R Iqbal, M Mukherjee, J Lloret. **A deep multimodal system for provenance filtering with universal forgery detection and localization** Multimedia Tools and Applications, 1-20. 2020 (IF: 2.313)
45. MZ Khan, S Jabeen, MUG Khan, T Saba, A Rehmat, A Rehman, U Tariq **A realistic image generation of face from text description using the fully trained generative adversarial networks** IEEE Access. 2020 (IF: 3.745)
46. J Khan, MUG Khan, R Iqbal, O Riaz **Robust Multi-sensor Fusion for the Development of EEG Controlled Vehicle**, IEEE Sensors Journal. 2020 (IF: 3.076)
47. Ramzan, F., Khan, M. U. G., Rehmat, A., Iqbal, S., Saba, T., Rehman, A., & Mehmood, Z. (2020). A Deep Learning Approach for Automated Diagnosis and Multi-Class Classification of Alzheimer's Disease Stages Using Resting-State fMRI and Residual Neural Networks. Journal of Medical Systems, 44(2), 37. (IF: 2.415)
48. Irshad, O., Khan, M. U. G., Iqbal, R., Basheer, S., & Bashir, A. K. (2020). **Performance optimization of IoT based biological systems using deep learning**. Computer Communications. (IF: 2.766)
49. Khan, G., Samyan, S., Khan, M. U. G., Shahid, M., & Wahla, S. Q. (2020). **A survey on analysis of human faces and facial expressions datasets**. International Journal of Machine Learning and Cybernetics, 11(3), 553-571. (IF: 3.884)
50. Khan, G., Jabeen, S., Khan, M. Z., Khan, M. U. G., & Iqbal, R. (2020). **Blockchain-enabled deep semantic video-to-video summarization for IoT devices**. Computers & Electrical Engineering, 81, 106524. (IF: 2.189)
51. Khan, M. Z., Harous, S., Hassan, S. U., Khan, M. U. G., Iqbal, R., & Mumtaz, S. (2019). **Deep Unified Model For Face Recognition based on Convolution Neural Network and Edge Computing**. IEEE Access, 7, 72622-72633. (IF: 4.08)
52. Wasim, M., Sajjad, M., Ramzan, F., Khan, U. G., & Mahmood, W. **A Review and Classification of Widely used Offline Brain Datasets** International Journal of Advance Computer Science And Application, 2018, 9(2), 399-408. (IF :1.324)
53. A Dilawari, MUG Khan, A Farooq, ZU Rehman, S Rho, I Mehmood. **Natural language description of video streams using task specific feature encoding**. IEEE Access 6,2018 16639-16645. (IF: 4.08)
54. Saleem, S., Dilawari, A., Khan, U. G., Iqbal, R., Wan, S., & Umer, T. (2019). **Stateful human-centered visual captioning system to aid video surveillance**. Computers & Electrical Engineering, 78, 108-119. (IF; 2.189)
55. Irshad, O., & Khan, M. U. (2020). **Integration and Querying of Heterogeneous Omics Semantic Annotations for Biomedical and Biomolecular Knowledge Discovery**. Current Bioinformatics, 15(1), 41-58. (IF: 0.770)

56. Javeria K, Hamza B., Khan, U. G. & Iqbal, R. **Multiclass EEG motor-imagery classification with sub-band common spatial patterns.** EURASIP Journal on Wireless Communications and Networking 2019, no. 1 (2019): 174. (IF:1.592)
57. Bhatti, M. H., Khan, J., Khan, U. G., Iqbal, R., Aloqaily, M., Jararweh, Y., & Gupta, B. (2019). Soft Computing based EEG Classification by Optimal Feature Selection and Neural Networks. IEEE Transactions on Industrial Informatics. (IF: 7.377)
58. Wasim, M., Asim, M. N., Khan, M. U. G., & Mahmood, W. (2019). **Multi-label Biomedical Question Classification for Lexical Answer Type Prediction.** Journal of biomedical informatics, 103143. (IF:2.882)
59. Sajid Iqbal Muhammad U. Ghani Khan Tanzila Saba Zahid Mahmood Nadeem Javaid Amjad Rehman Rashid Abbasi , **Deep learning model integrating features and novel classifiers fusion for brain tumor segmentation** " Microscopy research and technique, April 2019 (IF:1.147)
60. Awais Hassan, Muhammd, et al. "A secure message-passing framework for inter-vehicular communication using blockchain." International Journal of Distributed Sensor Networks 15.2 (2019): 1550147719829677. (IF: 1.787)
61. Dilawari, A., & Khan, M. U. G. (2019). ASoVS: Abstractive Summarization of Video Sequences. IEEE Access, 7, 29253-29263. (IF 3.577)
62. A. Dilawari, M.U.G. Khan, Z. Rehman, K. Awan, I. Mahmood, S. Rho. **Toward Generating Human-Centered Video Annotations.** Circuits, Systems, and Signal Processing. (IF: 1.998)
63. Z.Khan, MUG Khan, et. al. **Deep Unified Model For Face Recognition based on Convolution Neural Network and Edge Computing** IEEE Access, (IF 3.577)
64. M. Nabeel Asim, M. Wasim, M. Usman Ghani Khan, Nasir Mahmood, Waqar Mahmood. **The Use of Ontology in Retrieval: A Study on Textual, Multilingual and Multimedia Retrieval,** IEEE Access, (IF 3.577)
65. M. Wasim; W. Mahmood; M. Nabeel Asim; and M. Usman Ghani Khan. **Multi-Label Question Classification for Factoid and List Type Questions in Biomedical Question Answering,** IEEE Access, (IF 3.577)
66. G Khan, S Qayyum, S Waqar, MU Ghani and A Siddiqi **Geometric positions and Optical Flow based Emotion Detection using MLP and Reduced Dimensions** IET Image Processing, 2019. (IF: 1.401)
67. N Asim, M Wasim, MU Ghani, Waqar. **A Survey of Ontology Learning Techniques and Applications** Database. 2018 Jan 1;2018. Oxford Journal. (IF: 3.978).
68. Nabeel Asim, M., Wasim, M., Usman Ghani Khan, M., & Mahmood, W. (2018). **Improved biomedical term selection in pseudo relevance feedback.** Database, 2018. (IF: 3.978)
69. H Naveed, G Khan, A khan, A Siddiqi, MUG Khan. **Human Activity Recognition using Mixture of Heterogeneous Features and Sequential Minimal Optimization.** International Journal of Machine Learning and Cybernetics. 2018. (IF: 2.692).
70. G Khan, MU Ghani, A Siddiqi, Z Rehman, S Seo, SW Baik, I Mahmood. **Egocentric visual scene description based on human-object interaction and deep spatial relations among objects** Multimedia Tools and Applications, 1-22, 2018. (IF: 1.50)
71. Dilawari, A., Khan, M. U. G., Farooq, A., Rehman, Z. U., Rho, S., & Mahmood, I. (2018). **Natural Language Description of Video Streams Using Task-Specific Feature Encoding.** IEEE Access, 6, 16639-16645. (IF: 3.244).
72. Wasim, M., Asim, M. N., Ghani, M. U., Rehman, Z. U., Rho, S., & Mahmood, I. (2018). **Lexical paraphrasing and pseudo relevance feedback for biomedical document retrieval.** Multimedia Tools and Applications, 1-32. (IF: 1.50).
73. Amanat, S., Idrees, M., Khan, M. U. G., Rehman, Z., Chang, H., Mahmood, I., & Baik, S. W. (2018). **Video Retrieval System for Meniscal Surgery to Improve Health Care Services.** Journal of Sensors, 2018. (IF: 2.475).
74. Abdul Jabbar, Sajid Iqbal, Muhammad Usman Ghani Khan, Shafiq Hussain: **A survey on Urdu and Urdu like language stemmers and stemming techniques.** Artificial Intelligence Review 49(3): 339-373 (2018) (IF: 2.627)
75. Fahad, H. M., M. Usman Ghani Khan, Tanzila Saba, Amjad Rehman, and Sajid Iqbal. "Microscopic abnormality classification of cardiac murmurs using ANFIS and HMM." Microscopy research and technique 81, no. 5 (2018): 449-457. (Impact factor: 1.147)
76. S. Iqbal, M. Usman Ghani, T. Saba and A. Rehman. **Brain Tumor Segmentation in MRI using Convolutional Neural Networks,** Microscopy research and technique 81, no. 4 (2018): 419-427. (Impact factor: 1.147)
77. S. Iqbal, M. Usman Ghani, T. Saba and A. Rehman. **Feature Enhancement Framework for Brain Tumor Segmentation and Classification,** Microscopy research and technique 81, no. 4 (2018): 419-427. (Impact factor: 1.147)
78. Khan, Muhammad Usman Ghani, and Yoshihiko Gotoh. **Generating natural language tags for video information management.** Machine Vision and Applications 28.3-4 (2017): 243-265. (Impact factor: 2.005)
79. Ali, Anum, Ghalib A. Shah, Muhammad Omer Farooq, and Usman Ghani. **Technologies and challenges in developing Machine-to-Machine applications: A survey.** Journal of Network and Computer Applications (2017). (impact factor: 3.500)
80. Iqbal, Sajid, Wasif Altaf, Muhammad Aslam, Waqar Mahmood, and Muhammad Usman Ghani Khan. **Application of intelligent agents in health-care: review.** Artificial Intelligence Review (2016): 1-30.(Impact factor: 2.627)
81. Kanwal, Asma, Muhammad Usman Ghani Khan, Kashif Ali Khan, Muhammad Shehzad Asif, Syed Muhammad Ahsan, and Syed Ali Raza. "Real Time Hand Gesture Recognition Using PC Camera." International Journal of Computer Science and Information Security 14, no. 11 (2016): 622. (Impact Factor: 0.553)
82. M. U. G. Khan and Y. Gotoh. **A Framework for Creating Natural Language Descriptions of Video Streams.** International Journal of Information Sciences. Volume 303, 10 May 2015, Pages 61 - 82, (Impact factor: 4.832)
83. L. Zhang, M. U. G. Khan, and Y. Gotoh. **Spoken Document Retrieval Based on Confusion Network with Syllable Fragments,** International Journal of Advanced Robotic Systems, ISSN 1729-8806, InTech, November 11, 2012. (Impact factor: 0.987.)
84. M.U.G. Khan, M.Nadeem, A. Nasir, A. A. Shah and A. A. Gill, **A Systematic Approach to Generate Query Model for DNA,** Pakistan Journal of Zoology, Vol(46), 2014. (Impact factor: 0.491)

85. Nida, Nudrat, Muhammad Sharif, Muhammad Usman Ghani Khan, Mussarat Yasmin, and Steven Lawrence Fernandes. **A FRAMEWORK FOR AUTOMATIC COLORIZATION OF IMAGING** Vol(7), IIOAB Journal, 2016. (Impact factor: 0.55)
86. Nasir, A., and M. U. G. Khan, **Towards a secured design methodology for cloud based bioinformatics applications**, Journal of Animal and Plant Sciences. Volume: 24, No.5, October, 2014. (Impact factor: 0.638)
87. Idrees, M., and Khan, M. U. G., **A Review: Conceptual Data Models for Biological Domain** The Journal of Animal and Plant Sciences (JAPS), Vol. (25), No.(1), February, 2015. (Impact factor: 0.638)
88. Iqbal, Sajid, M. Usman Ghani Khan, Tanzila Saba, and Amjad Rehman. **Computer-assisted brain tumor type discrimination using magnetic resonance imaging features** Biomedical Engineering Letters: 1-24. (Impact factor: 0.505).
89. M. U. G. Khan, A. Nasir, Y. Gotoh, O. Riaz and R. Iqbal **A Statistical Model for Annotating Videos with Human Actions** Pakistan Journal of Statistics, Vol. 32(2), 109-123, 2016. (Impact factor: 0.3).
90. Sana Amanat and Muhammad Usman Ghani Khan, **Spatio-Temporal Analysis of Videos for Efficient Video Retrieval** MAGNT Research Report (ISSN. 1444-8939) Vol.3 (3). PP: 751-756 (Impact factor: 0.68).
91. Muhammad Javaid Iqbal and Dr. Muhammad Usman Ghani Khan, **Intelligent Cloud Computing Security Framework for Private and Public Clouds** MAGNT Research Report, Vol.3 (3). PP: 885-891 (Impact factor: 0.68).
92. Wasim, M., Khan, M.U.G. and Mahmood, W., 2018. **Enhanced Biomedical Retrieval Using Discriminative Term Selection for Pseudo Relevance Feedback**. *Journal of Medical Imaging and Health Informatics*, 8(5), pp.1000-1008 (Impact factor: 0.59).
93. Wasim, M., Mahmood, W. and Khan, U.G., 2017. **A Survey of Datasets for Biomedical Question Answering Systems**. *INTERNATIONAL JOURNAL OF ADVANCED COMPUTER SCIENCE AND APPLICATIONS*, 8(7), pp.484-488 (Impact factor: 1.324).

HEC Recognized Journals

1. Mustafa, G., Mahmood, W., and Ghani, M.U. (2016) **Just-in-Time Compilation-Inspired Methodology for Parallelization of Compute Intensive Java Code**, accepted for publication in Mehran University Research Journal of Engineering & Technology. (X Category).
2. Iqbal, Razi, and Muhammad Usman Ghani. **Intelligent Bus Stops in the Flexible Bus Systems**. *Journal of Engineering Science and Technology Review* 7, no. 4 (2014): 59-65.
3. M. U. G. Khan, M. Amir, A. Nasir, R. Iqbal and Y. Gotoh **Quality Preserving Video Security Enrichment using Watermarking**, *Journal of Quality and Technology Management*, Volume X, Issue I, August 2014.
4. Nasir, A., A. Shah, and M. U. G. Khan. **Requirements Analysis Algebra: designing quality software**, *Journal of Quality and Technology Management*, Volume IX, Issue II, December 2013, Page 107:136.
5. M. Idrees and M. U. G. Khan, **SMGCD Metrics for Biological Sequence Data**, *The Nucleus Journal*, Volume 51, Issue I, March 2014.
6. Ghani Khan, M. U., Shahzad Asif, H. M., Asif, K. H., Tauqir, M., & Afzal, M. (2014). **Visual Speaker Identification Using Lip and Body Movements**. *Journal of faculty of engineering & technology*, 21(1).
7. M. Idrees and M. U. G. Khan, **Unified Data Model for Biological Data**, *Mehran University Research Journal of Engineering & Technology*, August 2014.
8. S.Bashir, M. U. G. Khan, A. Shah and Nasir, A. **Towards computational model of Human Brain Memory** *Punjab University Journal of Mathematics*.
9. M.U. G. Khan et al., **Determination of pollutants in water of BRB canal**, *Journal of the Pakistan Institute of Chemical Engineers*, 2014.
10. M.U. G. Khan et al., **Development of an ultrasound assisted rapid digestion method**, *Journal of the Pakistan Institute of Chemical Engineers*, 2014.
11. M. U. G. Khan, P. Iqbal, K. Asif, A. Nasir, J. Arshad and S.Amanat **An Agent-based CBIR System for Medical Images**, *Journal of Faculty of Engineering & Technology, Punjab University*, Vol 21(2), 2014.
12. M.U.G. Khan, M. Zafar, K. Asif, A. Nasir, A. Shah **Design Extraction Technique of Web Applications ? A Reverse Engineering Process** *Journal of Faculty of Engineering & Technology, Punjab University*, Vol 21(2), 2014.
13. M. J. Arshad, N. Nigar, H. Ahmad, A. Farooq, M.U.G. Khan and M. Idrees, **Security Techniques & Solutions for preventing the cross site scripting web vulnerabilities: A general approach**. *Journal of Faculty of Engineering & Technology, Punjab University*, Vol 21(2), 2014.
14. M. Idrees, M. U. G. Khan, and S. Iqbal. **Modeling of ontological schema for biological data management**, *Pakistan Journal of Science* (submitted Jan 2014)
15. M.U.G. Khan, S. Amanat, A. Nasir and M. Idrees, **A Computational Framework for Unified Biological Data-bank to Overcome the Heterogeneity of Biological Data Format**, *Proceedings of the Pakistan Academy of Sciences*.
16. N. Nida and M.U.G. Khan. **Efficient Colorization of Medical Imaging Based on Colour Transfer Method**, *Proceedings of the Pakistan Academy of Sciences*. Vol (54), 2017.
17. M. J. Arshad, M.U.G. Khan and M. Idrees, **A study of Internet Threats avoidance and Bio-metric** *Journal of Faculty of Engineering & Technology, Punjab University*, Vol 21(2), 2014.
18. M.U.G. Khan, H. Aslam, A. Nasir, **A cloud based approach for classification of communities across social networks**, *Pakistan Journal of Science* (submitted Feb 2014)
19. M.U.G. Khan, M. Idrees and A. Akran, **Semantic webs and ontology-driven biological data integration methods for Bacteria** *The Nucleus Journal*, Volume 51(4), 2014, Pages 434-438
20. Pervaiz Iqbal Khan, Muhammad Usman Ghani Khan and Abdul Nasir, **A Unified Integration Model and Database Management System for Genomic Data** *JFET*, Vol 22, No 1 (2015)
21. Iqbal, R., Ahmad, A., & Ghani, M. U. **Custom made NFC tags for newly born babies at hospital** *Science International Journal*, 27(1),1463-1468 (2015)

Other Journals

1. F. Fatima, M. Javed, F. Amjad and M.U.G. Khan, **An approach to enhance quality of the RAD model using Agents** The International Journal of Science & Technology, Vol 13(2), 2014.
2. M. Ahmed, S. Mahmood, M. U. G. Khan, and M. Shoaib. **Performance Evaluation Metrics: Can buffer size override the higher rotational speed of hard disk in terms of overall performance or throughput?**, Journal of American Science 2010, 6(10), 503-508.
3. M. Shoaib, M. U. G. Khan, S Kalsoom, and K Khurshid. **Design and Implementation of efficient Information Retrieval Algorithm for Chest X-Ray Images**, Journal of American Science 2009. 5(4):43-48
4. M. U. G. Khan and A. Saeed. **Human detection in videos**, Journal of Theoretical and Applied Information Technology, Pakistan. Vol 5. No2. 2009
5. M. U. G. Khan, A. Nasir, **Graphical User Authentication based on Grid Compositions** Journal of Fast University, (submitted December 2014).

Conferences Publications

1. Mukhtar, Hamza, and Muhammad Usman Ghani Khan. **"CMOT: A cross-modality transformer for RGB-D fusion in person re-identification with online learning capabilities."** Knowledge-Based Systems 283 (2024): 111155.
2. Ahmad, Fareed, Kashif Javed, Ahsen Tahir, Muhammad Usman Ghani Khan, Mateen Abbas, Masood Rabbani, and Muhammad Zubair Shabbir. **"Identifying key soil characteristics for *Francisella tularensis* classification with optimized Machine learning models."** Scientific Reports 14, no. 1 (2024): 1743.
Faisal, Zargham, Aimen Mazhar, Syeda Ayesha Batool, Noor Akram, Maleeha Hassan, Muhammad Usman Khan, Muhammad Afzaal, Usman Ul Hassan, Yasir Abbas Shah, and Derese Tamiru Desta. **"Exploring the multimodal health-promoting properties of resveratrol: A comprehensive review."** Food Science & Nutrition (2024).
3. Hassan, Muhammad Ahmed, Muhammad Usman Ghani Khan, Razi Iqbal, Omer Riaz, Ali Kashif Bashir, and Usman Tariq. **"Predicting humans future motion trajectories in video streams using generative adversarial network."** Multimedia Tools and Applications 83, no. 5 (2024): 15289-15311.
5. Mehmood, Faiza, Hina Ghafoor, Muhammad Nabeel Asim, Muhammad Usman Ghani, Waqar Mahmood, and Andreas Dengel. **"Passion-Net: a robust precise and explainable predictor for hate speech detection in Roman Urdu text."** Neural Computing and Applications 36, no. 6 (2024): 3077-3100.
6. Naz, Zubaira, Ayesha Azam, Muhammad Usman Ghani Khan, Tanzila Saba, Shaha Al-Otaibi, and Amjad Rehman. **"Development and evaluation of immersive VR laboratories of organic chemistry and physics for students education."** Physica Scripta 99, no. 5 (2024): 056101.
7. Wahla, Samyan Qayyum, and Muhammad Usman Ghani. **Visual fall detection from activities of daily living for assistive living.** IEEE Access (2023).
8. Mehmood, Faiza, Rehab Shahzadi, Hina Ghafoor, Muhammad Nabeel Asim, Muhammad Usman Ghani, Waqar Mahmood, and Andreas Dengel. **Enml: multi-label ensemble learning for urdu text classification.** ACM Transactions on Asian and Low-Resource Language Information Processing 22, no. 9 (2023): 1-31.
9. Khan, Muhammad Usman, Aliha Fatima, Sehar Nadeem, Faheem Abbas, and Tansir Ahamad. **Impact of -Linkers Modifications on Tuning Nonlinear Optical Amplitudes of Pyridoquinazolinone-Based Aromatic Dyes: A Rational Entry to Novel D--A NLO Materials.** Polycyclic Aromatic Compounds (2023): 1-31.
10. Mukhtar, Hamza, and Muhammad Usman Ghani Khan. **STMMOT: Advancing multi-object tracking through spatiotemporal memory networks and multi-scale attention pyramids.** Neural Networks 168 (2023): 363-379.
11. Hassan, Muhammad Ahmed, Mourad Elhadeif, and Muhammad Usman Ghani Khan. **Collaborative Traffic Signal Automation Using Deep Q-Learning.** IEEE Access 11 (2023): 136015-136032.
12. Alharbi, Abdulaziz, Muhammad Usman Ghani Khan, and Bushra Tayyaba. **Wheat disease classification using continual learning.** IEEE Access (2023).
13. Hassan, Muhammad Ahmed, Mourad Elhadeif, and Muhammad Usman Ghani Khan. **Collaborative Traffic Signal Automation Using Deep Q-Learning.** IEEE Access 11 (2023): 136015-136032.
14. Dilawari, Aniq, Muhammad Usman Ghani Khan, Summra Saleem, and Fatema Sabeen Shaikh. **Neural attention model for abstractive text summarization using linguistic feature space.** IEEE Access 11 (2023): 23557-23564.
15. Mujahid, Amna, Muhammad Aslam, Muhammad Usman Ghani Khan, Ana Maria Martinez-Enriquez, and Nazeef Ul Haq. **Multi-class confidence detection using deep learning approach.** Applied Sciences 13, no. 9 (2023): 5567.
16. Ahmad, Fareed, Muhammad Usman Ghani Khan, Ahsen Tahir, and Farhan Masud. **Deep ensemble approach for pathogen classification in large-scale images using patch-based training and hyper-parameter optimization.** BMC bioinformatics 24, no. 1 (2023): 273.
17. Imran, Muhammad, Kamran Mustafa, Ghulam Mustafa, and Muhammad Usman Khan. **"Hydropolitics and Conundrum of Transboundary Water Issues: A Case Study of South Asia."** Journal of Politics and International Studies 7, no. 1 (2023).
18. Naz, Zubaira, Muhammad Usman Ghani Khan, Tanzila Saba, Amjad Rehman, Haitham Nobanee, and Saeed Ali Bahaj. **An explainable AI-enabled framework for interpreting pulmonary diseases from chest radiographs."** Cancers 15, no. 1 (2023): 314.
19. Ahmad, Fareed, Muhammad Usman Ghani Khan, Ahsen Tahir, Muhammad Yasin Tipu, Masood Rabbani, and Muhammad Zubair Shabbir. **Two phase feature-ranking for new soil dataset for *Coxiella burnetii* persistence and classification using machine learning models.** Scientific Reports 13, no. 1 (2023): 29.
20. Mukhtar, Hamza, and Muhammad Usman Ghani Khan. **"Transformer Network for Multi-Person Tracking and Re-Identification in Unconstrained Environment."** arXiv preprint arXiv:2312.11929 (2023).
21. Naz, Zubaira, Ayesha Azam, and Muhammad Usman Ghani Khan. **"AR Qaida: AR Assisted Multi-level Interactive Framework for Smart Learning of Early to Primary School Children."** In 2023 17th International Conference on Open Source Systems and Technologies (ICOSST), pp. 1-6. IEEE, 2023.

22. Ubaid MT, Khalil M, Khan MU, Saba T, Rehman A. **Beard and Hair Detection, Segmentation and Changing Color Using Mask R-CNN.** In *Proceedings of International Conference on Information Technology and Applications 2022* (pp. 63-73). Springer, Singapore.
23. Ubaid MT, Khan MZ, Khan MU, Rehman A, Ayesha N. **Multiple Parallel Activity Detection and Recognition to Avoid COVID-19 Spread-Out.** In *Proceedings of International Conference on Information Technology and Applications 2022* (pp. 207-217). Springer, Singapore.
 Arshed MA, Qureshi W, Khan MU, Jabbar MA. **Symptoms Based Covid-19 Disease Diagnosis Using Machine Learning Approach.** In *2021 International Conference on Innovative Computing (ICIC) 2021 Nov 9* (pp. 1-7). IEEE.
 Arshed MA, Qureshi W, Rumaan M, Ubaid MT, Qudoos A, Khan MU. **Comparison of Machine Learning Classifiers for Breast Cancer Diagnosis.** In *2021 International Conference on Innovative Computing (ICIC) 2021 Nov 9* (pp. 1-6). IEEE.
 Ubaid MT, Darboe A, Uche FS, Daffeh A, Khan MU. **Kett Mangoes Detection in the Gambia using Deep Learning Techniques.** In *2021 International Conference on Innovative Computing (ICIC) 2021 Nov 9* (pp. 1-8). IEEE.
 Ubaid MT, Khan MZ, Rumaan M, Arshed MA, Khan MU, Darboe A. **COVID-19 SOP's Violations Detection in Terms of Face Mask Using Deep Learning.** In *2021 International Conference on Innovative Computing (ICIC) 2021 Nov 9* (pp. 1-8). IEEE.
 Rehman HA, Ramzan F, Basharat Z, Shakeel M, Khan MU, Khan IA. **Genome Scale Phylogenetic Analysis Differentiates SARS-CoV-2 Strains in Pakistani and Indian COVID-19 Patients with and without Travel History.** In *2021 International Conference on Innovative Computing (ICIC) 2021 Nov 9* (pp. 1-9). IEEE.
 Draz HU, Ali MI, Khan MU, Ahmad M, Mahmood S, Javaid MA. **An Embedded Solution of Gaze Estimation for Driver Assistance using Computer Vision.** In *2021 International Conference on Innovative Computing (ICIC) 2021 Nov 9* (pp. 1-8). IEEE.
 Mukhtar H, Hasan MA, Khan MU. **ROS-Based Global Path Planning for Autonomous Ground Robot Using the Pre-Built Map of the Environment.** In *2021 International Conference on Robotics and Automation in Industry (ICRAI) 2021 Oct 26* (pp. 1-8). IEEE.
 Abideen ZU, Jabeen S, Saleem S, Khan MU. **Ball-by-Ball Cricket Commentary Generation using Stateful Sequence-to-Sequence Model.** In *2021 International Conference on Communication Technologies (ComTech) 2021 Sep 21* (pp. 97-102). IEEE.
 Hassan MA, Khan MU, Iqbal R, Riaz O, Bashir AK, Tariq U. **Predicting humans future motion trajectories in video streams using generative adversarial network.** *Multimedia Tools and Applications.* 2021 Sep 13:1-23.
24. Younis, H., Ramzan, F., Khan, J., & Khan, M. U. G. (2019, December). **Wheelchair Training Virtual Environment for People with Physical and Cognitive Disabilities.** In *2019 15th International Conference on Emerging Technologies (ICET)* (pp. 1-6). IEEE.
25. Jabeen, S., Malkana, A., Farooq, A., & Khan, U. G. (2019, December). **Weather Classification on Roads for Drivers Assistance using Deep Transferred Features.** In *2019 International Conference on Frontiers of Information Technology (FIT)* (pp. 221-2215). IEEE.
26. Kwong, A., Muzamal, J. H., & Khan, U. G. (2019, December). **Automated Language Scoring System by Employing Neural Network Approaches.** In *2019 15th International Conference on Emerging Technologies (ICET)* (pp. 1-6). IEEE.
27. Khan, G., Farooq, M. A., Tariq, Z., & Khan, M. U. G. (2019, November). **Deep-Learning Based Vehicle Count and Free Parking Slot Detection System.** In *2019 22nd International Multitopic Conference (INMIC)* (pp. 1-7). IEEE.
28. Mohammad, A. S., Saleem, S., Dilawari, A., & Khan, M. U. G. (2019, November). **Cross Input Neighbourhood Difference for Re-identification of Occupational Humans.** In *2019 22nd International Multitopic Conference (INMIC)* (pp. 1-6). IEEE.
29. Hassan, S. U., Khan, M. Z., Draz, H. U., & Khan, M. U. G. (2019, November). **Detection and Classification of Vehicles based on Deep Semantic Features of Faster R-CNN.** In *2019 International Conference on Innovative Computing (ICIC)* (pp. 1-6). IEEE.
30. Baig, M. A. F., & Khan, U. G. (2019, November). **Reverse Aging based on Face Rejuvenation using Inpainting of Facial Wrinkles.** In *2019 International Conference on Innovative Computing (ICIC)* (pp. 1-6). IEEE.
31. Roubil, S., Hassan, M. A., & Khan, M. U. G. (2019, October). **A Unified Framework on Reading Variable Size Traffic Sign Boards using Deep Neural Network.** In *2019 International Conference on Robotics and Automation in Industry (ICRAI)* (pp. 1-6). IEEE.
32. Saleem, S., Dilawari, A., Khan, M. U. G., & Husnain, M. (2019, October). **Voice Conversion and Spoofed Voice Detection from Parallel English and Urdu Corpus using Cyclic GANs.** In *2019 International Conference on Robotics and Automation in Industry (ICRAI)* (pp. 1-6). IEEE.
33. Asim, M. N., Khan, M. U. G., Malik, M. I., Razaque, K., Dengel, A., & Ahmed, S. (2019, September). **Two Stream Deep Network for Document Image Classification.** In *2019 International Conference on Document Analysis and Recognition (ICDAR)* (pp. 1410-1416). IEEE.
34. M. N. Asim, M. U. G. Khan, M. I. Malik, A. Dengel and S. Ahmed, "A Robust Hybrid Approach for Textual Document Classification," *2019 International Conference on Document Analysis and Recognition (ICDAR), Sydney, Australia, 2019*, pp. 1390-1396.
35. Khan, M. Z., Jabeen, S., ul Hassan, S., Hassan, M. A., & Khan, M. U. G. (2019, August). **Video Summarization using CNN and Bidirectional LSTM by Utilizing Scene Boundary Detection.** In *2019 International Conference on Applied and Engineering Mathematics (ICAEM)* (pp. 197-202). IEEE.
36. Sajjad, M., Zulifqar, F., Khan, M. U. G., & Azeem, M. (2019, August). **Hate Speech Detection using Fusion Approach.** In *2019 International Conference on Applied and Engineering Mathematics (ICAEM)* (pp. 251-255). IEEE.
37. Muzamal, J. H., Tariq, Z., & Khan, U. G. (2019, August). **Crowd Counting with respect to Age and Gender by using Faster R-CNN based Detection.** In *2019 International Conference on Applied and Engineering Mathematics (ICAEM)* (pp. 157-161). IEEE.
38. Khan, G., Tariq, Z., Hussain, J., & Farooq, M. A. (2019, March). **Segmentation of Crowd into Multiple Constituents Using Modified Mask R-CNN Based on Mutual Positioning of Human.** In *2019 International Conference on Communication Technologies (ComTech)* (pp. 19-25). IEEE.

39. Hassan, S. U., Khan, M. Z., Khan, M. U. G., & Saleem, S. (2019, March). **Robust Sound Classification for Surveillance using Time Frequency Audio Features**. In 2019 International Conference on Communication Technologies (ComTech) (pp. 13-18). IEEE.
40. Shahid, M., Saleem, S., Dilawari, A., & Khan, U. G. (2019, March). **Telegenic Data Analysis for Compact Description and Genre Classification based on Re-ranking**. In 2019 International Conference on Communication Technologies (ComTech) (pp. 102-107). IEEE.
41. A Rehman, G Khan, A Siddiqi, A Khan, UG Khan, **Modified Texture Features from Histogram and Gray Level Co-occurrence Matrix of Facial Data for Ethnicity Detection** - 2018 5th International Multi-Topic ICT Conference, 2018
42. Naveed, Humza, Gulraiz Khan, Saira Jabeen, Zeeshan Khan, and Muhammad Usman Ghani Khan. **Human, Object and Scene Centric Image Retrieval Engine to Enhance Image Management**. In *Frontiers of Information Technology (FIT)*, 2017 International Conference on, pp. 98-103. IEEE, 2017.
43. Khan, Muhammad Usman Ghani, Yoshihiko Gotoh, and Nudrat Nida **Medical Image Colorization for Better Visualization and Segmentation**. Annual Conference on Medical Image Understanding and Analysis. Springer, Cham, 2017.
44. A. A. Shah, F. Maqbool, and M. U. G. Khan. **Dynamic Ontology Management for Bioinformatics Domain**, The Proceedings of 7th International Conference on Open-Source Systems and Technologies, ICOSST 2013.
45. M. U. G. Khan, L. Zhang, and Y. Gotoh. **Natural language description of video streams**. In International conference on Image processing, Orlando, FL, USA, 2012.
46. M. U. G. Khan N. Alharbi, and Y. Gotoh. **Natural Language Descriptions for Video Streams**. Vision and Language Workshop, 2012, Brighton, UK.
47. M. U. G. Khan and Y. Gotoh. **Natural language descriptions of visual scenes - corpus generation and analysis**. In EACL 2012 workshop, JOINT WORKSHOP OF ESIRMT AND HYTRA, Avignon, France.
48. M. U. G. Khan and Y. Gotoh. **Describing video contents in natural language**. In EACL 2012, Workshop on Innovative hybrid approaches to the processing of textual data, 2012, Avignon, France.
49. M. U. G. Khan, L. Zhang, and Y. Gotoh. **Human focused video description**. In ICCV workshop, Video Event Categorization, Tagging and Retrieval for Real-World Applications, 2011, Barcelona, Spain.
50. M. U. G. Khan, L. Zhang, and Y. Gotoh. **Towards coherent natural language description of video streams**. In 2nd IEEE International Workshop on Stochastic Image Grammars, 2011, Barcelona, Spain.
51. L. Zhang, M. U. G. Khan, and Y. Gotoh. **Video scene classification based on natural language description**. In 2nd IEEE Workshop on Analysis and Retrieval of Tracked Events and Motion in Imagery Streams, 2011, Barcelona, Spain.
52. M. U. G. Khan, S. Mahmood, M. Ahmed, and Y. Gotoh. **Visual speech detection using OpenCV**, The Proceedings of third International Conference on Open-Source Systems and Technologies, ICOSST 2009.
53. A. Jabbar, S. Iqbal and M. U. G. Khan **Resources for Urdu Text Stemming**, 6th International Conference on Language and Technology, Lahore, 2016.

THESIS SUPERVISED

PhD Thesis

1. (Abdul Nasir) **Secured Design Methodology for Cloud Applications**, completed July, 2014 .
2. (Muhammad Idrees) **Unified Data Model for Biological Data** completed January, 2015.
3. (Umar Hayat) **An Improved Data Model for Uncertain Data**, completed December, 2016.
4. (Satwar Bashir) **Storage, Indexing and Retrieval of Brain Data**
5. (Aneeqa Dilawari) **Abstractive Summarization of Video Sequences**, completed January, 2021.
6. (Omer Irshad) **Formalization of Heterogeneous Biological Data for Knowledge Extraction** completed March, 2022.
7. (Sajid Iqbal) **Statistical Modeling and Characterization of Brain Tumors** completed November, 2020.
8. (Nasir Mehmood) **Human Behavior Modeling and Prediction from Social Media Contents**, completed March 2023
9. (Samyan Qayyum Wahla) **MULTI-MODAL CONTEXT AWARE HUMAN ACTIVITY RECOGNITION**, completed April, 2024
10. (Sahar Waqar) **Predictive, Preventive and Personalized Healthcare using Body Area Network**.

MS / MPhil Thesis

1. Farheen Ramzan, 2017-MS-CS-39, **Towards a Unified Deep Learning Framework for Alzheimer's Disease Classification using Medical Imaging Techniques**
2. Gulraiz Khan, 2017-MS-CS-34, **A Framework for High Level Facial Features Transformation using Deep Generative Adversarial Network**
3. Summra Saleem, 2017-MS-CS-56, **A Framework for Sketch to Facial Image Realism based on Deep Generative Adversarial Network**
4. Salman Rafique, 2013-MS-CS-24, **Towards a Computational Model for Ranking Optimization of Multimedia Data**
5. Saira Jabeen, 2017-MS-CS-40, **Deep Provenance Filtering: A step towards media forensics**
6. Muhammad Ahmed Hassan, 2017-MSCS-36. **Prediction of Human's Future Motion Trajectories in Social Environment**
7. (Haider Ali Aslam) **Classification Based Community Detection Across Social Networks**, 2013.
8. (Hassan Imtiaz) **Visual Scene Modeling**, 2013.
9. (Hasan Rehman) **Automatic Number Plate Recognition System**, 2013.
10. (Amjad Majeed) **Computational Model of Human Kidneys**, 2014.
11. (Umair Naushad) **Human Action Recognition**, 2014.
12. (Sane Amanat) **Spatio-temporal Analysis of Video Sequences**, 2014.
13. (Nudrat Nida) **Decision Support System for Brain Tumor Treatment**, 2014.
14. (Muhammad Javaid Iqbal) **Intelligent Security Framework for Cloud Computing Environment**, 2014.
15. (Pervaiz Iqbal Khan) **Database management system for Biological Domains**, 2015.
16. (Mehwish Amiruddin) **Human Action Recognition in Image Sequences Using Geometric Features and HMMs**, 2015
17. (Shamas Imran) **Framework for Extrinsic Plagiarism Avoidance**, 2015
18. (Zafar Saleem) **Unified Data Model for Biological Data**, 2016.
19. (Sarfraz Ahmad) **Decision support system for breast cancer detection**, 2016.
20. (Tanveer Ahmad) **Design and Implementation of a SoC Platform Based on LEON3 Processor Core**, 2016.
21. (Waleed Mirza) **Computational Model of Human Cardiac System**, 2015.
22. (Fareed Ahmed) **Recommender System for Diabetes Mellitus in Canines**, 2016.
23. (Mehroz Sadiq) **Towards a statistical framework for classification of biological Documents**, 2016.
24. (Maira Alvi) **A Computational Framework For Autonomous Instance Based Video Search Method**, 2016
25. (Mubeen Aslam) **A Decision Support System for Prediction of Kidney Related Chronic Diseases**, 2016
26. (Hafiz Fahad Noman) **Phonocardiography based Abnormality Classification of Heart Murmurs**, 2016.
27. (Samyan Wahla) **Machine Vision Based Plant Recognition For Assessment Of Soil Fertility**, in progress
28. (Sahar Samyan) **Crowd Analytics: Dynamic modelling and Recognition of Visual Crowds**, in progress
29. (Waqas Talib) **Exudates Detection/Segmentation from color fundus images for early diagnosis of Diabetic Retinopathy**, in progress.
30. (Bilal Tahir) **Deep Learning Framework for Brain Tumor Segmentation**, in progress.
31. (Irshad Kanwal) **An Integrated Approach for Biometric based Person Classification using Speech Synthesis Features and Interactive Response**, in progress.
32. (Muhammad Khalil) **Interoperability challenges & limitations of IoT implementations**, in progress.
33. (Salman Khalid) **Radiocarbon dating using Digital Image processing**
34. (Hafiz Muhammad Abdullah) **Real Time Prediction of Crime Scenes from multi-modal data using deep learning approaches**, in progress.
35. (Rabeeya Fayyaz) **Vehicle Future Movement Prediction for Smart Traffic Solutions using Generative Adversarial Network**
36. (Kibsha Aqeel) **A robust hybrid approach for Urdu Abstractive Text Summarization**
37. (Saima Khan) **A Unified Framework for Humans Productivity Assessment Using Visual Clues**
38. (Abdul Rehman) **A meta learning approach for crop yield prediction using satellite imagery**
39. (Arsalan Ahmad) **Lung Cancer Diagnosis using Histopathological images**
40. (Iqra Afzal) **Human Activity Recognition through Still Images in Office Environment**
41. (Zeeshan Tariq) **Single Image Super Resolution Algorithm using Generative Adversarial Networks**
42. (Saleet Ul Hassan) **Digital Image Generation from Freehand Drawing using Edge Generative Adversarial Network**
43. (Anam Farya Bashir) **Cardiovascular Disease Diagnosis through Cardiac Image Classification using Deep Learning**
44. (Bushra Tayyaba) **Breast Cancer Detection and Segmentation of Cancerous Regions from Histopathological Images Using Deep Learning**
45. (Nazam Maqbool) **Neural Administrative Chatbot using Roman Urdu**
46. (Qaisar Abbas) **Detection and Prediction of Acral Lentiginous Melanoma in Dermoscopic Images using Deep Learning**, December 2020.
47. (Syed Konain Abbas) **Vision based intelligent traffic light management system using Faster R-CNN**, December 2020.

BSc Final Year Projects

1. Recognition and Classification of plants using leaves Data , **BS,CS 2013**
2. Prosthetic hand using Brain Computer Interface , **BS,CE 2013**
3. Dr.Remote: A remote physical health therapist , **BS,CS 2013**
4. RTMSS: Real Time Mobile Surveillance System, , **BS,CS 2012**
5. Visual Scene Interpretation , **BS,CS 2012**
6. Decision support system for brain tumor treatment, , **BS,CS 2011**
7. Cartonification of Video Sequences, , **BS,CE 2011**
8. ARVSG; Augmented Reality based Visual Scene Generation, , **BS,CS 2011**
9. Video Surveillance System Using Microsoft Kinect , **BS,CE 2011**
10. Video Scene Modeling and Understanding , **BS,CS 2011**
11. Autonomous Vehicle Navigation based on Visual Scene Interpretation , **BS,CE 2010**
12. Multi-model Summarization of Multimedia documents , **BS,CE 2010**
13. Suspicious Activity Detection & Video Annotation Utility in Real Time Environment , **BS,CS 2010**
14. Virtual Brain: Graphical Simulation and Modeling of Human Brain. , **BS,CE 2010**
15. Urdu Talking Head and Lip Reading , **BS,CE 2010**
16. Semantic Video Retrieval and Repetitive Video Finding , **BS,CS 2010**
17. Semantic Search Engine for Biological Data , **BS,CS 2010**
18. Gait analysis for Human Identification **BS,CSE 2003**
19. Human Action Recognition **BS,CSE 2003**
20. English to Urdu Translator **BS,CS 2004**
21. Veelox Human Character Generator **BS,CE 2004**
22. Enterprise Recourse Planner for Enterprises **BS,CS 2004**
23. Mobi Messenger **BS,CE 2004**

RESEARCH GRANTS

Won

1. (Higher Education Communication, Pakistan) **Intelligent Criminology Lab, National Center for Artificial Intelligence** 14 million PKRs, September 2018, August 2021.
2. (Higher Education Communication, Pakistan, Technology Development Fund Program) **VR based neurogaming for mindfulness in children and ADHD patients** 4.790 million PKRs, January 2019- January 2021
3. (Higher Education Communication, Pakistan, Technology Development Fund Program) **A Semantic Engine for Text Management using Ontology and Knowledge Engineering** 7 million PKRs, 2017-2019
4. (Higher Education Communication, Pakistan, Technology Development Fund Program) **Brain Informatics: Classification and Modeling Of Brain Data and Controlling wheel Chair** 6.095 million PKRs, 2017-2019
5. (National ICT R & D Fund, Pakistan) **Automatic Surveillance System for Video Sequences**, 28 million PKRs. 2016-2018.
6. (Higher Education Communication, National Research Program for Universities, Pakistan) **Virtual brain: Brain Modeling with Brain Computer Interface for Robot Navigation** 3.37 million PKRs. 2017-19.
7. (Higher Education Communication, National Research Program for Universities, Pakistan) **Extension and Development of Analysis node for Bioinformatics**, 4.6 million PKRs. 2013-15.
8. (Higher Education Communication, Pakistan) **Brain Computer Interface for Robot Navigation**, 4.5 million PKRs. 2016.
9. (Higher Education Communication, Pakistan) **Robotic Visual Scene Interpretation**, start up grant 0.5 million PKRs. 2013
10. (COMSTECH - TWAS) **Human mind gauge: computational model of brain and its applications using brain computer interface** 15K US Dollars. 2014-2016
11. (UET Faculty Research Grant) **Robot Navigation Using Brain Computer Interface**, 0.8 million PKRs. 2013-2015
12. (Water and Sanitation Agency (WASA), Pakistan) **Smart Billing System for WASA using NFC Technology** 2.4 million PKRs.
13. (Pakistan Science Foundation, Pakistan) **Safe Farming: Crop raiding prevention from vertebrates** 1.7 million PKRs.
14. (National ICT R & D Fund, Pakistan, BS FYP Funding) Suspicious Activity Detection & Video Annotation Utility in Real Time Environment (**SAVOUR**), 50,000. PKRs. 2013-14.
15. (National ICT R & D Fund, Pakistan, BS FYP Funding) **Semantic based video retrieval and copy detection** , 45,000. PKRs. 2013-14
16. (National ICT R & D Fund, Pakistan, BS FYP Funding) **Crowd Modeling**, 80,000. PKRs. 2014-15.
17. (National ICT R & D Fund, Pakistan, BS FYP Funding) Real Time Mobile Surveillance System (**RTMSS**), 58,000. PKRs. 2014-15.
18. (National ICT R & D Fund, Pakistan, BS FYP Funding) **Scalable and Intelligent Disease Diagnosis System**, 65,000. PKRs. 2014-15.

19. (NESCOM, Pakistan) **RALT: Automatic Inference and Dynamic Testing of Black Box Components**, 0.1 Million PKRs.
20. (NESCOM, Pakistan) **Using Machine Learning to facilitate Automata Conversion**, 0.1 Million PKRs.

In Review

1. MMI-DSS: Mobile Medical Imaging Decision Support System 6.2 million PAKR
2. Vehicle Recognition System: Integrated Solution for Traffic Flow Management and Vehicular Security 5.2 million PAKR
3. Crowd Analytics: Dynamic modelling and Recognition of Visual Crowds 5.4 million PAKR
4. Person Data Digger 4 million PAKR
5. Video Archival, Indexing and Retrieval System
6. MRI Data using 3D Plot for Brain Mapping for Medical Diagnostics
7. Virtual Reality based Brain Rehabilitation and Medical Diagnostics
8. Assessment of Weeds in crop and Recommendation system for weed control
9. Information retrieval system for unified biological databank 4.71 million PAKR
10. M-Agriculture for Information Dissemination and Effective Policymaking 13.20 million PAKR
11. Statistical Modelling and Characterization of Tumours in Brain MRI, Punjab HEC, 3 million PKRs
12. Human Behaviour Modelling and Prediction from Social Media Contents, Punjab HEC, 3 million PKRs
13. Crowd Analytics: Dynamic modelling and Recognition of Visual Crowds , Punjab HEC, 3 million PKRs
14. Development of Indigenous research database for Pakistani Researchers, Punjab HEC, 3 million PKRs
15. Robotic Arm for Humans: A Neuro-Prosthetic EMG based AMPUTTE , Punjab HEC, 3 million PKRs
16. Semantic Question Answering in Biomedical Domain, Punjab HEC, 3 million PKRs
17. Safe Farming: Crop raiding prevention from vertebrates, Punjab HEC, 3 million PKRs
18. Vehicle Recognition System: Integrated Solution For Traffic Flow Management And Vehicular Security, Punjab HEC, 3 million PKRs
19. Assessment of Weeds in crop and Recommendation system for weed control, Punjab HEC, 3 million PKRs

RESEARCH LECTURES, TALKS

1. **Automatic Surveillance System for Video Streams**, Virtual University Pakistan, 28 November 2018.¹⁴
2. **Automatic Identification of Visual Objects**, DFKI, Frankfurt, June 2017.
3. **Comparative Analysis of Computer Vision Toolkits**, IEEE technical session, Dubai, UAE, 16th November, 2016
4. **Journey from Machine Learning to Deep Learning for Computer Vision Applications**, DICE IET, 1st November, 2016.
5. **Object Recognition: Past and Future** Guest Speaker at ICOSST - 2013, Lahore, Pakistan.
6. **Natural Language Descriptions for Video Sequences**, Workshop on Context Aware Technologies for Assistive Robotics (CATAR 2012), LUMS, Lahore, Pakistan.
7. **Generating a unified format for heterogeneous biological data**, Technical Lecture Series - 2013, IEEE Computer Society, Lahore Section, LCWU, Lahore, Pakistan.
8. **Spatio-temporal sequence analysis of Video Streams**, Technical Lecture Series - 2013, IEEE Computer Society, Lahore Section, UCP, Lahore, Pakistan.
9. **Video Annotation Tools, Analysis and research Challenges**, Department of Computer Science, The University of Sheffield, UK.
10. **Manifold learning techniques for Video Data Analysis**, Department of Computer Science, University of Edinburgh, UK.

Administrative Experience

- Director, Financial Aid and Career Service, Feb 2019 till now.
- Member UET Purchase Committee.
- Committee Member, Video surveillance system in UET Lahore.
- Chair, Final Year Projects Evaluation Committee (2013-2014).
- Member admission Committee UET Lahore (Head of Software Development Team)(2012-2013)
- Member Purchase Committee Team UET Lahore (2012-)
- Participated in accreditation process of BCSE program with PEC-Pakistan. (2013)
- Member Inspection Committee, Internship Committee, and Undergraduate Projects Evaluation Committee.
- Member organizing committee, All Pakistan IT Exhibition and Competition 2004, 2006.
- Organized Seminar on Punjab IT Policy in collaboration with Punjab Information Technology Board 2006.

¹⁴<https://www.youtube.com/watch?v=HTzQHj0dL5Y>

PROFESSIONAL AFFILIATIONS

- HEC Approved PhD Supervisor
- IEEE, USA (Senior Research Fellow)
- IEEE, USA (Professional Member)
- Member Pakistan Engineering Congress, Membership No.3891
- IEEE Member for Computer Society Lahore.

REFERENCES

- Prof. Dr. Phil Green, Department of Computer Science, The University of Sheffield
Dr.Yoshihiko Gotoh, Department of Computer Science, The University of Sheffield
Prof. Dr. M.A.Maud, Chairman CS & Engg. Dept, Professor U.E.T, Lahore
Prof. Dr. Waqar Mahmood, Director, Al-Khawarizmi Institute of Computer Science, U.E.T, Lahore