

Muhammad Usman Akram

Professor

College of Electrical & Mechanical Engineering

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About

Dr. Muhammad Usman Akram is working as Professor in the College of Electrical & Mechanical Engineering. Dr. Muhammad Usman Akram has a PhD in Medical Image And Signal Processing. Dr. Muhammad Usman Akram has published 352 research articles & conference papers having a citation count of 3862, carried out 14 projects and filed 20 intellectual property.

Qualifications

PhD in Medical Image And Signal Processing NUST, Islamabad , Pakistan	2010 - 2012
MS in Medical Image Anlaysis NUST, Islamabad , Pakistan	2008 - 2010
BE in Image Processing NUST, Islamabad , Pakistan	2004 - 2008

Experience

Professor College of Electrical & Mechanical Engineering	2022- Present
Associate Professor College of Electrical & Mechanical Engineering	2020 - 2022
Associate Professor College of Electrical & Mechanical Engineering	2018 - 2020
Assistant Professor College of Electrical & Mechanical Engineering	2018 - 2018
Assistant Professor College of Electrical & Mechanical Engineering	2013 - 2018
Asst Prof Bahria University, Islamabad , E-8, Islamabad	2013 - 2013
Lecturer Bahria University , E-8, Islamabad, Pakistan	2012 - 2012

Awards

Best Researcher Received "Best Researcher Award" from NUST C EME for year 2019	2020
Best Innovator Received "Best Innovator Award" from NUST college of EME for year 2018	2019
Best Researcher Received "NUST Overall Best Researcher Award" for year 2017	2019
Best Teacher Received "Best University Teacher Award" for the year 2016 from Govt of Pakistan Higher Education Commission (HEC)	2018
BITA Won Best IT Innovation Award 2017 for project titled EKKO	2017
Best Researcher Received "Best Researcher Award" from NUST C EME for year 2015	2016
APICTA Won Gold award in APICTA (Asia Pacific ICT Alliance Awards) 2016 in category of Research & Development of product named 'Analysis of Optical coherence tomography images for CDSS', hosted by Chinese Taipei	2016
PASHA Won Gold award in P@SHA ICT awards 2016 in category of Research & Development of product named 'Analysis of Optical coherence tomography images for CDSS'	2016
Best Young Scholar Received "Best Young Scholar" award for the year 2013/14 from Govt of Pakistan Higher Education Commission (HEC) in the field of engineering and sciences	2016

Professional Memberships

PEC	Since 2008
IEEE	Since 2009

Research Projects

National Projects	
Smart Stethoscope Funding Agency: IGNITE Amount: PKR 36,677.00 Status: Completed	2025
VRAM Funding Agency: IGNITE Amount: PKR 80,000.00 Status: Completed	2020
ActiveDrive Driver Drowsiness Detection System Funding Agency: IGNITE Amount: PKR N/A Status: Completed	2021
Epilepsy Monitoring Band Funding Agency: IGNITE Amount: PKR N/A Status: Completed	2021
Autonomous Detection of Concealed, Cluttered and Dismantled Baggage Threats via X-ray Imagery for Advanced Security Applications Funding Agency: HEC Amount: PKR 12,937,000.00 Status: Approved_inprocess	2022
Artificial Intelligence (AI) for Image Classification Funding Agency: NESCOM	2019

Amount: PKR 150,000.00	
Status: Completed	
SmartSteth-Heart Beats Goes ON	2018
Funding Agency: IGNITE	
Amount: PKR 80,000.00	
Status: Completed	
EKKO - Wave Therapeutic Device	2018
Funding Agency: IGNITE	
Amount: PKR 79,900.00	
Status: Completed	
EKKO Wave Therapeutic Device 'Fostering a Disability Free Society'	2018
Funding Agency: HEC	
Amount: PKR 10,015,000.00	
Status: Completed	
Artificial Intelligence (AI) for Image Classification	2019
Funding Agency: NESCOM	
Amount: PKR 150,000.00	
Status: Completed	
EKKO-Wave Therapeutic Device	2018
Funding Agency: IGNITE	
Amount: PKR 80,000.00	
Status: Completed	
EPIC-A wearable Epilepsy monitoring device	2019
Funding Agency: HEC	
Amount: PKR 9,515,675.00	
Status: Completed	
Ekko-Wave Therapeutic Device	2018
Funding Agency: HEC TDF	
Amount: PKR 7,394,000.00	
Status: Completed	
EKKO Wave Therapeutic Device	2018
Funding Agency: HEC	
Amount: PKR 7,394,000.00	
Status: Approved_inprocess	

International Projects

Research Articles

Radiology report generation from a singular perspective using transformers with Knowledge Distillation	2026
<i>Asad Mansoor Khan Mashood mohammad Mohsan Muhammad Usman Akram Taimur Hassan Sajid Gul Khawaja Adil Qayyum Biomedical Signal Processing and Control</i> , Volume:111, Article Number 108340	
Impact Factor: 4.900 Quartile: 2	
DOI: https://doi.org/10.1016/j.bspc.2025.108340	
Regressor driven incremental instance segmentation for contraband items identification	2025
<i>Ammara Nasim Mahboob Anwar Muhammad Owais Samet Akcay Divya Velayudhan Muhammad Usman Akram Mohammed Ghazal Naoufel Werghi Taimur Hassan Engineering Applications of Artificial Intelligence</i> , Volume:157, Article Number 111421	
Impact Factor: 8.000 Quartile: 1	
DOI: https://doi.org/10.1016/j.engappai.2025.111421	
Skin whole slide image segmentation using lightweight-pruned transformer	2025
<i>Anum Abdul Salam Muhammad Zeeshan Asaf Muhammad Usman Akram Ammad Ali Mashaal Ibne Masha Allah Babar Rao Samavia Khan Bssem Rafiq Bianca Sanabria Muhammad Haroon Yousaf Biomedical Signal Processing and Control</i> , Volume:106, Article Number 107624	
Impact Factor: 4.900 Quartile: 1	
DOI: https://doi.org/10.1016/j.bspc.2025.107624	

AI-CADS: An Artificial Intelligence based framework for automatic early detection and severity evaluation of coronary artery disease <i>Muhammad Sajid Ali Hassan Dilshad Ahmed Khan Shoab Ahmed Khan Asim Dilawar Bakhshi Sayed Tanveer Abbas Gilani Muhammad Usman Akram Mustansar Ali Ghazanfar</i> <i>Biomedical Signal Processing and Control</i> , Volume:106, Article Number: 107705, Pages:10 Impact Factor: 4.9 Quartile: 1 DOI: https://doi.org/10.1016/j.bspc.2025.107705	2025
Class and Data-Incremental Learning Framework for Baggage Threat Segmentation via Knowledge Distillation <i>Ammara Nasim Saad Mazher Khan Anum Abdul Salam Adeel M Syed Muhammad Usman Akram Arsalan Shaukat Taimur Hassan</i> <i>IEEE Access</i> , Volume:13, Pages 95977-96000 Impact Factor: 3.600 Quartile: 2 DOI: 10.1109/ACCESS.2025.3574919	2025
Examining AI-Powered ADHD Diagnosis: Current Trends, Key Challenges, and Future Directions in the Field <i>Soyiba Jawed Ahmad Rauf Subhani Wasi Haider Butt Muhammad Usman Akram Qurat Ul Ain</i> <i>IEEE Access</i> , Volume 13, Pages 93148-93177 Impact Factor: 3.600 Quartile: 2 DOI: 10.1109/ACCESS.2025.3567427	2025
PHARFF: A Pipeline-Based Graceful Live Migration and Checkpointing Framework for Achieving High Availability and Reliability in FPGA Applications on Cloud <i>Sajid Gul Khawaja Muhammad Usman Akram Muhammad Asad Shoab Ahmad Khan Alina Mirza Yame Asfia</i> <i>IEEE Access</i> , Volume:13, Pages 63203-63218 Impact Factor: 3.400 Quartile: 2 DOI: 10.1109/ACCESS.2025.3557303	2025
DermaTransNet: Where Transformer Attention Meets U-Net for Skin Image Segmentation <i>Anum Abdul Salam Muhammad Usman Akram Haroon Yousaf Babar Rao</i> <i>IEEE Access</i> , Volume:13, Page(s):64305-64329 Impact Factor: 3.4 Quartile: 2 DOI: 10.1109/ACCESS.2025.3556889	2025
Deep learning based approaches for intelligent industrial machinery health management and fault diagnosis in resource-constrained environments. <i>Ali Saeed Muazzam A Khan Muhammad Usman Akram Waeal J. Obidallah Soyiba Jawed Awais Ahmad</i> <i>Scientific Reports</i> , Volume 15, Article Number: 1114 Impact Factor: 3.800 Quartile: 1 Citations: 11 DOI: https://doi.org/10.1038/s41598-024-79151-2	2025
AI-CADR: Artificial Intelligence Based Risk Stratification of Coronary Artery Disease using Novel Non-invasive Biomarkers <i>Muhammad Sajid Ali Hassan Dilshad Ahmed Khan Shoab Ahmed Khan Asim Dilawar Bakhshi Muhammad Usman Akram Mishal Babar Farhan Hussain Wadood Abdul</i> <i>IEEE Journal of Biomedical and Health Informatics</i> , Volume:28, Issue:12, Page(s):7543-7552 Impact Factor: 6.700 Quartile: 1 Citations: 3 DOI: https://doi.org/10.1109/JBHI.2024.3453911	2024
Segmented 3D Lung Cube Dataset and Dual-Model Framework for COVID-19 Severity Prediction <i>Mohsin ali Khan Arsalan Shaukat Zartasha Mustansar Muhammad Usman Akram</i> <i>IEEE Access</i> , Volume: 12, Page(s):172596-172609 Impact Factor: 3.4 Quartile: 2 DOI: 10.1109/ACCESS.2024.3501234	2024
An interpretable hybrid framework combining convolution latent vectors with transformer based attention mechanism for rolling element fault detection and classification <i>Ali Saeed Muhammad Usman Akram Muazzam Khattak M. Belal Khan</i> <i>Heliyon</i> , Volume: 10, Issue: 21, Article Number: e38993, Pages:18 Impact Factor: 3.4 Quartile: 1 Citations: 2 DOI: https://doi.org/10.1016/j.heliyon.2024.e38993	2024
A Modified Deep Semantic Segmentation Model for Analysis of Whole Slide Skin Images <i>Muhammad Zeeshan Asaf Hamid Rasul Muhammad Usman Akram Tazeen Hina Tayyab Rashid Arslan Shaukat</i>	2024

<i>Scientific Reports</i> , Volume 14, Issue 1, Article Number 23489	
Impact Factor: 3.800 Quartile: 1 Citations: 4	
DOI: https://doi.org/10.1038/s41598-024-71080-4	
TransNetV: An optimized hybrid model for enhanced colorectal cancer image classification	2024
<i>Mohsan Tanveer Muhammad Usman Akram Asad Mansoor Khan</i>	
<i>Biomedical Signal Processing and Control</i> , Volume 96, Part A , Article Number 106579	
Impact Factor: 4.900 Quartile: 1 Citations: 5	
DOI: https://doi.org/10.1016/j.bspc.2024.106579	
Transformer-based sensor failure prediction and classification framework for UAVs	2024
<i>Muhammad Waqas Ahmad Muhammad Usman Akram Mashood Mohammad Mohsan Kashif Saghar Rashid Ahmad Wasi Haider Butt</i>	
<i>Expert Systems with Applications</i> , Volume: 248, Article Number: 123415	
Impact Factor: 8.5 Quartile: 1 Citations: 20	
DOI: 10.1016/j.eswa.2024.123415	
Two-dimensional hybrid incremental learning (2DHIL) framework for semantic segmentation of skin tissues	2024
<i>Muhammad Imran Muhammad Usman Akram Mohsin Islam Tiwana Anum Abdul Salam Danilo Greco</i>	
<i>Image and Vision Computing</i> , Volume 148, Article Number: 105098	
Impact Factor: 4.7 Quartile: 1 Citations: 2	
DOI: 10.1016/j.imavis.2024.105098	
Insights from EEG Analysis of Evoked Memory Recalls Using Deep Learning for Emotion Charting	2024
<i>Muhammad Najam Dar Muhammad Usman Akram Ahmad Rauf Subhani Sajid Gul Khawaja Constantino Carlos Reyes-Aldasoro Sarah Gul</i>	
<i>Scientific Reports</i> , Volume 14, Article Number: 17080	
Impact Factor: 3.800 Quartile: 1 Citations: 2	
DOI: https://doi.org/10.1038/s41598-024-61832-7	
Transformer-based framework for multi-class segmentation of skin cancer from histopathology images	2024
<i>Muhammad Imran Mohsin Islam Tiwana Mashood Mohammad Mohsan Norah Saleh Alghamdi Muhammad Usman Akram</i>	
<i>Frontiers in Medicine</i> , Volume 11, Article Number 1380405	
Impact Factor: 3.100 Quartile: 1 Citations: 2	
DOI: https://doi.org/10.3389/fmed.2024.1380405	
An Enhanced Agile V-Model: Conformance to regulatory bodies and experiences from model's adoption to medical device development.	2024
<i>Aliya Ashraf Khan Muhammad Usman Akram Wasi Haider Butt Mehreen Shirshar</i>	
<i>Heliyon</i> , Volume 10. Issue 6 Article Number: e26928	
Impact Factor: 3.4 Quartile: 1 Citations: 1	
DOI: 10.1016/j.heliyon.2024.e26928	
Dual contrastive learning based image-to-image translation of unstained skin tissue into virtually stained H&E images	2024
<i>Muhammad Zeeshan Asaf Babar Rao Muhammad Usman Akram Sajid Gul Khawaja Samavia Khan Thu Minh Truong Palveen Sekhon Irfan J. KHan</i>	
<i>Muhammad Shahmir Abbasi</i>	
<i>Scientific Reports</i> , Volume 14, Article Number: 2335	
Impact Factor: 3.800 Quartile: 1 Citations: 12	
DOI: https://doi.org/10.1038/s41598-024-52833-7	
HybridHR-Net: Action Recognition in Video Sequences Using Optimal Deep Learning Fusion Assisted Framework	2023
<i>Muhammad Naeem Akbar Muhammad Umar Farooq Majed Alhaisoni Usman Tariq Muhammad Usman Akram Seemab Khan</i>	
<i>CMC-Computers, Materials and Continua</i> , Volume 76, Issue 3, Pages 3275-3295	
Impact Factor: 3.1 Quartile: 3 Citations: 4	
DOI: 10.32604/cmc.2023.039289	
Multi-head deep learning framework for pulmonary disease detection and severity scoring with modified progressive learning	2023
<i>Asad Mansoor Khan Muhammad Usman Sajid Nazir Taimur Hassan Sajid Gul Khawaja Tatheer Fatima</i>	
<i>Biomedical Signal Processing and Control</i> , Volume 85, Article Number 104855	
Impact Factor: 5.076 Quartile: 2 Citations: 4	
DOI: https://doi.org/10.1016/j.bspc.2023.104855	

Proliferative Diabetic Retinopathy Diagnosis Using Varying-Scales Filter Banks and Double-Layered Thresholding <i>Anum Abdul Salam Jahan Zeb Muhammad Usman Akram Norah Saleh Alghamdi Noor ul Huda</i> <i>Diagnostics</i> , Volume 13, Issue 13, Article Number 2231 Impact Factor: 3.6 Quartile: 2 DOI: https://doi.org/10.3390/diagnostics13132231	2023
Recognition of Children's Facial Expressions Using Deep Learned Features <i>Arsalan Shaukat Rizwan Ahmed Khan Zartasha Mustansar Muhammad Usman Akram Umer Asgher Unqua Laraib</i> <i>Electronics</i> , Volume: 12 Issue: 11, Article Number:2416 Impact Factor: 2.690 Quartile: 3 Citations: 7 DOI: 10.3390/electronics12112416	2023
Analysis of EEG signals using deep learning to highlight effects of vibration-based therapy on brain <i>Syeda Noor-Ul-Huda Safder Muhammad Usman Akram Muhammad Najam Dar Aliya Ashraf Khan Sajid Gul Khawaja Ahmad Rauf Subhani Imran Khan Niazi Sarah Gul</i> <i>Biomedical Signal Processing and Control</i> , Volume 83, Article Number 104605 Impact Factor: 5.076 Quartile: 2 Citations: 5 DOI: https://doi.org/10.1016/j.bspc.2023.104605	2023
Angular contrastive distillation driven self-supervised scanner independent screening and grading of retinopathy <i>Taimur Hassan Zhu Li Muhammad Usman Akram Irfan Hussain Kinda Khalaf Naoufel Werghi</i> <i>Information Fusion</i> , Volume 92, Pages 404-419 Impact Factor: 17.564 Quartile: 1 Citations: 5 DOI: https://doi.org/10.1016/j.inffus.2022.12.006	2023
Survey of explainable artificial intelligence techniques for biomedical imaging with deep neural networks <i>Sajid Nazir Diane M. Dickson Muhammad Usman Akram</i> <i>Computers in Biology and Medicine</i> , Volume 156, Article Number 106668 Impact Factor: 6.698 Quartile: 1 Citations: 133 DOI: https://doi.org/10.1016/j.compbimed.2023.106668	2023
Smart and Automated Infrastructure Management: A Deep Learning Approach for Crack Detection in Bridge Images <i>Naeem Ul Islam Hina Inam Muhammad Usman Akram Fahim Ullah</i> <i>Sustainability</i> , Volume 15, Issue 3, Article Number 1866 Impact Factor: 3.889 Quartile: 2 Citations: 44 DOI: https://doi.org/10.3390/su15031866	2023
Automated grading of chest x-ray images for viral pneumonia with convolutional neural networks ensemble and region of interest localization <i>Asad Mansoor Khan Muhammad Usman Akram Sajid Nazir</i> <i>PLoS One</i> , Volume 18, Issue 1, Article Number e0280352 Impact Factor: 3.752 Quartile: 2 Citations: 10 DOI: https://doi.org/10.1371/journal.pone.0280352	2023
Vision Transformer and Language Model based Radiology Report Generation <i>Mashood Mohammad Mohsan Muhammad Usman Akram Ghulam Rasool Norah Saleh Alghamdi Muhammad Abdullah Aamer Baqai Muhammad Abbas</i> <i>IEEE Access</i> , Volume 11, Pages 1814-1824 Impact Factor: 3.476 Quartile: 2 Citations: 30 DOI: 10.1109/ACCESS.2022.3232719	2023
PCG classification through spectrogram using transfer learning <i>Shahid Ismail Basit Ismail Imran Siddiqi Muhammad Usman Akram</i> <i>Biomedical Signal Processing and Control</i> , Volume 79, Part 1, Article Number 104075 Impact Factor: 5.076 Quartile: 2 Citations: 41 DOI: https://doi.org/10.1016/j.bspc.2022.104075	2023
A Deep Learning Based Approach for Grading of Diabetic Retinopathy Using Large Fundus Image Dataset <i>Ayesha Mehboob Muhammad Usman Akram Norah Saleh Alghamdi Anum Abdul Salam</i> <i>Diagnostics</i> , Volume 12, Issue 12, Article Number 3084 Impact Factor: 3.992 Quartile: 2 Citations: 22	2022

DOI: https://doi.org/10.3390/diagnostics12123084	
Vertebrae localization and spine segmentation on radiographic images for feature-based curvature classification for scoliosis <i>Joddatt Fatima Mashood Mohammad Mohsan Amina Jameel Muhammad Usman Akram Adeel Muzaffar Syed</i> <i>Concurrency and Computation Practice and Experience</i> , Volume 34, Issue 26, Article Number e7300 Impact Factor: 1.831 Quartile: 3 Citations: 9 DOI: https://doi.org/10.1002/cpe.7300	2022
Knowledge distillation driven instance segmentation for grading prostate cancer <i>Taimur Hassan Muhammad Shafay Bilal Hassan Muhammad Usman Akram AymanElBaz NaoufelWerghi</i> <i>Computers in Biology and Medicine</i> , Volume 150, Article Number 106124 Impact Factor: 6.698 Quartile: 1 Citations: 15 DOI: https://doi.org/10.1016/j.complbiomed.2022.106124	2022
Intelligent framework for automated failure prediction, detection, and classification of mission critical autonomous flights <i>Muhammad Waqas Ahmad Muhammad Usman Akram Khurram Hameed Rashid Ahmad Ali Hassan</i> <i>ISA Transactions</i> , Volume 129, Part A, Pages 355-371 Impact Factor: 5.911 Quartile: 1 Citations: 29 DOI: https://doi.org/10.1016/j.isatra.2022.01.014	2022
Heart rate estimation in PPG signals using Convolutional-Recurrent Regressor <i>Shahid Ismail Imran Siddiqui Muhammad Usman Akram</i> <i>Computers in Biology and Medicine</i> , Volume 145, Article Number 105470 Impact Factor: 6.698 Quartile: 1 Citations: 27 DOI: https://doi.org/10.1016/j.complbiomed.2022.105470	2022
Automatic Localization and Segmentation of Vertebrae for Cobb Estimation and Curvature Deformity <i>Joddatt Fatima Amina Jameel Muhammad Usman Akram Malaika Mushtaq Adeel Muzaffar Syed</i> <i>Intelligent Automation and Soft Computing</i> , Volume 34, Issue 3, Pages 1489-1504 Impact Factor: 3.401 Quartile: 2 Citations: 4 DOI: https://doi.org/10.32604/iasc.2022.025935	2022
EEG-based emotion charting for Parkinson's disease patients using Convolutional Recurrent Neural Networks and cross dataset learning <i>Muhammad Najam Dar Muhammad Usman Akram Rajamanickam Yuvaraj Sajid Gul Khawaja M. Murugappan</i> <i>Computers in Biology and Medicine</i> , Volume 144, Article Number 105327 Impact Factor: 7.7 Quartile: 1 Citations: 57 DOI: https://doi.org/10.1016/j.complbiomed.2022.105327	2022
Machine Learning and Signal Processing Based Analysis of sEMG Signals for Daily Action Classification <i>Sajid Gul Khawaja Muhammad Usman Akram Aimal Khan Arsalan Shaukat Ayesha Sadiq Norah Saleh Alghamdi</i> <i>IEEE Access</i> , Volume 10, Pages 40506-40516 Impact Factor: 3.476 Quartile: 2 Citations: 8 DOI: 10.1109/ACCESS.2022.3166885	2022
A Hybrid VDV Model for Automatic Diagnosis of Pneumothorax Using Class-Imbalanced Chest X-Rays Dataset <i>Tahira Iqbal Arsalan Shaukat Muhammad Usman Akram Abdul Wahab Muzaffar Zartasha Mustansar Yung-Cheol Byun</i> <i>IEEE Access</i> , Volume 10, Pages 27670-27683 Impact Factor: 3.367 Quartile: 2 Citations: 11 DOI: http://10.1109/ACCESS.2022.3157316	2022
Continual Learning Objective for Analyzing Complex Knowledge Representations <i>Asad Mansoor Khan Taimur Hassan Muhammad Usman Akram Norah Saleh Alghamdi Naoufel Werghi</i> <i>Sensors</i> , Volume 22(4), Article Number 1667 Impact Factor: 3.576 Quartile: 1 Citations: 22 DOI: https://doi.org/10.3390/s22041667	2022
Localization and Edge-based Segmentation of Lumbar Spine Vertebrae to Identify the Deformities Using Deep Learning Models <i>Malaika Mushtaq Muhammad Usman Akram Norah Saleh Alghamdi Joddatt Fatima Rao Farhat Masood</i> <i>Sensors</i> , Volume 22(4), Article Number 1547	2022

Impact Factor: 3.576 Quartile: 1 Citations: 50 DOI: https://doi.org/10.3390/s22041547	
A deep learning approach for the classification of TB from NIH CXR dataset <i>S. Zainab Yousuf Zaidi Muhammad Usman Akram Amina Jameel Norah Saleh Alghamdi</i> <i>IET Image Processing</i> , Volume 16, Issue 3, Pages 787-796 Impact Factor: 2.373 Quartile: 3 Citations: 11 DOI: 10.1049/ipr2.12385	2022
Attention based automated radiology report generation using CNN and LSTM <i>Mehreen Sirshar Faheem Khalil Paracha Muhammad Usman Akram Norah Saleh Alghamdi Syeda Zainab Yousuf Zaidi3 Tatheer Fatima</i> <i>Plos One</i> , Volume 17(1), Article Number e0262209 Impact Factor: 3.240 Quartile: 2 Citations: 30 DOI: https://doi.org/10.1371/journal.pone.0262209	2022
Incremental Cross-Domain Adaptation for Robust Retinopathy Screening via Bayesian Deep Learning <i>Taimur Hassan Bilal Hassan Muhammad Usman Akram Shahrukh Hashmi Abdel Hakim Taguri Naoufel Werghi</i> <i>IEEE Transactions on Instrumentation and Measurement</i> , Volume 70, Article Number: 2516414 Impact Factor: 4.016 Quartile: 1 Citations: 28 DOI: 10.1109/TIM.2021.3122172	2021
Automatic Diagnosis of Pneumothorax from Chest Radiographs: A Systematic Literature Review <i>Arsalan Shaukat Zartasha Mustansar Tahira Iqbal Muhammad Usman Akram Aimal Khan</i> <i>IEEE Access</i> , Volume 9, Pages 145817-145839 Impact Factor: 3.367 Quartile: 2 Citations: 9 DOI: 10.1109/ACCESS.2021.3122998	2021
Model Predictive Control: Taking the idea of Artificial Pancreas a step forward for Diabetes Management <i>Rahmat Ullah Safdar Muwahida Liaquat Syed Muhammad Tahir Zaidi Muhammad Usman Akram</i> <i>International Journal of Pharma Medicine and Biological Sciences</i> , Volume 10(4), Pages 142-147 Impact Factor: N/A DOI: 10.18178/ijpmbs.10.4.142-147	2021
Lung Segmentation-Based Pulmonary Disease Classification Using Deep Neural Networks <i>S. Zainab Yousuf Zaidi Muhammad Usman Akram Amina Jameel Norah Saleh Alghamdi</i> <i>IEEE Access</i> , Volume 9, Pages 125202-125214 Impact Factor: 3.367 Quartile: 2 Citations: 23 DOI: 10.1109/ACCESS.2021.3110904	2021
An incremental learning approach to automatically recognize pulmonary diseases from the multi-vendor chest radiographs <i>Mehreen Sirshar Taimur Hassan Shoab Ahmad Khan Muhammad Usman Akram</i> <i>Computers in Biology and Medicine</i> , Volume 134, Article Number 104435 Impact Factor: 6.698 Quartile: 1 Citations: 42 DOI: https://doi.org/10.1016/j.combiomed.2021.104435	2021
Clinically Verified Hybrid Deep Learning System for Retinal Ganglion Cells Aware Grading of Glaucomatous Progression <i>Hina Raja Taimur Hassan Muhammad Usman Akram Naoufel Werghi</i> <i>IEEE Transactions on Biomedical Engineering</i> , Volume 68, Issue 7, Pages 2140-2151 Impact Factor: 4.538 Quartile: 2 Citations: 32 DOI: 10.1109/TBME.2020.3030085	2021
Spinal vertebrae localization and analysis on disproportionality in curvature using radiography - a comprehensive review <i>Joddatt Fatima Muhammad Usman Akram Amina Jameel Adeel Muzaffar Syed</i> <i>EURASIP Journal on Image and Video Processing</i> , Volume 2021, Article Number: 23 Impact Factor: 1.789 Quartile: 3 Citations: 5 DOI: https://doi.org/10.1186/s13640-021-00563-5	2021
Capturing the real customer experience based on the parameters in the call detail records <i>Nusratullah Khan Muhammad Usman Akram Asadullah Shah Norah Saleh Alghamdi Shoab Ahmed Khan</i> <i>Multimedia Tools and Applications</i> , Pages 1-23 Impact Factor: 2.757 Quartile: 2 Citations: 1	2021

DOI: <https://doi.org/10.1007/s11042-021-10897-x>

Genetic Algorithm Based Automatic Out-Patient Experience Management System (GAPEM) Using RFIDs and Sensors <i>Saria Safdar Shoab Ahmed Khan Arsalan Shaukat Muhammad Usman Akram</i> <i>IEEE Access</i> , Volume 9, Pages 8961-8976 Impact Factor: 3.367 Quartile: 2 Citations: 10 DOI: 10.1109/ACCESS.2020.3046839	2021
Heart rate tracking in Photoplethysmography signals affected by motion artifacts: A review <i>Shahid Ismail Imran Siddiqi Muhammad Usman Akram</i> <i>EURASIP Journal on Advances in Signal Processing</i> , Volume 2021, Article Number 5 Impact Factor: 1.630 Quartile: 3 Citations: 71 DOI: https://doi.org/10.1186/s13634-020-00714-2	2021
RAG-FW: A hybrid convolutional framework for the automated extraction of retinal lesions and lesion-influenced grading of human retinal pathology <i>Taimur Hassan Muhammad Usman Akram Naoufel Werghi Noman Nazir</i> <i>IEEE Journal of Biomedical and Health Informatics</i> , Volume 25, Issue 1, Pages 108-120 Impact Factor: 5.772 Quartile: 1 Citations: 47 DOI: 10.1109/JBHI.2020.2982914	2021
Extraction of Retinal Layers Through Convolution Neural Network (CNN) in an OCT Image for Glaucoma Diagnosis <i>Hina Raja Muhammad Usman Akram Arsalan Shaukat Norah Alghamdi Sajid Gul Khawaja Noman Nazir Shoab Ahmad Khan</i> <i>Journal of Digital Imaging</i> , Volume 33, Pages 1428-1442 Impact Factor: 4.056 Quartile: 1 Citations: 39 DOI: 10.1007/s10278-020-00383-5	2020
RIDB: A Dataset of fundus images for retina based person identification <i>Muhammad Usman Akram Anum Abdul Salam Sajid Gul Khwaja Shoab Ahmed Khan Gul Hassan Naqvi</i> <i>Data in Brief</i> , Volume 33, Article Number 106433 Impact Factor: 0 Citations: 15 DOI: https://doi.org/10.1016/j.dib.2020.106433	2020
sEMG dataset of routine activities <i>Asad Mansoor Khan Sajid Gul Khawaja Muhammad Usman Akram Ali Saeed Khan</i> <i>Data in Brief</i> , Volume 33, Article Number 106543 Impact Factor: - Citations: 7 DOI: https://doi.org/10.1016/j.dib.2020.106543	2020
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Physical Action Categorization Pertaining to Certain Neurological Disorders Using Machine Learning-Based Signal Analysis <i>Asad Mansoor Khan Sajid Gul Khawaja Muhammad Usman Akram Ali Saeed Khan</i> In: <i>Book on Biomedical Signals Based Computer-Aided Diagnosis for Neurological Disorders</i> , 1st Edition, Chapter 2, Pages 23-42 Citations: 1 DOI: https://doi.org/10.1007/978-3-030-97845-7_2	2022
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Editorial Activities

Diagnostics Edited Journal Issue / Proceeding / Book Impact Factor: N/A	2023
Reviewed Papers for Journals Impact Factor: 3.83	2020
Reviewed Papers for Journals Impact Factor: 4.098	2020
Reviewed Papers for Journals Impact Factor: 4.098	2020
Reviewed Papers for Journals Impact Factor: 4.098	2020
Reviewed Papers for Journals Impact Factor: 2.11	2020
Reviewed Papers for Journals Impact Factor: 3.434	2020
Reviewed Papers for Journals	2020
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Reviewed Papers for Journals Impact Factor: 3.74	2020
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Reviewed Papers for Journals
Impact Factor: 3.74

2020

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2020

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Impact Factor: 1.692

2019

Reviewed Papers for Journals
Impact Factor: 4.098

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2018

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2018

Impact Factor: 1.648

Reviewed Papers for Journals

2017

Intellectual Property

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Web Based tool for OCT Image Generation, Segmentation and Classification Status: Filed	2024
Gennotate:A python-based computer program that generates Optical Coherence Tomography images, helps in automatic annotation followed by retinal disease classification. Status: Filed	2024
Deep Learning Based PAS Stained Slide Analysis and Noninvasive Confocal Image Staining Status: Filed	2024
Osteodoc an AI based Application for Osteoarthritis Status: Filed	2022
A system for detecting and regulating anxiety using haptics Status: Granted Filed	2020
Graphical User Interface of EKKO-Wave therapeutic Device Status: Licensed Filed	2020
Mobile application of EKKO-Wave therapeutic Device Status: Licensed Filed	2020
Web application of EKKO-Wave therapeutic Device Status: Licensed Filed	2020
Epilepsy Care mobile application Status: Licensed Filed	2020
Desktop application for HESS screening system Status: Filed	2020

Patents

Systems and Methods for Testing Neurological Disorders using Vibratory Therapeutic Device Status: Filed	2019
Apparatus and System for Retinal Screening Using Smartphone Status: Filed	2018
Retinal Screening System using mobile terminal and method thereof Status: Granted	2017
A NETWORK-ON-CHIP BASED MULTIPROCESSOR ARCHITECTURE FOR IMPLEMENTING K-MEANS CLUSTERING ALGORITHM Status: Filed	2017

Industrial Designs

Vibration Therapy device Status: Filed	2020
Joy Stick based Assembly for Acquisition of Retina using Portable Device (Class-12) Status: Granted Filed	2019
Mobile Mount for Retina Acquisition (Class-12) Status: Granted Filed	2019
HESS Screening System (Class-12) Status: Filed	2019
EKKO-WAVE THERAPEUTIC DEVICE Status: Filed	2019

Trademarks

EKKO-Wave Therapeutic Device Status: Licensed Filed	2019
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