

SYED MUHAMMAD ANWAR (Ph.D.)

Postal. Department of Software Engineering
University of Engineering and Technology, Taxila
Tel. + 92 (300) 5044036
syed.m.anwer@gmail.com,
s.anwar@knights.ucf.edu,
s.anwar@uettaxila.edu.pk

Work Experience

East-Lens

Founder and CEO

(Jan 2018 -)

University of Engineering and Technology, Taxila

Associate Professor (Tenured), Department of Software Engineering

(May 2018 -)

University of Central Florida

Fulbright Fellow, Research Associate, CRCV

(Jan 2019 – Jan 2020)

University of Engineering and Technology, Taxila

Assistant Professor (Tenure Track System), Department of Software Engineering

(Aug 2015 – May 2018)

University of Engineering and Technology, Taxila

Assistant Professor (Tenure Track System), Department of Computer Engineering

(Feb 2012-Aug 2015)

University of Sheffield, Sheffield, UK

Lab Demonstrator

(Jan 2008-Jan 2012)

DVCOM Ltd (Islamabad Pakistan)

Executive Engineer BSS (Radio and Transmission)

(Oct 2005-Sep 2006)

Education / Training

University of Central Florida, USA (2019)

Fulbright Fellow

Research Theme: Deep learning for medical image analysis

University of Sheffield, Sheffield, UK (Dec 2011)

PhD Electronic and Electrical Engineering

Research Title: Direct detection of neuronal fields using MRI imaging

University of Sheffield, Sheffield, UK (Sep 2007)

MS (Engg.) Data Communications (distinction)

Thesis- Automatic face steering using Broadband Direction of Arrival (DOA) estimation techniques

University of Engineering and Technology, Taxila (Dec 2005)

BSc Computer Engineering (with honors), Passing Percentage: 91.09%

Design Project- Design of CDMA Modem based on IS-95 Standard

Research Interests

Medical Image Analysis, Brain Computer Interface, Image Reconstruction, Deep Learning, Smart Grid, Data Communication, Computer Vision, Electromagnetic modeling, Neuroscience and neuronal modeling.

East-Lens

It is startup developing solutions for smart retail by using deep learning-based machine learning tools.

Courses Taught

Postgraduate Courses:

Medical Imaging (F-12, 13)
RF Engineering and Design (S-13)
Speech and Audio Processing (S-14)
Advance Digital Signal Processing (S-14)
Advance Digital Communication (F-14,15)
Advance Digital Image Processing (S-15)
Research Methodology (F- 16,17,18)
Computer Vision (S-16,17)
Advance Machine Learning (S-20)

Graduate Courses:

Introduction to Computing (S-12)
Basic Electrical Engineering (F 12,13,14,15)
Circuit Analysis (S- 13,14,15,16)
Digital Communication (F- 13)
Artificial Neural Networks (F-16,17)
Computer Vision (F- 18)
Research Methodology (S – 16,17,18)
Professional Practices (S-20)

Guest Lecturer

Medical Image Computing, University of Central Florida, Spring 2019
Current Topics in Machine Learning, University of Central Florida, Fall 2019

Professional Skills

Programming

Python, Matlab, C, C++, JAVA, VERILOG, VHDL, SQL, VB

Tools

Torch, Tensorflow, Keras, Caffe, PyTorch, MATLAB, MODELSIM, XILINX, AUTOCAD, MapInfo, Latex

Certification

- 1- Qualcomm certification for CDMA 2000, CDMA 2000 EVDO and WCDMA/UMTS
- 2- USAID Training for Entrepreneurs (2015)

Achievement

- Higher Education Commission (HEC) Pakistan Faculty Development Program in 2006, for MS and PhD studies with an award of **Rs 11 Million (2006-2011)**
- **Fulbright Fellowship**, US Department of State, (2019)

PhD Thesis (Supervision)

- An intelligent sparse visual feature descriptor for content based image retrieval (2013 -2017)
- An adaptive classification and recommendation system for cardiac patients using statistical machine learning algorithms (2013 - 2018)
- Chronic stress detection using psychological signals and wearable sensors (2014 - 2019)
- Secure communication in body area networks (2013 -)
- Detection and Classification of Ischemic Stroke in MR images using deep learning (2014 -)
- Structural health monitoring using wireless sensor networks, Co-Supervisor (2016-)
- A deep learning based framework for IoT based smart-health paradigm (2018 -)

MS Thesis (Supervision)

1. Multi-class Alzheimer Disease Classification using Hybrid Features (2017)
2. Liver Tumor Segmentation for Computer Aided Diagnosis (CAD) (2017)
3. Multimodal Brain Tumor Segmentation Using Deep Learning (2017)
4. Brain Tumor Classification on Brats 2013 (2017)
5. Pain assessment using Electroencephalography (2016)
6. Efficient Automatic Facial Emotion Recognition through Hybrid Machine Learning Classifier (2016)
7. Medical image retrieval using deep learning (2016)
8. ECG Signals Diagnosis of Arrhythmia (2016)
9. An efficient algorithm for liver tumor segmentation in CT images. (2016)
10. Driver assistance using wearable EEG. (2016)
11. Fast Wavelet Based Image Characterization for Content Based Medical Image Retrieval (CBMIR) System (2016)
12. Detection of Glaucoma by Correlating Analysis of Fundus and OCT Images. (2016)
13. EEG analysis to predict rating of video games. (2015)
14. Compressed sensing based MRI reconstruction on GPU using Bayesian learning. (2015)
15. Eye gaze classification for brain computer interface (BCI) using wearable sensors. (2015)
16. Efficient implementation of MR image reconstruction using compressive sensing. (2015)
17. Efficient algorithm for Lung Nodule segmentation. (2015)
18. Enterprise based Architecture for securing Information in cloud network (2015)
19. Event related potential (ERP) based lie detection using a wearable EEG headset. (2014)
20. MR image reconstruction using compressed sensing. (2014)
21. Fast MR image reconstruction using Iterative Split Bregman algorithm. (2014)
22. Early onset brain epileptic detection using EEG. (2014)
23. Performance analysis of removing artifacts in ECG signals using adaptive filtering techniques (2014)
24. Anti-collision algorithm and performance analysis for ultra-high frequency passive RFID networks. (2013)
25. Power efficient and secure IPv6 header compression technique for low power wireless area networks. (2013)

Research Grants

On Going

- Eastern Textile (ETEX): Deep learning for fashion image retrieval, IGNITE Seed Grant-PI Rs. 29 million. (2020- 2022)
- Predicting Outcomes of Lung Cancer Therapy Through Explainable Deep Learning, Florida Department of Health, Approved (2020-2022) Senior Personnel US \$ 1.3 Million
- Structural Health Monitoring using wireless sensors, (4.8 million) HEC, NRPU, Co-PI

Completed

- Remote Health Monitoring of Cardiac Patients, Higher Education Commission (Rs.5,00,000/-) 2014
- EEG based signal analysis of brain signals, Faculty Research Grant, UETT, Rs.525,000 2015
- Brain Computer Interface (BCI) for smart phones, Faculty Research Grant, UETT Rs. 3,75,000/- 2013
- Mobile EEG scanner on Android platform, National Grassroots ICT Research Initiative Rs. 90,000 2013
- Smart Remote grid monitoring using wireless sensor networks, National Grassroots ICT Research Initiative. Rs. 86,250 2013
- P300 based spelling system using EEG EPOC headset, National Grassroots ICT Research Initiative. Rs. 58,750 2014
- Context aware smart car, National Grassroots ICT Research Initiative Rs.57,850 2015
- Driver Assistance system, National Grassroots ICT Research Initiative Rs.86,750 2015
- ECG analysis for health recommendation system, Faculty Research Grant, UETT, Rs. 100,000 2016

Travel Grants

- **Punjab HEC Grant No. PHEC/A&R/ITG/1-25/2016** to present accepted paper at SAI Computing Conference 2016, London UK, **Rs. 261,754**
- **HEC Grant 272.36** to present accepted papers at EMBC 2017, JEJU Korea, **Rs. 241,500**
- **Punjab HEC Grant** to present accepted paper in WWW conference 2018 at Lyon France, **Rs. 326,500**
- **HEC Grant**, to present accepted paper in IECBES 2018, KL, Malaysia, **Rs. 268,000**

Reviewer

IEEE Transactions on Medical Imaging, Knowledge based systems, IEEE Sensors Journal, Biomedical Signal Processing and Control, IET Image Processing, Frontiers of Information Technology, Neurocomputing, EURASIP Journal on Image and Video Processing, IET Signal Processing, IET Image Processing, IEEE Access, Applied Soft Computing, IEEE JBHI, Medical Physics, PLOS One, MICCAI, EMBC, ICML, Nature Scientific Reports

Associate Editor

IEEE Access

Computational and Mathematical Methods in Medicine

Technical Journal, UET Taxila

Examiner

Undergrad Final Year Project Examiner

Bahria University, Islamabad

Comsats Institute of Information Technology (CIIT), Abbotabad

Military College of Signals, NUST

MS Thesis Examiner

CIIT Abbotabad, CIIT Attack

PhD RMCs

Research monitoring committee member of ten PhD Scholars at UET Taxila.

External research monitoring committee member, UET Peshawar.

Presentations

17th Annual NMR Symposium, Sheffield UK, 2008
15th BC-ISMIRM Cardiff, UK, 2009
26th Annual ESMRMB, Antalya Turkey, 2009
18th ISMRM, Stockholm Sweden, 2010
16th BV-ISMIRM Nottingham, UK, 2010
IEEE LAPC, Loughborough, UK 2010
5th EuCAP, Rome, Italy 2011
2nd International Conference on multimedia and Human Computer Interaction, Prague, 2014
IEEE ISSPIT, Abu Dhabi, UAE 2015
SAI Computing Conference, London, UK 2016
IEEE CCODE Bahria University, Islamabad, 2017
IEEE EMBC 2017, Jeju, Korea
The Web Conference 2018, Lyon France, April 2018
IECBES 2018, Kuching, Malaysia

Invited Talks/Seminars

1- Bio-Imaging and Signal Processing lab, KAIST University, South Korea. '**Deep learning in medical image analysis**' 2017
2- CRCV, UCF '**Medical Image Computing**' February 2019
3- '**The role of capsule networks and interpretable deep learning in medical imaging domain**' Department of Electrical Engineering, University of Minnesota, Minnesota, USA April 2019
4- '**The future of AI in medical applications - A perspective**' Jackson State University, Nov 2019
5- '**AI in medical applications with small datasets and limited labels**', University of Alaska, Nov 2019

Research Publications

h-index: 17, i10-index: 29, Citations: 1097 (May 2020)

Name in bold shows lead advisor or corresponding author

Peer Reviewed Journals

1. Ullah, Amin, **Syed Muhammad Anwar**, Muhammad Bilal, and Raja Majid Mehmood. "Classification of Arrhythmia by Using Deep Learning with 2-D ECG Spectral Image Representation.", Remote Sensing, MDPI
2. RaviPrakash H, Korostenskaja M, Castillo EM, Lee KH, Salinas CM, Baumgartner J, Anwar SM, Spampinato C and Bagci U (2020) Deep Learning Provides Exceptional Accuracy to ECoG-Based Functional Language Mapping for Epilepsy Surgery. Front. Neurosci. 14:409.
3. Sadiq, Andleeb, Imran Fareed Nizami, **Syed Muhammad Anwar**, and Muhammad Majid. "Blind Image Quality Assessment using Natural Scene Statistics of Stationary Wavelet Transform." Optik (2020): 164189.
4. Nizami, Imran Fareed, Muhammad Majid, Mobeen ur Rehman, **Syed Muhammad Anwar**, Ammara Nasim, and Khawar Khurshid. "No-reference image quality assessment using bag-of-features with feature selection." Multimedia Tools and Applications (2020): 1-26.

5. Saeed, Sanay Muhammad Umar, **Syed Muhammad Anwar**, Humaira Khalid, and Muhammad Majid. "EEG Based Classification of Long-Term Stress Using Psychological Labeling." *Sensors* 20, no. 7 (2020): 1886.
6. Mustaqeem, Anam, **Syed Muhammad Anwar**, and Muhammad Majid. "A modular cluster based collaborative recommender system for cardiac patients." *Artificial Intelligence in Medicine* 102 (2020): 101761.
7. Qayyum, Huma, Muhammad Majid, Ehatisham ul Haq, and Syed Muhammad Anwar. "Generation of personalized video summaries by detecting viewer's emotion using electroencephalography." *Journal of Visual Communication and Image Representation* 65 (2019): 102672.
8. Raheel, Aasim, Muhammad Majid, and Syed Muhammad Anwar. "A study on the effects of traditional and olfaction enhanced multimedia on pleasantness classification based on brain activity analysis." *Computers in Biology and Medicine* 114 (2019): 103469.
9. R. Shahzadi, **S. M. Anwar**, F. Qamar, M. Ali, J. J. P. C. Rodrigues and M. Alnowami, "Secure EEG Signal Transmission for Remote Health Monitoring Using Optical Chaos," in *IEEE Access*, vol. 7, pp. 57769-57778, 2019.
10. R. Shahzadi, **S. M. Anwar**, F. Qamar, M. Ali and J. J. P. C. Rodrigues, "Chaos Based Enhanced RC5 Algorithm for Security and Integrity of Clinical Images in Remote Health Monitoring," in *IEEE Access*, vol. 7, pp. 52858-52870, 2019.
11. A. Mehreen, **S. M. Anwar**, M. Haseeb, M. Majid and M. O. Ullah, "A Hybrid Scheme for Drowsiness Detection using Wearable Sensors," in *IEEE Sensors Journal*.
12. Jamil, Afshan, Muhammad Majid, and Syed Muhammad Anwar. "An optimal codebook for content-based image retrieval in JPEG compressed domain." *Arabian Journal for Science and Engineering* 44, no. 11 (2019): 9755-9767.
13. Arsalan, Aamir, Muhammad Majid, Amna Rauf Butt, and Syed Muhammad Anwar. "Classification of Perceived Mental Stress Using A Commercially Available EEG Headband." *IEEE journal of biomedical and health informatics* 23, no. 6 (2019): 2257-2264.
14. Asif, A., Majid, M. and Anwar, S.M., 2019. Human stress classification using EEG signals in response to music tracks. *Computers in Biology and Medicine*. (IF – 2.3)
15. **Syed M. Anwar** et. al. 'Three Tier Fog Networks: Enabling IoT/5G for Latency Sensitive Applications' *China Communications*, 2019 (IF – 1.88)
16. Sanay Saeed, **Syed Muhammad Anwar**, Muhammad Majid, Muhammad Awais and Majdi Alnowami, 'Selection of Neural Oscillatory Features for Human Stress Classification with Single Channel EEG Headset' *BioMed Research International* (IF-2.583)
17. Raheel, A., Anwar, S.M. & Majid, M. 'Emotion recognition in response to traditional and tactile enhanced multimedia using electroencephalography' *Multimedia Tools Appl.* (2018). (IF – 1.54)
18. **Syed Muhammad Anwar** et. al. 'Arrhythmia Classification of ECG Signals Using Hybrid Features', *Computational and Mathematical Methods in Medicine*, 2018 IF: 1.5
19. **Syed Muhammad Anwar** et. al. Medical Image Analysis using Deep Convolutional Neural Networks: A Review. *Journal of Medical Systems*, Oct 2018, (IF: 2.098)
20. Zeeshan, M., Majid, M., Nizami, I.F., Anwar, S.M., Din, I.U. and Khan, M.K., 2018. A Newly Developed Ground Truth Dataset for Visual Saliency in Videos. *IEEE Access*. (IF- 3.34)
21. Tooba Altaf, **Syed Muhammad Anwar**, Nadia Gul, Muhammad Nadeem Majeed, Muhammad Majid, Multi-class Alzheimer's disease classification using image and clinical features, *Biomedical Signal Processing and Control*, Volume 43, May 2018, Pages 64-74 (IF- 2.2)
22. Tayyab Ateeq, Muhammad Nadeem Majeed, **Syed Muhammad Anwar**, Muazzam Maqsood Ensemble-classifiers-assisted detection of cerebral microbleeds in brain MRI, *Computers & Electrical Engineering* (IF- 1.5)

23. Mustaqeem, A., **Anwar, S.M.** and Majid, M., 2018. Multiclass Classification of Cardiac Arrhythmia Using Improved Feature Selection and SVM Invariants. *Computational and Mathematical Methods in Medicine*, 2018. (IF – 0.95)
24. **Syed Muhammad Anwar**, Sanay Muhammad Umar Saeed, Muhammad Majid, Saeeda Usman, Chaudhry Arshad Mehmood, Wei Liu 'A Mobile Game Player Expertise Level Classification System using Electroencephalography (EEG)' *Applied Sciences* **2018**(1) p. 1-15 (IF-1.679)
25. Saddam Hussain, **Syed Muhammad Anwar**, Muhammad Majid, 'Segmentation of Glioma Tumors in Brain Using Deep Convolutional Neural Network' *Neurocomputing*, 2017 (IF- 3.317)
26. Zahid Mahmood, **Syed Muhammad Anwar**, Muhammad Altaf, Nouman Ali, 'A novel image retrieval based on rectangular spatial histograms of visual words' *Kuwait Journal of Science*, 2018 (IF- 0.8)
27. Tehmina Kulsum, **Syed Muhammad Anwar**, Muhammad Majid, Bilal Khan, Muhammad Ali, 'Emotion Recognition from Facial Expressions using Hybrid Feature Descriptors' *IET Image Processing*, (IF- 1.01)
28. Muhammad Majid, Muhammad Owais, **Syed Muhammad Anwar**, 'Visual Saliency based redundancy allocation in HEVC compatible multiple description video coding' DOI: 10.1007/S11042-017-5499-7 (IF- 1.53)
29. Mustaqeem, Anam, **Syed Muhammad Anwar**, Abdul Rashid Khan, and Muhammad Majid. "A statistical analysis based recommender model for heart disease patients." *International Journal of Medical Informatics* 108 (2017): 134-145. (IF-3.2)
30. Adnan Qayyum, **Syed Muhammad Anwar**, Muhammad Awais, Muhammad Majid, Medical image retrieval using deep convolutional neural network, *Neurocomputing*, Volume 266, 2017, Pages 8-20, ISSN 0925-2312 (IF-3.3)
31. SAEED, Sanay, **Syed MUHAMMAD ANWAR**, and Muhammad MAJID. "Quantification of Human Stress using Commercially Available Single Channel EEG Headset." *IEICE Transactions on Information and Systems* (IF: 0.4)
32. Maqsood, M., Habib, H.A., **Anwar, S.M.**, Ghazanfar, M.A. and Nawaz, T., 2017. A Comparative Study of Classifier Based Mispronunciation Detection System for Confusing. *The Nucleus*, 54(2), pp.114-120.
33. N. Shaukat, S.M. Ali, C.A. Mehmood, B. Khan, M. Jawad, U. Farid, Z. Ullah, **S.M. Anwar**, M. Majid, A survey on consumers empowerment, communication technologies, and renewable generation penetration within Smart Grid, *Renewable and Sustainable Energy Reviews*, Available online 16 June 2017, ISSN 1364-0321, <https://doi.org/10.1016/j.rser.2017.05.208> (IF: 8.05)
34. N. Shaukat, B. Khan, S.M. Ali, C.A. Mehmood, J. Khan, U. Farid, M. Majid, **S.M. Anwar**, M. Jawad, Z. Ullah, A survey on electric vehicle transportation within smart grid system, *Renewable and Sustainable Energy Reviews*, Available online 16 June 2017, ISSN 1364-0321, (IF: 8.05)
35. Qayyum, H., Majid, M., **Anwar, S. M.**, & Khan, B. (2017). Facial Expression Recognition Using Stationary Wavelet Transform Features. *Mathematical Problems in Engineering*, 2017 (IF: 0.8).
36. Waqar Uddin, Bilal Khan, Neelofar Shaukat, Muhammad Majid and **Syed Muhammad Anwar**, "Biogas Potential for Electric Power Generation in Pakistan: A Survey", in *Renewable & Sustainable Energy Reviews* Vol. 54, pp. 25-33, February 2016. (IF=8.05)
37. Ali SM, Mehmood CA, Khan B, Jawad M, Farid U, **Syed Muhammad Anwar**. (2016) Stochastic and Statistical Analysis of Utility Revenues and Weather Data Analysis for Consumer Demand Estimation in Smart Grids. *PLOS ONE* 11(6): e0156849. (IF 2.86)
38. Zahid Mehmood, **Syed Muhammad Anwar**, Nouman Ali, Hafiz Adnan Habib, and Muhammad Rashid, "A Novel Image Retrieval Based on a Combination of Local and Global Histograms of Visual Words," *Mathematical Problems in Engineering*, vol. 2016, Article ID 8217250, 12 pages, 2016. (IF: 0.8)
39. Adnan Mehmood Bhatti, Muhammad Majid, **Syed Muhammad Anwar**, Bilal Khan, Human emotion recognition and analysis in response to audio music using brain signals, *Computers in Human Behavior*, Volume 65, December 2016, Pages 267-275. (IF: 3.4)

40. Mudassir Mehmood Ali, **Syed Muhammad Anwar**, Mahrukh Mehmood, Aftab Aslam and Naseer Ahmed, 'Enterprise Based Architecture for Securing Information in Cloud Network' MAGNT Research Report, Vol.3 (9). 2015 PP. 275-280.
41. Asma Shaheen, **Syed Muhammad Anwar** " Feature Extraction and Classification of Epilepsy in Different Seizure Types: A Survey", "Current Medical Imaging Reviews", Vol. 10, No.2, 2014. [IF 0.730]
42. Sobia Arshad, **Syed Muhammad Anwar**, Dynamic Frame Sizing with Grouping Slotted Aloha for UHF RFID Networks. *International Journal of Computer Applications* 62(18):28-33, January 2013. Foundation of Computer Science, New York, USA.
43. Shumaila, **Syed Muhammad Anwar**, Power Efficient and Secure IPV6 Robust Header Compression Technique for Low Power Wireless Personal Area Networks. *International Journal of Computer Applications* 62(18):10-14, January 2013. Foundation of Computer Science, New York, USA.

Book Chapters

44. Arsalan, Aamir, Muhammad Majid, and Syed Muhammad Anwar. "Electroencephalography Based Machine Learning Framework for Anxiety Classification." In *International Conference on Intelligent Technologies and Applications*, pp. 187-197. Springer, Singapore, 2019.
45. Iftikhar, Haseeb, **Syed Muhammad Anwar**, and Muhammad Majid. "A Doctor Recommendation System Using Patient's Satisfaction Analysis." In *International Conference on Intelligent Technologies and Applications*, pp. 201-209. Springer, Singapore, 2019.
46. Anwar, Syed Muhammad, Tooba Altaf, Khola Rafique, Harish RaviPrakash, Hassan Mohy-ud-Din, and Ulas Bagci. "A Survey on Recent Advancements for AI Enabled Radiomics in Neuro-Oncology." arXiv preprint arXiv:1910.07470 (2019). LNCS

Peer Reviewed Conferences

47. **SM Anwar**, GG Cook, MNJ Paley, 'Modelling of neuronal fields for direct MR detection' 17th Annual NMR Symposium Sheffield, March 2008.
48. **SM Anwar**, GG Cook, LS Chow, MNJ Paley, 'Hybrid modelling of axonal magnetic fields for direct MR neuronal detection estimation', 17th Annual Proc. Intl. Soc. Mag. Reson. Med. Hawaii USA, Apr 2009.
49. **SM Anwar**, GG Cook, LS Chow, MNJ Paley, 'Multiple Voxel Axonal Modelling for direct neuronal detection' 15th BC-ISMIRM Annual Meeting, Cardiff UK, Sep 2009.
50. **SM Anwar**, GG Cook, MNJ Paley, 'Modelling various firing delays for direct neuronal detection' 403, ESMRMB 26th Annual Scientific Meeting, Antalya Turkey, 1-3 Oct 2009.
51. **SM Anwar**, GG Cook, MNJ Paley 'A theoretical Direct Neuronal Detection study to estimate percentage local field perturbations' Proc. Intl. Soc. Mag. Reson. Med. 18, Stockholm Sweden, May 2010, pp 3412
52. MNJ Paley, S Reynolds, LS Chow, **SM Anwar**, GG Cook, 'Investigating the Earthworm (Lubricus Terrestris) as a Model for NcMRI at 9.4T' Proc. Intl. Soc. Mag. Reson. Med. 18, Stockholm Sweden, May 2010, pp 3413
53. **SM Anwar**, GG Cook, MNJ Paley, 'Separating noise from neuronal signals using Independent Component Analysis for Direct Neuronal Detection' 16th Annual Meeting BC-ISMIRM, Nottingham, Sep 2010
54. **Anwar, S.M.**; Cook, G.; Paley, M.; , "Modelling of axonal B fields for Direct Neuronal Detection (DND) using MRI," Antennas and Propagation Conference (LAPC), 2010 Loughborough , vol., no., pp.549-552, 8-9 Nov. 2010

55. **Anwar, S.M.**; Cook, G.; Paley, M.; , "Hybridized axonal field model for signal estimation in magnetic resonance imaging," Antennas and Propagation (EUCAP), Proceedings of the 5th European Conference on , vol., no., pp.1300-1303, 11-15 April 2011
56. H. Hilliard, **S. Anwar**, S. Reynolds, G. Cook, M. Paley, "Investigating ncMRI in the human arm using transcutaneous electrical nerve stimulation", BCISMRM, Manchester Sep, 2011.
57. Ruhma Sumbal, Muhammad Majid, **Syed Muhammad Anwar**, Region of interest (ROI) based scalable multiple description image coding using MDSQ-SR, International Conference on Emerging Technologies (ICET), Islamabad, (2013), pp., IEEE
58. **Syed M Anwar**, M Majid et. Al, Mapping Brain Activity using wearable EEG Sensors for mobile applications, 2nd International conference on multimedia and human computer interaction, Prague, Aug 2014
59. Anum Abdul Salam, Usman Akram, **Syed Muhammad Anwar**, 'A Review Analysis on Early Glaucoma Detection Using Structural Features' IEEE IST Sep 2015
60. Salam, Anum Abdul; Akram, M.Usman; Abbas, Sarmad; **Anwar, Syed M.**, "Optic disc localization using local vessel based features and support vector machine," in Bioinformatics and Bioengineering (BIBE), 2015 IEEE 15th International Conference on , vol., no., pp.1-6, 2-4 Nov. 2015
61. Saeed, Sanay Muhammad Umar, **Syed Muhammad Anwar** et al. "Psychological stress measurement using low cost single channel EEG headset." 2015 IEEE International Symposium on Signal Processing and Information Technology (ISSPIT). IEEE, 2015.
62. Salam, A.A., Akram, M.U., Wazir, K., **Anwar, S.M.** and Majid, M., 2015, December. Autonomous Glaucoma detection from fundus image using cup to disc ratio and hybrid features. In 2015 IEEE International Symposium on Signal Processing and Information Technology (ISSPIT) (pp. 370-374). IEEE
63. Aamir Arsalan, Muhammad Majid, **Syed Muhammad Anwar**, 'Panoramic Video Stabilization based on Rotational Damping Filter' IEEE IBCAST, Islamabad, January 2016.
64. A. Raheel, **S. M. Anwar**, M. Majid, B. Khan and Ehatisham-ul-Haq, "Real time text speller based on eye movement classification using wearable EEG sensors," *2016 SAI Computing Conference (SAI)*, London, 2016, pp. 161-164.
65. S. Arshad, M. H. Nazir, **S. M. Anwar**, A. Shahzadi and Z. Anwar, "Optimal enhanced dynamic framed slotted Aloha OEDFSA," *2016 Sixth International Conference on Innovative Computing Technology (INTECH)*, Dublin, 2016, pp. 567-572.
66. **Syed Anwar**, Sanay Saeed and Muhammad Majid, 'Classification of Expert-Novice Level of Mobile Game Players using Electroencephalography' FIT, IEEE, 2016
67. **Syed M. Anwar**, Talha Shahzad, Zunaira Sattar, Rahma Khan, Muhammad Majid, 'A Game Recommender System Using Collaborative Filtering (GAMBIT)' IEEE IBCAST, January 2017
68. **Syed M Anwar**, Fozia Arshad, Muhammad Majid, 'Fast Wavelet based Image Characterization for Content based Medical Image Retrieval' CCODE IEEE March 2017.
69. Saddam Hussain, **Syed Muhammad Anwar**, Muhammad Majid, 'Brain Tumor Segmentation Using Cascaded Deep Convolutional Neural Network' IEEE EMBC July 2017
70. Anam Mustaqeem, **Syed Muhammad Anwar**, 'Wrapper Method for Feature Selection to Classify Cardiac Arrhythmia' IEEE EMBC July 2017
71. Maheen Gul, **Syed Muhammad Anwar** Electrocardiogram Signal Classification to Detect Arrhythmia with Improved Features, IEEE IST October 2017
72. Ammarah Farooq, **Syed Muhammad Anwar**, Muhammad Awais, 'A Deep CNN based Multi-class Classification of Alzheimer's Disease using MRI' IEEE IST October 2017
73. Muhammad Yasir, **Syed Muhammad Anwar**, 'Brain Computer Interface Based Robotic Arm control' IEEE ISC2, China, Sep 2017

74. Ammarah Farooq, **Syed Muhammad Anwar**, 'Artificial Intelligence based Smart Diagnosis of Alzheimer's Disease and Mild Cognitive Impairment', IEEE ISC2, China, Sep 2017.
75. Tooba Altaf, **Syed Muhammad Anwar**, 'Multi-class Alzheimer Disease Classification using Hybrid Features' FTC, Vancouver Canada Nov 2017
76. Mansoor, Z., Ghazanfar, M.A., **Anwar, S.M.**, Alfakeeh, A.S. and Alyoubi, K.H., 2018, April. Pain Prediction in Humans using Human Brain Activity Data. In Companion of the The Web Conference 2018 on The Web Conference 2018 (pp. 359-364). International World Wide Web Conferences Steering Committee.
77. Muhammad Awais Azam, Aeman shahzadi, Asra khalid, **Syed Muhammad Anwar***, Usman Naeem 'Smartphone Based Human Breath Analysis from Respiratory Sounds' 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, HI, USA, July 2018
78. **Syed Anwar***, Sobia Yousaf, Muhammad Majid 'Brain Tumor Segmentation on Multimodal MRI Scans Using EMAP Algorithm' 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, HI, USA, July 2018
79. **Syed Muhammad Anwar** et. al. 'Segmentation of Liver Tumor for Computer Aided Diagnosis' IEEE EMBC IECBES, Malaysia, Dec 2018
80. Ullah, N., S. M. Ali, B. Khan, C. A. Mehmood, S. M. Anwar, M. Majid, U. Farid, M. A. Nawaz, and Z. Ullah. "Energy Efficiency: Digital Signal Processing Interactions Within Smart Grid." In 2019 International Conference on Engineering and Emerging Technologies (ICEET), pp. 1-6. IEEE, 2019.
81. Syed Muhammad Anwar et. al. 'Event Related Potential (ERP) based Lie Detection using a Wearable EEG headset.' IBCAST, 2019
82. Syed Muhammad Anwar et. al. 'Facial Expression Recognition based on Electroencephalography' iCoMET 2019
83. Raheel, Aasim, Muhammad Majid, Syed Muhammad Anwar, and Ulas Bagci. "Emotion Classification in Response to Tactile Enhanced Multimedia using Frequency Domain Features of Brain Signals." In 2019 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), pp. 1201-1204. IEEE, 2019.
84. Arsalan, Aamir, Muhammad Majid, Syed Muhammad Anwar, and Ulas Bagci. "Classification of Perceived Human Stress using Physiological Signals." In 2019 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), pp. 1247-1250. IEEE, 2019.
85. Irmakci, Ismail, Syed Muhammad Anwar, Drew A. Torigian, and Ulas Bagci. "Deep Learning for Musculoskeletal Image Analysis." In 2019 53rd Asilomar Conference on Signals, Systems, and Computers, pp. 1481-1485. IEEE, 2019.