



Dr. Md. Salah Uddin Yusuf
Professor

Research Area 2021_Target Research Area
(Self motivated students are encouraged to take part in the following state of art topics):
Modern Healthcare Monitoring System Signal Processing Power System Analysis and Design Image Processing and Video Coding

Biography

Dr. Md. Salah Uddin Yusuf received his BSc, MSc and PhD degree in Electrical and Electronic Engineering with First Class from Khulna University of Engineering & Technology (KUET) in 2001, 2005 and 2016, respectively. After he obtained the BSc Engineering degree, he joined in the Department of Electrical and Electronic Engineering of KUET as a Lecturer in 2001. Latter on he joined as an Assistant Professor in 2005 and Associate Professor in 2014 respectively. Currently, Dr. Yusuf is serving as a Professor in the same department. He is very active in research activities and published over 40 technical journal and conference papers. In professional activities Dr. Yusuf is a life fellow of Institution of Engineers (IEB), Bangladesh [F-10967] and a regular member of International Association for the Engineers (IAENG) [Member No: 145275]. He is also a member of IEEE (Membership No.94299155). As Sub-Project Manager, he has successfully completed the World Bank funded Higher Education Quality Enhancement Project (HEQEP) through UGC, Bangladesh. He also completed and continuing several research project funded by CASR(KUET) and UGC, Bangladesh. His research interests mainly focus on: Signal/Image and Video Processing, Image/Video Quality Assessment, Face Recognition and Authentication, Power System Analysis.

Education

Doctor of Philosophy in Electrical & Electronic Engineering

Khulna University of Engineering & Technology, Bangladesh(2016) Student Type:Regular,

Thesis Title: [Efficient Mode Selection Scheme for Video Coding](#)

Master's of Science in Electrical and Electronic Engineering

Khulna University of Engineering & Technology, Bangladesh(2005) Student Type:Regular,

Thesis Title: [Numerical Electromagnetic Analysis of Lightning Surge Response on Vertical Conductor](#)

Bachelor of Science in Electrical and Electronic Engineering

Bangladesh Institute of Technology (BIT), Khulna, Bangladesh(2001) Group: EEE, Student Type:Regular,

Thesis Title: Transient Stability Analysis of Multi-Machine System

Higher Secondary School Certificate

Bogra Cantonment Public School and College, Bangladesh(1995) Group: Science, Student Type:Regular, Merit Position: 10th Place in Rajshahi Board,

Secondary School Certificate

Bogra Zilla School, Bangladesh(1993) Group: Science, Student Type:Regular,

Service Records

- **Professor**
Department/Section: Electrical and Electronic Engineering
Khulna University of Engineering & Technology (KUET) From 01-01-1970 to 01-01-1970
- **Associate Professor**
Department/Section: Electrical and Electronic Engineering
Khulna University of Engineering & Technology (KUET) From 01-01-1970 to 01-01-1970
- **Assistant Professor**
Department/Section: Electrical and Electronic Engineering
Khulna University of Engineering & Technology From 01-01-1970 to 01-01-1970
- **Lecturer**
Department/Section: Electrical and Electronic Engineering
Khulna University of Engineering & Technology From 01-01-1970 to 01-01-1970

Research Interest

2021_Target Research Area (Self motivated students are encouraged to take part in the following state of art topics):

(i) Face Liveness Detection and Emotion Analysis (ii) GAN-based Image and Video Generation (iii) Deep Learning based Security Authentication (iv) Human Emotion Analysis and Modeling (V) Human Activity Recognition challenges and their remedies

Modern Healthcare Monitoring System

Design and Implementation of a Hospital Based Modern Healthcare Monitoring System on Android Platform

Signal Processing

EEG, ECG, EMG, EOG signal analysis and interpretation, Heart rate analysis from PPG, Face Liveness recognition and Authentication.

Power System Analysis and Design

Smart Grid and its Impact Analysis, Power System Transient Analysis, Lightning Surge Analysis on Transmission and Communication Tower and Design of Surge Arrester

Image Processing and Video Coding

My recent research interests mainly focus on: Deep Learn based Image and Video Processing, Content-based Video Copy Detection, GAN-based Image and Video Generation, Image/Video Quality Assessment.
Moving Object detection and Identification, Deep Learning based Finger Vein Recognition

Publication

Books

Journals

26. (2023) , " EdgeFall: A Promising Cloud-Edge-End Architecture for Elderly Fall Care," **International Journal of Electrical and Computer Engineering (IJECE)**, vol13, no.4, pp.4721-4733
25. Roy,S. , Islam,M. , Yusuf,M. S. U. and Jahan,N. (September 2022.) , " EEG based stress analysis using rhythm specific spectral feature for video game play," **Computers in Biology and Medicine**, ELSEVIER, vol148, no.105849, pp.1-13
24. (February 2022) , " Faster R-CNN based Traffic Sign Detection and Classification," **WSEAS Transactions on Signal Processing**, vol18, no.1, pp.1-10
23. Fuad,M. S. U. Y. a. A. A. and ,(2021) , " Real Time Implementation of Face Recognition based Smart Attendance System," **WSEAS Transactions on Signal Processing**, vol17, pp.46-56
22. Islam,M. ,Yusuf,M. S. U. and Haque,C. A. (2019) , " Estimate the Activation of EEG Bands from Different Brain Lobes with Classified Music Stimulation," **International Journal of Computer Science and Security**, vol13, no.3, pp.101 - 113
21. Yusuf,M. S. U. , Saad,A. M. , Islam,M. and Haque,C. A. (2019) , " Analysis of Lightning Surge Phenomenon and Surge Arrester Performance of a 400kV Transmission System," **WSEAS Transactions on Power Systems**, vol14, no.11, pp.88-97
20. Islam,M. and Ahmad,M. S. U. Y. a. M. (2019) , " An Approach of Human Emotional States Classification and Modeling from EEG," **International Journal of Computer Science and Security** , vol13, no.3, pp.73 - 89
19. Yusuf,M. S. U. , Hossain,M. I. , Rahman,M. M. , Ahmad,M. and Rashid,N. a. M. A. (2016) , " Probabilty based Fast Inter Mode Decision Algorithm for H.264/AVC," **International Journal of Applied Mathematics & Information Science**, vol10, no.3, pp.1071-1079
18. Islam,M. ,Yusuf,M. S. U. and Ahmad,a. M. (2015) , " Selection of Effective EEG Band for Estimation of Cognitive State while Listening Music ," **International Journal of Electronics Communication and Computer Engineering**, vol6, no.6, pp.1071-1079
17. Yusuf,M. S. U. and Ahmad,M. I. a. M. (2015) , " Fast and Efficient Inter Mode Decision Algorithm for H.264/AVC Encoding Optimization ," **International Journal of Electronics Communication and Computer Engineering**, vol6, no.6, pp.746-751
16. Yusuf,M. S. U. and Ahmad,M. I. a. M. (2015) , " Efficient Search Points Reduction and Ranking of Motion Estimation Algorithms in Video Coding ," **International Journal of Electronics Communication and Computer Engineering**, vol 6, no.6, pp.739-745
15. Islam,M. , Ahmed,T. , Yusuf,M. S. U. and Ahmad,a. M. (2015) , " Cognitive State Estimation By Effective Feature Extraction and Proper Channel Selection of EEG Signal," **Journal of Circuits, Systems, and Computers**, vol24, no.2
14. Yusuf,M. S. , Ahmad,M. , Rashid,M. A. and Goni,a. M. O. (2015) , " Analysis of Lightning Surge Characteristics on Transmission Tower," **Journal of Engineering Letters**, vol23, no.1, pp.29-39
13. (2013) , " A Novel Scanning Scheme for Directional Spatial Prediction of AVS Intra Coding," **International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering**, vol2, no.8, pp.4120-4126
12. (2013) , " A Novel Rate-Based Macroblock Classification for Fast Mode Decisionin H.264 Video Coding," **International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering**, vol2, no.8, pp.4111-4119
11. (2011) , " Relative SAD-based Inter Mode Decision Algorithm for H.264/AVC Video Standard ," **Journal of Multimedia**, vol6, no.5, pp.425-435
10. Po,L. M. , Ng,K. , Cheung,K. , Wong,K. and Ting,Y. M. S. U. a. C. (2009) , " Novel Directional Gradient Descent Searches for Fast Block Motion Estimation," **IEEE Transaction on Circuits and Systems for Video Technology**, vol19, no.8, pp.1189-1195
9. Goni,M. O. , Yusuf,S. , Hossain,M. F. , Rahaman,M. , Kaneko,E. and Takahashi,a. H. (2007) , " Theoretical Simulation and Experimental Investigations of the Surge Response of a Tower Model of Vertical Conductor," **International journal of power and energy system**, vol27, no.1, pp.21-29
8. Goni,O. , Hossain,F. , Yusuf,S. U. , Rahaman,M. and Takahashi,E. K. a. H. (2006) , " Simulation and Experimental Analyses of Electromagnetic Transients Behaviors of Lightning Surge on Vertical Conductors," **IEEE Transactions on Power Delivery** , vol21, no.4, pp.1778-1786
7. Yusuf,M. S. U. ,Hossain,M. and Goni,M. F. H. a. M. O. (2006) , " Lightning Surge Simulation of Vertical Conductor Model of a Tower," **Journal of Electrical Engineering**, vol33, no.I & II, pp.62-68
6. Goni,M. O. , Rahaman,M. M. , Yusuf,M. S. U. , Hossain,M. F. and Takahashi,E. K. a. H. (2005) , " A Consideration for the Return Stroke in a Vertical Conduction Surge Simulation," **Journal of Electrical Engineering**, pp.108-116
5. Rahaman,M. M. ,Goni,M. O. and Hossain,M. S. U. Y. a. M. F. (2005) , " Electromagnetic Transient Program (EMTP) Analysis of Lightning Surge on Vertical Tower," **Journal of Electrical Engineering**, vol32, no.I & II, pp.102-107
4. Hossain,M. F. ,Yusuf,M. S. U. and Goni,a. M. O. (2005) , " Numerical Analysis of Current and Electromagnetic Field Associated with Lightning Strokes to a Tall Tower," **Journal of Electrical Engineering**, vol32, no.I & II, pp.94-101
3. Hossain,M. F. ,Yusuf,M. S. U. and Goni,a. M. O. (2005) , " Numerical Analysis of Current and Electromagnetic Field Associated with Lightning Strokes to a Tall Tower," **Journal of Electrical Engineering**, vol32, no.I & II, pp.78-84
2. Yusuf,M. S. U. and Goni,M. F. H. a. M. O. (2005) , " Electromagnetic Simulation of Lightning Surge on Vertical conductor Model," **Journal of Electrical Engineering**, vol32, no.I & II, pp.72-77
1. Ahmad,M. , YUSUF,M. S. , Chowdhury,M. Z. and Yamada,M. (2004) , " Global Optimization of Optical Flow Technique on the Computation of Tissue-motion in Neonatal Cranial Ultra sonogram," **Journal of Electrical & Electronic Engineering**, vol4, no.1

Conference

43. (August 2022) , "Performance Enhancement of Human Activity Recognition and Fall Related System using Multi-modal Broad Learning System (mBLS)," **Third International Conference on Advances in Physical Sciences and Materials (ICAPSM 2022)**
42. Mondal,S. K. , Islam,M. , Faruque,M. O. and Yusuf,M. S. T. a. M. S. U. , "Efficient Malaria Cell Image Classification using Deep Convolutional Neural Network," **1st International Conference on Information and Communication Technology for Development (ICICTD 2022), Springer , KUET, Khulna, Bangladesh, 29-30 July, 2022**
41. (February, 2022) , "Generating a Visual-Inertial Odometry Dataset based on a Helmet Prototype for Recognizing Human Activities," **2nd International Conference on Advancement in Electrical and Electronic Engineering (ICAEE 2022)**

40. Faruque, M. O., Islam, M. and Yusuf, A. M. S. U., "COVID-19 Outbreak Prediction in the Context of Bangladesh," **International Conference on Data Science and Applications (ICDSA 2021)**
39. , "A Facial Video based Framework to Estimate Physiological Parameters using remote Photoplethysmography," **International Conference on Advances in Electrical, Computing, Communications and Sustainable Technologies (ICAECT2021)**
38. Rohan, T. I., Yusuf, M. S. U., Islam, M. and Roy, S. (2020), "Efficient Approach to Detect Epileptic Seizure using Machine Learning Models for Modern Healthcare System," **IEEE Region 10 Symposium (TENSYP)**
37. Yusuf, M. S. U. and Roy, M. I. a. S. (2019), "Stress Identification during Sustained Mental Task and Brain Relaxation Modeling with $\hat{\mu}$, $\hat{\sigma}$ Band Power Ratio," **4th International Conference on Electrical Information and Communication Technology (EICT)**
36. Hasan, M. M., Yusuf, M. S. U. and Rohan, S. R. a. T. I. (2019), "Efficient two stage approach to detect face liveness : Motion based and Deep learning based," **4th International Conference on Electrical Information and Communication Technology (EICT)**
35. Roy, S., Yusuf, M. S. U., Islam, M. and Rohan, T. I. (2019), "Age based Mood Swing Analysis and Brain Mapping for Music Genre," **5th International Conference on Advances in Electrical Engineering (ICAEE 2019)**
34. Roy, S., Islam, M. and Rohan, M. S. U. Y. a. T. I. (August 2019), "Frequency Impact Analysis with Music Evoked Stimulated Potentials on Human Brain," **8th International Conference on Innovations in Electronics & Communication Engineering (ICIECE)**
33. Sagar, S. B. and Yusuf, M. I. a. M. S. U. (July 11~12, 2019. (Best Paper Award)), "Design and Implementation of a Hospital Based Modern Healthcare Monitoring System on Android Platform," **International Conference on Computer, Communication, Chemical, Material and Electronic Engineering (IC4ME2-2019)**
32. Haque, C. A., Islam, M. and Saad, M. U. Y. a. M. (July 11~12, 2019), "Music Evoked Brain Lobe Activation Using Spectral Features from EEG," **International Conference on Computer, Communication, Chemical, Material and Electronic Engineering (IC4ME2-2019)**
31. Rohan, T. I., Rahman, A., Siddik, A. B. and Yusuf, M. I. a. M. S. U. (July 11~12, 2019), "A Precise Breast Cancer Detection Approach Using Ensemble of Random Forest with AdaBoost (Accepted)," **International Conference on Computer, Communication, Chemical, Material and Electronic Engineering (IC4ME2-2019)**
30. Haque, C. A., Islam, M. and Yusuf, A. M. S. a. M. S. U. (7-9 February, 2019), "An Approach to Estimate the Activation of Different Bands of EEG Signal using Classified Songs," **2nd International Conference on Electrical, Computer and Communication Engineering (ECCE)**,
29. Islam, M., Biswas, T., Saad, A. M. and Yusuf, C. A. H. a. M. S. U. (2018), "A Non-Invasive Heart Rate Estimation Approach from Photoplethysmography," **International Joint Conference on Computational Intelligence (IJCCI 2018)**, Springer Nature
28. Mamun, M. R., Nazi, Z. A. and Yusuf, M. S. U. (2018), "Bangla Handwritten Digit Recognition Approach with an Ensemble of Deep Residual Networks," **International Conference on Bangla Speech and Language Processing (ICBSLP)**
22. (2018), "Adaptive Scanning Scheme for Improving Intra Prediction Performance in H.264/AVC," **International Conference on Electrical, Electronic, Computers, Communication, Mechanical and Computing (EECCMC)**
21. Islam, M., Ashikuzzaman, M., Tabassum, T., Yusuf, M. S. U. and (2017), "A Non-Invasive Technique of Early Heart Diseases Prediction from Photoplethysmography Signal," **3rd International Conference on Electrical Information and Communication Technology (EICT)**
21. (2018), "Assessment of Cognitive Thinking Capabilities from Changes of EEG Bands during Cognitive Loading," **International Conference on Electrical, Electronic, Computers, Communication, Mechanical and Computing (EECCMC)**
19. Islam, M. Z. and Yusuf, M. R. R. a. M. S. U. (2017), "ATP-EMTP Modelling and Performance Test of Different Lightning Arrester on 132kV Transmission Tower," **3rd International Conference on Electrical Information and Communication Technology (EICT)**
18. (2017), "ATP Analysis of Direct Lightning Strike on a Telecommunication Tower Suited over Multi-storied Building," **ICECCE**
17. (2017), "Analysis of Direct and Induced Effect of Lightning Surge on Electric Equipment Inside Multi-storied Building," **ICERIE**
16. (2017), "Power Quality Improvement of Transmission Line using DVR and Analysis of Total Harmonic Distortion," **ICERIE**
14. (2015), "An Efficient Inter Mode Decision Algorithm for H.264/AVC Encoding Optimization," **Proceedings of 2nd International Conference on Electrical Engineering and Information & Communication Technology**
13. Hossain, M. A. and Yusuf, M. A. a. M. S. U. (2014), "Clinical engineering professional generation by interfacing public universities and health sectors of Bangladesh," **International Forum on Strategic Technology (IFOST)**, pp.40- 43
13. Yusuf, M. S. U. and Ahmad, M. Z. I. a. M. (2014), "Analysis of Lightning Surge Characteristics for Transmission Towers," **Proceedings of the International Forum of Strategic Technology (IFOST)**
13. Islam, M. and Yusuf, M. A. a. M. S. U. (2015), "An Approach to Estimate Cognitive State with the Impact of Listening Music on Brain Activity," **Proceedings of 2nd International Conf. on Electrical Information and Communication Technology**
13. Islam, M., Ahmad, M. and Ahmed, M. S. U. Y. a. T. (2015), "Mathematical Modeling of Human Emotions Using Sub-band Coefficients of Wavelet Analysis," **Proceedings of 2nd International Conference on Electrical Engineering and Information & Communication Technology**
12. Yusuf, M. S. U. and Ahmad, M. I. H. a. M. (2014), "Probability Based Fast Inter Mode Decision Algorithm for H.264/AVC Video Standard," **Proceedings of the International Forum of Strategic Technology**
11. Islam, M., Ahmed, T. and Ahmad, M. S. U. Y. a. M. (2014), "Channel Selection and Feature Extraction for Cognitive State Estimation with the Variation of Brain Signal," **Proceedings of International Conference on Electrical Information and Communication Technology**
10. Islam, M., Ahmed, T., Mostafa, S. S. and Ahmad, M. S. U. Y. a. M. (2013), "Human Emotion Recognition using Frequency & Statistical Measures of EEG Signal," **Proceedings of International Conference on Informatics, Electronics & Vision**
9. Ahmed, T., Islam, M. and Ahmad, M. S. U. Y. a. M. (2013), "Wavelet Based Analysis of EEG Signal for Evaluating Mental Behavior," **Proceedings of International Conference on Informatics, Electronics & Vision**
8. Rahman, M. H., Jhumur, F., Yusuf, M. S. U., Das, T. and Ahmad, M. (2012), "An Efficient Face Detection in Color Images Using Eye Mouth Triangular Approach," **IEEE/OSA/IAPR International Conference on Informatics, Electronics & Vision**
7. (2011), "A Novel Rate-Based Macroblock Classification for Fast Mode Decision in H.264 Video Coding," **Proceedings of 14th International Conference on Computer and Information Technology**
6. (2010), "A New Z-Scanning Scheme for Directional Spatial Prediction of AVS Intra Coding," **Proceedings of 13th International Conference on Computer and Information Technology**, pp.247-251
5. Wang, L., Po, L. M., Uddin, Y. M. S. and Li, K. M. W. a. S. (2009), "A Novel Weighted Cross Prediction for H.264 Intra Coding," **Proceeding of 2009 International conference on Multimedia and EXPO**, pp.165-168
4. Po, L. M., Uddin, Y. M. S. and Wang, K. G. a. L. (2008), "Compensated Sum of Absolute Difference for Fast H.264 Inter Mode Selection," **Proceeding of 2008 International Conference on Audio Language and Image Processing**
3. Hossain, M. F. and Goni, M. S. U. Y. a. M. O. (2006), "Numerical Electromagnetic Analysis of Lightning Current in Elevated Strike Object," **4th International Conference on Electrical & Computer Engineering**, pp.548-551
2. Yusuf, M. S. U. and Goni, M. F. H. a. M. O. (2004), "Electromagnetic Simulation of a Lightning Surge on a Vertical Conductor Model," **3rd International Conference on Electrical & Computer Engineering**, pp.163-166
1. Faruk, M. S., Islam, M. N. and Ghosh, M. S. U. Y. & B. (2003), "PC Based Real-time Estimator of Induction Motors Rotor Time Constant Identification," **Proceedings of the The International Conference on Electrical, Electronics and Computer Engineering**, pp.182-186