ICAICT 2020
2nd Int'l Conference on Advanced Information & Communication Technology
United International University, Dhaka, Bangladesh
28 – 29 November, 2020

Technical Co-Sponsor:
IEEE IEEE Bangladesh Section
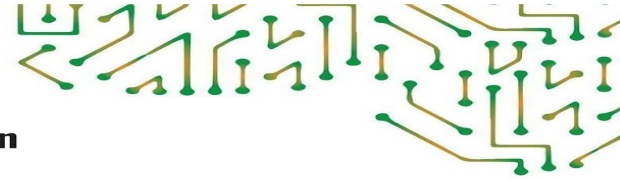
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IEEE ICAICT-2020 PROGRAMME SCHEDULE

All times given in **Bangladesh Standard Time (GMT +6 hours)

	Program	Time
DAY 1, SATURDAY NOVEMBER 28, 2020		
Zoom ID: https://bdren.zoom.us/j/63719478774	**Opening Ceremony** **Chief Guest:** Prof. Dr. Md. Sazzad Hossain, Honorable Member, UGC **Special Guest**: Moinuddin Hasan Rashid, Chairman & Managing Director, United Group **Special Guest**: Prof. Dr. Celia Shahnaz, Chair IEEE Bangladesh Section **Chairperson** : Prof. Dr. Chowdhury Mofizur Rahman, VC, UIU	10:00 – 11:00
Session Chair: Prof. Dr. AFM Saiful Amin, Dept. of Civil Engg., BUET		
Zoom ID: https://bdren.zoom.us/j/63719478774	**Keynote-1**: Professor Kai Sang LOCK, Singapore Institute of Technology, Singapore **Title:** Ethics and Sustainability Education in Information and Communication Technology Programmes	11:00 – 11:45
	Break	11:45 – 12:00
Session 1A: Biomedical Engineering and Health Informatics	**Session 1B:** Communication	12:00 – 1:15
Session Chair: Prof. Dr. Shamim Ahmed, RU, Bangladesh	**Session Chair**: Prof. Dr. Monir Hossen, KUET, Bangladesh **Co-Chair:** Dr. Mahdi Zareei, Tecnológico de Monterrey, Mexico	
Paper ID: 23, 53, 120, 124, 77	**Paper ID:** 49, 73, 80, 207, 312	
Lunch and Prayer Break		1:15 – 2:00

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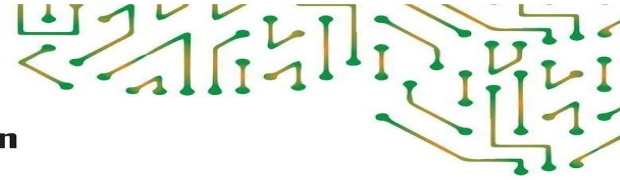United International University, Dhaka, Bangladesh
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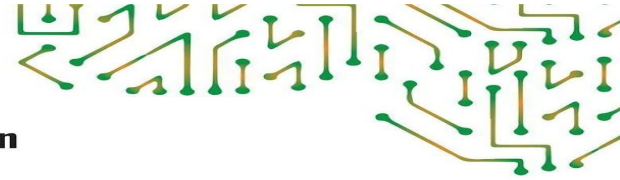Technical Co-Sponsor: IEEE, IEEE Bangladesh Section

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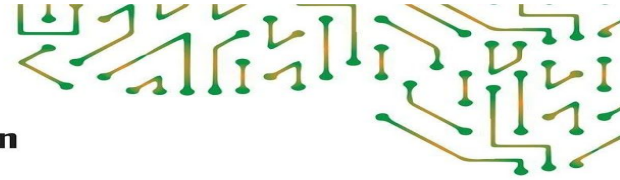|		
Session Chair: Prof. Dr. Raqibul Mostafa, UIU, Bangladesh		
Zoom ID: https://bdren.zoom.us/j/63719478774	**Invited Talk – 1** Assoc. Prof. Dr. Takeshi Higashino, NAIST, Japan	02:00 – 02:30
Session 2A: Biomedical Engineering and Health Informatics	**Session 2B:** Communication	02:30 – 04:00
Session Chair: Assoc. Prof. Dr. Md Kafiul Islam, IUB, Bangladesh	**Session Chair:** Dr. Nafees Mansoor, ULAB, Bangladesh	
Paper ID: 140, 276, 221, 304, 320, 392	**Paper ID:** 269, 270, 274, 308, 310	
Break		04:00 – 04:30
Session 3A: Bioinformatics, Biomedical Engineering	**Session 3B:** IoT and Smart Community	04:30 – 06:00
Session Chair: Prof. Dr. Khondaker Abdullah-Al-Mamun, UIU **Co-Chair:** Dr. Ishtiak Al Mamoon, PU	**Session Chair:** Dr. Jia Uddin, Woosong University, Daejeon, South Korea	
Paper ID: 58, 159, 240, 272, 342	**Paper ID:** 34, 74, 84, 94, 239	
Prayer Break		5:15 – 5:30
Session Chair: Prof. Dr. Mohammad Nurul Huda, UIU, Bangladesh		
ICAICT 2020 Technical Feedback Session **Zoom ID:** https://bdren.zoom.us/j/63719478774 **Presenter :** Prof. Dr. Shaikh Anowarul Fattah, BUET **Panelist :** Prof. Dr. Salekul Islam, UIU Prof. Dr. A.K.M. Muzahidul Islam, UIU Assoc. Prof. Dr. Swakkhar Shatabda, UIU		06:00 – 07:00
Session 4A: IoT and Smart Community	**Session 4B:** AI, ML, Data Science and Algorithms	07:00 – 08:45
Session Chair: Dr. Moh A. Razzaque, Teesside University, UK **Co-Chair:** Dr. Amitabha Chakrabarty, BRACU	**Session Chair:** Assoc. Prof. Dr. Sifat Momen, NSU, Bangladesh **Co-Chair**: Assoc. Prof. Dr. ASM Shihavuddin, GUB, Bangladesh	
Paper ID: 332, 357, 362, 261, 267, 290, 315	**Paper ID:** 387, 431, 335, 303, 339, 351, 296	

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DAY 2, SUNDAY NOVEMBER 29, 2020		
	Program	**Time**
Session Chair: Prof. Dr. Rezwan Khan, UIU, Bangladesh		
Zoom ID: https://bdren.zoom.us/j/69683262608	**Keynote-2** Prof. Dr. Saifur Rahman, Virginia Tech, USA **Title:** Energy Efficiency in Smart Buildings through IoT Sensor Integration	09:30 – 10:15
Session Chair: Prof. Dr. Md. Abdur Razzaque, GUB, Bangladesh		
Zoom ID: https://bdren.zoom.us/j/69683262608	**Invited Talk - 2:** Assoc. Professor Dr. Md. Yusuf Sarwar Uddin, University of Missouri, Kansas City, USA	10:15 – 10:45
Session 5A: Power Electronics, Nano and Semiconductor Technology	**Session 5B:** Antenna and Propagation & Communication, 5g, Security	10:45 – 11:45
Session Chair: Prof. Dr. Abdur Razzak, IUB **Co-Chair:** Dr. Rasheduzzaman, ULAB	**Session Chair:** Prof. Dr. Md. Anwar Hossain, BUBT, Bangladesh **Co-chair:** Assoc. Prof. Dr. Md. Azad Hossain, CUET	
Paper ID: 78, 104, 106, 135	**Paper ID:** 33, 236, 307, 394	
Break		11:45 – 12:00
Reserved for IEEE Bangladesh Section **Zoom ID:** https://bdren.zoom.us/j/69683262608		12:00 – 12:30
Session 6A: Power Electronics, Nano and Semiconductor Technology	**Session 6B:** Natural Language Processing (NLP)	12:30 – 01:30
Session Chair: Assoc. Prof. Dr. Mostafa Habib Chowdhury, IUB, Bangladesh	**Session Chair:** Prof. Dr. Moshiul , CUET **Co-Chair:** Dr. Nabeel Mohameed, NSU	
Paper ID: 262, 138, 217, 225	**Paper ID:** 101, 321, 144, 163	
Break		01:30 – 02:15
Reserved for IEEE Bangladesh Section **Zoom ID:** https://bdren.zoom.us/j/69683262608		02:15 – 02:45
Session 7A: Power Electronics, Nano and Semiconductor Technology	**Session 7B:** Computer Vision and Pattern Recognition & Algorithms	02:45 – 04:15

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Session Chair: Prof. Dr. Mofazzal Hossain, ULAB, Bangladesh	**Session Chair:** Dr. Md. Zia Ullah, CNRS, France **Co-Chair:** Dr. Abu Nowshed Chy, CU	
Paper ID: 419, 286, 292, 301, 314, 317	**Paper ID:** 76, 150, 385, 390, 216	
Session Chair: Prof. Dr. Salekul Islam, UIU		
Tutorial on Blockchain Applications **Facilitator:** Atique-e-Rabbani, Managing Director, The Computers Ltd **Zoom ID:** https://bdren.zoom.us/j/69683262608		04:15 – 05:15
Prayer Break		5:15 – 5:30
Session 8A: Power Electronics, Nano and Semiconductor Technology & Robotics	**Session 8B:** Cyber, Cloud Computer and Network Security	05:30 – 07:15
Session Chair: Dr. Sadid Muneer, UIU	**Session Chair:** Assoc. Prof. Dr. Shahriar Rahman, ULAB **Co-Chair:** Mohammad Mamun Elahi, UIU	
Paper ID: 328, 333, 380, 417, 125, 226	**Paper ID:** 72, 126, 178, 285, 338, 372, 252	
Session 9A: Smart Community	**Session 9B:** Human Computer Interaction	07:15 – 08:15
Session Chair: Prof. Dr. Touhidur Rahman, MIST	**Session Chair:** Prof. Dr. Alim Al Razi, BUET	
Paper ID: 215, 228, 287	**Paper ID:** 167, 306, 331	
Session Chair: Prof. Dr. Hasan Sarwar, UIU, Bangladesh		
Zoom ID: https://bdren.zoom.us/j/69683262608	**Keynote – 3** Prof. Dr. Mohammad S. Alam, Texas A&M University – Kingsville, USA **Title:** Remote Sensing Based Oil Spill Detection and Mitigation	08:15 – 09:00
Zoom ID: https://bdren.zoom.us/j/69683262608	**Closing Ceremony** Principal Tamiz Uddin Ahmed Best Paper Award Ceremony **Chief Guest**: Prof. Dr. Rezwan Khan, UIU	09:00 – 09:30
	END	

TENTATIVE PRESENTATION SCHEDULE

DAY 1, SATURDAY NOVEMBER 28, 2020

Session: 1A Time: 12:00 -01:15 Zoom ID: https://bdren.zoom.us/j/64010688648

Session Chair: Prof. Dr. Shamim Ahmed, RU, Bangladesh

Scope: Biomedical Engineering and Health Informatics

Paper ID	Titles
23	Investigation on High Frequency Based Ultrasound Tissue Therapy by Finite Element Method
53	An Effective Diabetes Prediction System Using Machine Learning Techniques
120	Non-subsampled Shearlet Entropy and Logistic Regression Based Multiple Sclerosis Detection
124	Prediction of Liver Disorders using Machine Learning Algorithms: A Comparative Study
77	Optimization of Surface Plasmon Resonance Biosensor for Analysis of Lipid Molecules

Session: 1B Time: 12:00 -01:15 Zoom ID: https://bdren.zoom.us/j/65681310801

Session Chair: Prof. Dr. Monir Hossen, KUET, Bangladesh
Co-Chair: Dr. Mahdi Zareei, Tecnológico de Monterrey, Mexico

Scope: Communication

Paper ID	Titles
49	Effective Pitch Estimation using Canonical Correlation Analysis
73	Sensing of Illicit Drugs and Toxic Chemicals in Terahertz Region using Photonic Crystal Fiber
80	Low Loss Nested Hollow Core Antiresonant Fiber
207	Simultaneous Computation of Two Input Arithmetic Logic Operation Based on Polarized Optical Shadow Casting Method

312	Performance of Fiber Optic MW-OCDMA System in Presence of XPM Effect

Session: 2A Time: 02:30 -04:00 Zoom ID: https://bdren.zoom.us/j/64010688648

Session Chair: Assoc. Prof. Dr. Md Kafiul Islam, IUB, Bangladesh

Scope: Biomedical Engineering and Health Informatics

Paper ID	Titles
140	ECG Heartbeat Classification Using Ensemble of Efficient Machine Learning Approaches on Imbalanced Datasets
276	Sensor-Based Human Activity Recognition: A Comparative Study of Machine Learning Techniques
221	Remote ECG Monitoring and Syncope Detection System Using Deep Learning
304	Analysis of the Effect of Atherosclerosis with the Changes of Hematocrit: A Computational Study on the Hemodynamics of Carotid Artery
320	Classification for the P300-based Brain Computer Interface (BCI)
392	EEG-based Cognitive Load assessment in Matlab GUI and impact on Learning System

Session: 2B Time: 02:30 -04:00 Zoom ID: https://bdren.zoom.us/j/65681310801

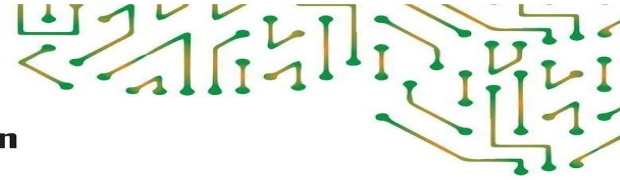Session Chair: Dr. Nafees Mansoor, ULAB, Bangladesh

Scope: Communication

Paper ID	Titles
269	Performance Investigation of Phaseover-sampler based Hybrid Beamformer for mmWave Massive MIMO Systems
270	Deep Learning Enabled Joint Adaptive Compressive Channel Sensing and Hybrid Beamforming for mmWave Cellular Systems
274	Convolutional Neural Network Based Optimization Approach for Wireless Resource Management
308	Parked Car-based Clustering Hierarchy in Vehicular Ad Hoc Network for Energy Efficiency
310	Central Lane-based Life Time Routing Protocol in Vehicular Ad Hoc Network

Session: 3A Time: 04:30 -06:00 Zoom ID: https://bdren.zoom.us/j/64010688648

Session Chair: Prof. Dr. Khondaker Abdullah-Al-Mamun, UIU
Co-Chair: Dr. Ishtiak Al Mamoon, PU

Scope: Bio Informatics, Biomedical Engineering	
Paper ID	**Titles**
58	Comparative Study of Machine Learning Approaches on Diagnosing Breast Cancer for Two Different Dataset
159	A Comparative Study of Tuberculosis Detection Using Deep Convolutional Neural Network
240	A simplistic approach to design a prototype of smart home for the activation of home appliances based on Electrooculography(EOG)
272	IRIS-PUPIL THICKNESS BASED BIOMETRIC APPROACH FOR DETERMINING AGE GROUP USING LINEAR SVM
342	Evaluating and Enhancing the Performance of Skin Disease Classification Based on Ensemble Methods

Session: 3B Time: 04:30 – 06:00 Zoom ID: https://bdren.zoom.us/j/65681310801

Session Chair: Dr. Jia Uddin, Woosong University, Daejeon, South Korea

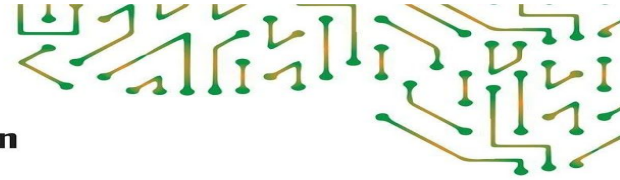| Scope: IoT and Smart Community	
Paper ID	**Titles**
34	IoT based Low Cost Gas Leakage, Fire and Temperature Detection System with Call Facilities
74	A Cost-Effective Multisensor Based Framework to Assist Visually Disable Person
84	Health Monitoring of Expecting Mothers using Multiple Sensor Approach: "Preg Care"
94	IoT Based Medical Assistant for Efficient Monitoring of Patients in Response to COVID-19
239	IoT based Smart Weather Monitoring System for Poultry Farm

Session: 4A Time: 07:00 – 08:45 Zoom ID: https://bdren.zoom.us/j/64010688648

Session Chair: Dr. Moh A. Razzaque, Teesside University, UK
Co-Chair: Dr. Amitabha Chakrabarty, BRACU

Scope: IoT and Smart Community	
Paper ID	**Titles**
332	Iot Based Smart Inhaler For Context-Aware Service Provisioning
357	6LoWPAN Based Futuristic Smart Architecture for Home Automation
362	An Integrated Radiation Estimation System in Health Facilities to Identify Potential Health Risks

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Paper ID	Titles
261	A Low Cost Automated Fluid Monitoring and Controlling System for Intravenous Treatment
267	Instance Segmentation of Visible Cloud Images Based on Mask R-CNN Applying Transfer Learning Approach
290	A Data Enhancement Approach to Improve Machine Learning Performance for Predicting Health Status Using Remote Healthcare Data
315	Demand Side Residential Load Management System for Minimizing Energy Consumption Cost and Reducing Peak Demand in Smart Grid

Session: 4B Time: 07:00 – 08:45 Zoom ID: https://bdren.zoom.us/j/65681310801

Session Chair: Assoc. Prof. Dr. Sifat Momen, NSU, Bangladesh
Co-Chair: Assoc. Prof. Dr. ASM Shihavuddin, GUB, Bangladesh

Scope: AI, ML, Data Science and Algorithms

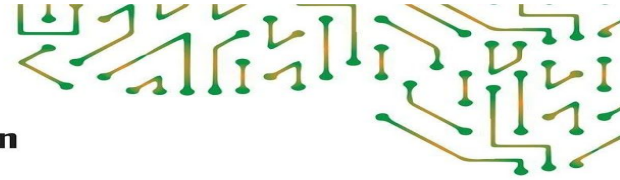| Paper ID	Titles
387	A data change rule based empirical framework for labeling unlabeled time series driving data
431	Classification of Bearing Fault Using Radial Basis Neural Network and Genetic Algorithm
335	An Extensive Analysis of the Effect of Social Distancing in Transmission of COVID19 in Bangladesh by the Aid of a Modified SEIRD Model
303	A Data Selection Methodology to Train Linear Regression Model to Predict Bitcoin Price
339	Classification of Sign Language Characters by Applying a Deep Convolutional Neural Network
351	Comparative Study of Deep Learning-based Finger Vein Biometric Authentication Systems
296	Intelligent System for Predicting Suicidal Behaviour from Social Media and Health Data

DAY 2, SUNDAY NOVEMBER 29, 2020

Session: 5A Time: 10:45 – 11:45 Zoom ID: https://bdren.zoom.us/j/68440753708

Session Chair: Prof. Dr. Abdur Razzak, IUB
Co-Chair: Dr. Rasheduzzaman, ULAB, Bangladesh

Scope: Power Electronics, Nano and Semiconductor Technology

Paper ID	Titles

78	Loss Reduction and Voltage Profile Renovation with Optimum Sizing and Siting of Distributed Generation in Distribution Network
104	Characterization of stiffness of microparticle trapped in dielectrophoreticmicrofluidic device
106	Determination of crystallite parameters of ZnO nanoparticles based on annealing temperature
135	Wearable Multifunctional Computer Mouse Based on EMG and Gyro for Amputees

Session: 5B Time: 10:45 – 11:45 Zoom ID: https://bdren.zoom.us/j/62254943105

Session Chair: Prof. Dr. Md. Anwar Hossain, BUBT, Bangladesh
Co-chair: Assoc. Prof. Dr. Md. Azad Hossain, CUET

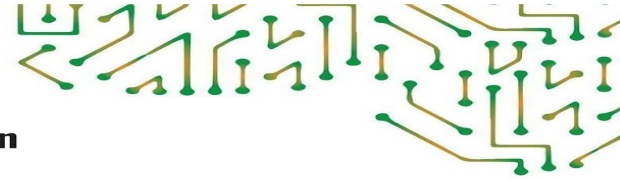### Scope: Antenna and Propagation & Communication, 5g, Security

Paper ID	Titles
33	Design of a Slot Loaded Microstrip Patch Antenna for both C-band and Xband applications
236	Design and Analysis of a Miniaturized Ku-Band Corrugated Conical Horn Antenna for Satellite Applications
307	Design of a Compact Triple-Band Patch Antenna for Bluetooth, ZigBee, Wi-Fi and WUSB Technology
394	An area efficient low power Phase-Frequency Detector for PLL Applications

Session: 6A Time: 12:30 – 01:30 Zoom ID: https://bdren.zoom.us/j/68440753708

Session Chair: Assoc. Prof. Dr. Mostafa Habib Chowdhury, IUB, Bangladesh

Scope: Power Electronics, Nano and Semiconductor Technology

Paper ID	Titles
262	Harmonic Distortion Reduction of Transformerless Inverter's Output Voltage Using 5-Level Single-Phase Inverter and LCL Filter
138	Design and Feasibility Analysis of Hybrid Renewable Power System Connected to Grid in Maheshkhali Island, Bangladesh
217	Performance Comparison of Asymmetric Seven Level Inverter for Solar Photovoltaic Systems
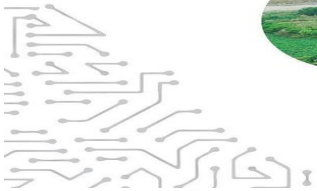
225	Electronic Band Structure of Group IV 2D Materials: Graphene, Silicene, Germanene, Stanene using Tight Binding Approach

Session: 6B Time: 12:30 – 01:30 Zoom ID: https://bdren.zoom.us/j/62254943105

Session Chair: Prof. Dr. Moshiul , CUET
Co-Chair: Dr. Nabeel Mohameed, NSU

Scope: Natural Language Processing (NLP)

Paper ID	Titles
101	Detecting Emotion of Users' Analyzing Social Media Bengali Comments Using Deep Learning Techniques
321	Analysis of Social Media Data to Classify and Detect Problems People are Facing Frequently with Machine Learning Approach: Bangladesh Perspective
144	Performance Comparison of Different Convolutional Neural Network Architectures for Plant Seedling Classification
163	Word Completion and Sequence Prediction in Bangla Language Using Trie and a Hybrid Approach of Sequential LSTM and N-gram

Session: 7A Time: 02:45 – 04:15 Zoom ID: https://bdren.zoom.us/j/68440753708

Session Chair: Prof. Dr. Mofazzal Hossain, ULAB, Bangladesh

Scope: Power Electronics, Nano and Semiconductor Technology

Paper ID	Titles
419	Enhancement of Subthreshold Performance by Introducing Hetero Dielectric in Double Gate PNPN Tunnel FET
286	A study of Cesium Titanium Bromide based perovskite solar cell with different Hole and Electron transport materials
292	Charge-voltage and capacitance-voltage characterizations of monolayer MoS2-based DG n-TFET
301	High-Efficiency Single Phase Passive LC3 Component AC-DC Buck Boost Converter
314	Use of Bowtie-shaped Nano apertures and Spherical Plasmonic Metal Nanoparticles to Improve the Optoelectronic Performance of Thin-film Solar Cells

317	Novel SPR biosensor with Simple PCF Structure of Hexagonal Lattice Operating in Near-IR

Session: 7B Time: 02:45 – 04:15 Zoom ID: https://bdren.zoom.us/j/62254943105

Session Chair: Dr. Md. Zia Ullah, CNRS, France
Co-Chair: Dr. Abu Nowshed Chy, CU

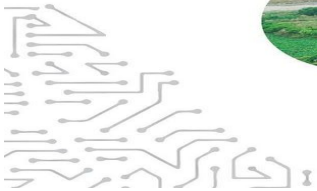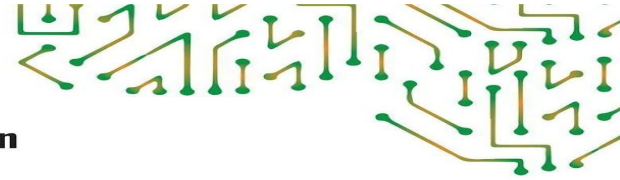### Scope: Computer Vision and Pattern Recognition & Algorithms

Paper ID	Titles
76	3D bone shape reconstruction from 2D X-ray images using MED Generative Adversarial Network
150	Bangla Handwritten Character Recognition Using Deep Convolutional Autoencoder Neural Network
385	LULC classification by semantic segmentation of satellite images using FastFCN
390	An Automated Approach to White Blood Cell Classification Using a Lightweight Convolutional Neural Network
216	4-bit Wallace and Dadda Multiplier design using novel hybrid 3-2 Counter

Session: 8A Time: 05:30 – 7:15 Zoom ID: https://bdren.zoom.us/j/68440753708

Session Chair: Dr. Sadid Muneer, UIU

Scope: Power Electronics, Nano and Semiconductor Technology & Robotics

| Paper ID	Titles
328	Investigation of the Carrier Dynamics and Electrical Pumping Behavior of InAs/GaAs Quantum Dot Lasers
333	Influence of Particle Shape on the Ability of Plasmonic Metal CoreSilica Shell Nanoparticles Embedded within the Absorbing Layer to Enhance the Optoelectronic Performance of Thin-Film Solar Cells
380	Implementing Demand Response in The Residential Energy System to Solve Duck Curve Problem
417	Voltage Sag Compensation in Distribution System Using Dynamic Voltage Restorer
125	Human Robot Interaction System for Behavioral Improvement of Autistic Children

226	Designing A Prototype of Wheelchair and Fall Detection System Using Mobile Application

Session: 8B Time: 05:30 – 07:15 Zoom ID: https://bdren.zoom.us/j/62254943105

Session Chair: Assoc. Prof. Dr. Shahriar Rahman, ULAB
Co-Chair: Mohammad Mamun Elahi, UIU

Scope: Cyber, Cloud Computer and Network Security

72	Permission-Based Blockchain with Proof of Authority for Secured Healthcare Data Sharing
126	An Approach to Mitigate Composition Attacks on Privacy in Noncoordinated Environments
178	Design of an Automated Vehicle Speed Detector and Surveillance System for Bangladesh
285	Secure Smart National Identity Card Management Design using Blockchain
338	Performance Analysis of Steganography Tools
372	DistB-CVS: A Distributed Secure Blockchain based Online Certificate Verification System from Bangladesh Perspective
252	A Model for Automatic Partial Evaluation of SQL Queries

Session: 9A Time: 07:15 – 08:15 Zoom ID: https://bdren.zoom.us/j/68440753708
Session Chair: Prof. Dr. Touhidur Rahman, MIST

Scope: Smart Community

Paper ID	Titles
215	Energy Harvesting Technology from Human Motion
228	River Water Quality Analysis and Prediction Using GBM
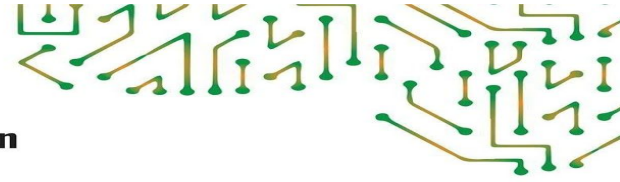
287	Analysis of the Morphological Changes of the River Padma Along Naria Upazila through Supervised Classification of Satellite Images

Session: 9B Time: 07:15 – 08:15 Zoom ID: https://bdren.zoom.us/j/62254943105
Session Chair: Prof. Dr. Alim Al Razi
Scope: Human Computer Interaction

Paper ID	Titles
167	Predictive Analysis of the Effects of Personality Traits on an Academic Program
306	Smoothness Priority Approach Based Epileptic Seizure Classification Using ANN
331	BlinkFruity: A Real-Time EEG Based Neurofeedback Game for Brain-Computer Interface