



2nd International Conference on Trends in Computational and Cognitive Engineering

Organized by



2nd International Conference on Trends in Computational & Cognitive Engineering 2020



Institute of Information Technology Jahangirnagar University, Dhaka, Bangladesh

CONFERENCE PROGRAM

Publication Partner



Technical Support



17-18 December 2020

Institute of Information Technology
Jahangirnagar University, Dhaka, Bangladesh



Support Partner



PROGRAM AT A GLANCE

Time Zone: Dhaka (GMT+6.00)
Mode: Hybrid (Virtual and Limited Physical)

17 December 2020

09:15~09:30	Participants entry into Zoom link
09:30~10:00	Inauguration
10.15~11.45	Keynote-1 and Keynote-2
11:45~13:15	Technical Session 1 (A and B)
13.15~14.00	Break
14:00~15.30	Keynote-3 and Keynote-4
15:30~17.00	Technical Session 2 (A, B, C)

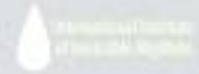
18 December 2020

09:30~11:00	Technical Session 3 (A, B and C)
11.15~12.45	Keynote-5 and Keynote-6
12:45~14:00	Break
14.00~15.30	Tutorial and Technical Session 4 (A and B)
15:45~17.15	Keynote-7 and Keynote-8
17:20~18.00	Closing and Prize Giving

17-18 December 2020



Institute of Information Technology
Jahangirnagar University, Dhaka, Bangladesh



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DETAIL PROGRAM

17 December 2020

Inauguration ceremony

Zoom link:

9:15--10:00	<p>Inauguration</p> <p>Welcome speech by Organizing Chair</p> <p>Speech by General Co-Chair 1</p> <p>Speech by General Co-Chair 2</p> <p>Speech by UGC Chairman/Member</p> <p>Speech by Honorable Education Minister</p> <p>Speech by Honorable VC</p>
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Keynote Session 1

Session Chair:

Prof Dr. Jalil Ali, Universiti Teknologi Malaysia, Malaysia
Dr. AKM Nazrul Islam, Dean, FECE MIST

10.15-11.45	<p>Keynote-1A</p> <p>4IR: Challenges and Opportunities of Bangladesh</p> <p>Prof. Dr. Md. Sazzad Hossain</p> <p><i>Member, University Grants Commission of Bangladesh & Director, Bangladesh Satellite Company Limited</i></p>
	<p>Keynote-1B</p> <p>Deep Learning Methodologies and Their Applications in Computational and Cognitive Engineering</p> <p>Prof. Tae-Seong Kim, Ph.D.</p> <p>Professor, Dept. of Biomedical Engineering, Kyung Hee University, Republic of Korea & Director, Bioimaging and Brain Engineering Laboratory, Kyung Hee University, Republic of Korea</p>

Technical Session 1A (11.45—13.15)

Track 1: Artificial Intelligence and Soft Computing

Session Chairs

Prof. Dr. Md. Shahadat Hossain, University of Chittagong
Dr. M. Arifur Rahman, JU, Dhaka

PID:315	<p>Anonymous Author identifier Using Machine Learning</p> <p><i>Sabrina Jesmin¹ and Rahul Damineni²</i></p> <p>¹Jahangirnagar University, Savar Dhaka-1342, Bangladesh, Email: sabrina.jesmin.eee@gmail.com; ²School of Electrical Engineering and Computer Science, Oregon State University, USA, Email: daminen@oregonstate.edu</p>
PID:329	<p>Bangla Text Generation Using Bidirectional Optimized Gated Recurrent Unit Network</p> <p>Nahid Ibne Akhtar, Kh. Mohimenu Islam Shazol, Rifat Rahman, Mohammad Abu Yousuf*, Bangladesh University of Professionals, Dhaka and *Jahangirnagar University, Dhaka – 1342</p>



PID:330	Handwritten Bangla Character Recognition Using Convolutional Neural Network and Bidirectional Long Short-Term Memory Jasiya Fairiz Raisa, Maliha Ulfat, Abdullah Al Mueed, Mohammad Abu Yousuf* Bangladesh University of Professionals, Mirpur Cantonment, Dhaka, Bangladesh and *Institute of Information Technology, Jahangirnagar University, Savar, Dhaka 1342, Bangladesh
PID:333	PRCMLA: Product Review Classification using Machine Learning Algorithms Shuvashish Paul Sagar, Khondokar Oliullah, Kazi Sohan, and Md. Fazlul Karim Patwary, Institute of Information Technology, Jahangirnagar University, Dhaka-1342, Bangladesh
PID:342	A Machine Learning Approach to Predict Events By Analyzing Bengali Facebook Posts Noyon Dey, Motahara Sabah Mredula, Md. Nazmus Sakib, Muha. Nishad Islam, Md. Sazzadur Rahman, Jahangirnagar University, Savar, Dhaka-1342, Bangladesh
PID:375	Bengali Abstractive News Summarization (BANS): A Neural Attention Approach Prithwiraj Bhattacharjee, Avi Mallick, Md Saiful Islam, and Marium-E-Jannat Shahjalal University of Science and Technology, Sylhet-3114, Bangladesh

Technical Session 1B (11:45--13:15)

Track 2: Cognitive Science and Computational Biology

Session Chairs:

Prof. Dr. Kanad Ray, Amity University, Jaipur, India

Dr. Md. Tajuddin Sikder, JU, Bangladesh

PID:305	Deep CNN-supported Ensemble CADx Architecture to Diagnose Malaria by Medical Image Erteza Tawsif Efaz ¹ , Fakhrul Alam ² , Md. Shah Kamal ³ Ahsanullah University of Science & Technology, Dhaka 1208, Bangladesh; ² Military Institute of Science & Technology, Dhaka 1216, Bangladesh; ³ University of Dhaka, Dhaka 1000
PID:313	Building a non-ionic, non-electronic, non-algorithmic artificial brain: Cortex and connectome interaction in a humanoid bot subject (HBS) Pushpendra Singh ^{1,2*} , Pathik Sahoo ^{1,3} , Kanad Ray ² , Subrata Ghosh ^{3,4} and Anirban Bandyopadhyay ^{1*} ¹ National Institute for Materials Science, 1-2-1 Sengen, Tsukuba, Ibaraki-3050047, Japan; ² Amity University Rajasthan, Jaipur, Rajasthan 303007, India; ³ CSIR-North East Institute of Science and Technology, NEIST, India; ⁴ AcSIR, CSIR-NEIST Campus, India.
PID:346	Auditory Attention State Decoding for the Quiet and Hypothetical Environment: A Comparison Between bLSTM and SVM Fatema Nasrin ¹ , Nafiz Ishtiaque Ahmed ² , and Muhammad Arifur Rahman ³ ^{1,3} Jahangirnagar University, Dhaka, Bangladesh; ² AIUB, Dhaka, Bangladesh
PID:353	Sentiment Analysis on Bangla Text using Long Short-Term Memory (LSTM) Recurrent Neural Network Afrin Ahmed and Mohammad Abu Yousuf Jahangirnagar University, Dhaka 1342, Bangladesh
PID:381	Anomaly Detection in Electroencephalography Signal using Deep Learning Model Sharaban Tahura ¹ , S M Hasnat Samiul ¹ ; M. Shamim Kaiser ¹ ; and Mufti Mahmud ² ¹ Institute of Information Technology, Jahangirnagar University, Savar, Dhaka 1342, Bangladesh; ² Computer Science, Nottingham Trent University, Clifton Campus, Nottingham NG11 8NS, UK



PID:444	<p>Gaze movement's entropy analysis to detect workload levels <i>Sergio Mejía-Romero¹, Jesse Michaels¹, J. Eduardo Lugo¹, Delphine Bernardin^{1,2} and Jocelyn Faubert¹</i> ¹ FaubertLab, School of Optometry, Université de Montréal, QC, Canada; ² Essilor Canada Ltd., Montréal, QC, Canada</p>
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<p>Keynote Session 2/Technical Talk Session Chair Prof. Dr. Subrata Kumar Aditya, Sheikh Hasina University, Netrokona Prof. Samsul Arifeen, CUET</p>	
14:00--15:30	<p>Keynote-2A Elements of Book Publishing Aninda Bose Senior Editor, Applied Sciences, Computational Intelligence, Energy, Water, Springer</p>
	<p>Keynote-2B How AI-ML is transforming the Telecom Industry Asif N Rashid CIO, Robi</p>
	<p>Keynote-2C Failures of e-Government projects in low-income countries Diana Frost Nottingham Business School Nottingham Trent University, UK</p>

<p>Technical Session 2A (15:30--17:00) Track 3: IoT and Data Analytics Session Chairs Dr. Mohammad Zahidur Rahman, JU, Dhaka Prof. Md. Al Mamun, RUET, Rajshahi</p>	
PID:321	<p>Virtual Heritage of the Saith Gumbad Mosque, Bangladesh <i>Md Masood Imran and Minar Masud</i> Jahangirnagar University, Dhaka-1342, Bangladesh</p>
PID:343	<p>Implementation of Robotics to Design a Sniffer Dog for the Application of Metal Detection <i>Md. Faisalur Rahman and Md. Mahabub Hossain</i> Department of Electronics and Communication Engineering, Hajee Mohammad Danesh Sci-ence and Technology University, Dinajpur -5200, Bangladesh</p>
PID:344	<p>6G Access Network for Intelligent Internet of Healthcare Things: Opportunity, Challenges, and Research Directions <i>M. Shamim Kaiser*, Nusrat Zerin Zenia*, Fariha Tabassum†, Shamim Al Mamun*, Md. Sazzadur Rahman*, Mohammad Shahidul Islam*, Mufti Mahmud</i> *Jahangirnagar University, Savar-1342, Dhaka, Bangladesh; †Military Institute of Science and Technology, Mirpur, Dhaka, Bangladesh; Nottingham Trent University, Nottingham, UK</p>
PID:347	<p>Towards a Blockchain Based Supply Chain Management for E-Agro Business System Sm Al-Amin, Shipra Rani Sharkar, M. Shamim Kaiser* and Milon Biswas, Bangladesh University of Business & Technology, Dhaka; Jahangirnagar University, Savar, Dhaka-1342, Bangladesh</p>

PID:356	A Key Management Scheme for Secure Communication in IoT-aided Smart Grid Nahida Islam, Ishrat Sultana and Md. Sazzadur Rahman Jahangirnagar University
PID:363	Voice Assistant and Touch Screen Operated Intelligent Wheelchair for Physically Challenged People <i>Md. Shams Sayied Haque¹, Md. Tanvir Rahman², Risala Tasin Khan¹, and Mohammad Shibli Kaysar³</i> ¹ Jahangirnagar University, Savar, Dhaka, Bangladesh; ² Mawlana Bhashani Science and Technology University, Tangail, Bangladesh; ³ Chittagong University of Engineering and Technology, Chittagong, Bangladesh

Technical Session 2B (15:30--17:00)
Track 4: Network and Security
Session Chairs
Prof Sajjad Waheed, MBSTU, Bangladesh
Dr. Shayla Islam, UCSI University, Malaysia

PID:311	A Routing Protocol for Cancer Cell Detection using Wireless Nano-sensors Network <i>Mohammad Helal Uddin¹, Mohammad Nahid Hossain¹, and Asif Ur Rahman²</i> ¹ Department of Electronic Engineering, Kwangwoon University, Seoul, South Korea ² Department of Computer Science, American International University-Bangladesh
PID:325	Building Machine Learning based Firewall on Spanning Tree Protocol over Software Defined Networking <i>Nazrul Islam, SM Shamim, Md. Fazla Rabbi, Md. Saikat Islam Khan, Mohammad Abu Yousuf</i> Mawlana Bhashani Science and Technology University, Tangail-1902, Jahangirnagar University, Savar, Dhaka-1342, Bangladesh
PID:338	Cyber Threat Mitigation of Impending ADS-B Based Air Traffic Management System Using Blockchain Technology <i>Farah Hasin and Kazi Abu Taher</i> Bangladesh University of Professionals, Mirpur, Dhaka, Bangladesh
PID:384	iHOREApp: A Mobile App for Hybrid Renewable Energy Model using Particle Swarm Optimization <i>Abrar Fahim Alam, S.M. Musfiqul Islam, Rahman Masuk Orpon and M. Shamim Kaiser</i> Jahangirnagar University, Savar, Dhaka-1342, Bangladesh
PID:388	Design a U-slot Microstrip Patch Antenna at 37GHz mmWave for 5G Cellular Communication <i>S. M. Shamim¹, Umme Salma Dina², Nahid Arafin², Mst. Sumia Sultana², Khadeeja Islam Borna², Md. Ibrahim Abdullah²</i> ¹ Mawlana Bhashani Science and Technology University, Tangail, Dhaka Bangladesh ² Bangladesh Army University of Engineering & Technology, Natore, Dhaka
PID:418	A Blockchain based Scheme for Sybil Attack Detection in Underwater Wireless Sensor Networks <i>Md Murshedul Arifeen¹, Abdullah Al Mamun², Tanvir Ahmed³, M Shamim Kaiser², and Mufti Mahmud⁴</i> ¹ University of Professionals, Dhaka, Bangladesh; ² Jahangirnagar University, Dhaka, Bangladesh; ³ Islamic University of Technology, Dhaka, Bangladesh; ⁴ Nottingham Trent University, Nottingham, UK

Technical Session 2C (15:30--17:00)

Track 5: Signal Processing, Computer Vision & Rhythm Engineering

Session Chairs

Dr. Nilanjan Dey, JIS University, Kolkata, India

Dr. Md. Golam Rashed, Rajshahi University, Rajshahi

PID:326	Predicting Level of Visual Focus of Human's Attention using Machine Learning Approaches <i>Partha Chakraborty¹, Mohammad Abu Yousuf² and Saifur Rahman¹</i> ¹ Comilla University, ² Jahangirnagar University, Bangladesh
PID:339	Facial Spoof Detection Using Support Vector Machine <i>Tandra Rani Das, Sharad Hasan, S M Sarwar, Jugal Krishna Das, Muhammad Arifur Rahman</i> Jahangirnagar University, Savar, Dhaka-1342, Bangladesh
PID:345	MobileNet Mask: A Multi-phase Face Mask Detection Model to Prevent person-to-person Transmission of SARS-CoV-2 <i>Samrat Kumar Dey¹, Arpita Howlader², and Chan-drika Deb³</i> ¹ Dhaka International University, 66 Green Road, Dhaka-1205, Bangladesh ² Patuakhali Science and Technology University, Dumki-8602, Bangladesh ³ Amdocs, Cyber City Tower 2, Pune, Maharashtra, India
PID:371	Two-Stage Facial Mask Detection Model for Indoor Environments <i>Aniqa Nusrat Zereen¹, Sonia Corraya², Matthew N. Dailey¹ and Mongkol Ekpanyapong¹</i> ¹ Asian Institute of Technology, Pathumthani, Thailand ² Jagannath University, Dhaka Bangladesh
PID:372	Machine Learning Approach Towards Satellite Image Classification <i>Humayra Ferdous, Tasnim Siraj, Shifat Jahan Setu, Muhammad Arifur Rahman</i> Jahangirnagar University, Savar, Dhaka-1342, Bangladesh
PID:393	Anonymous Person Tracking across Multiple Camera Using Color Histogram and Body Pose Estimation <i>Tasnuva Tabassum, Nusrat Tasnim, Nusaiba Nizam and Shamim Al Mamun</i> Jahangirnagar University, Savar, Dhaka-1342, Bangladesh

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END OF DAY 1

Institute of Information Technology
Jahangirnagar University, Dhaka, Bangladesh

18 December 2020

Technical Session 3A (9.30—11.00)

Track 1: Artificial Intelligence and Soft Computing

Session Chairs

Prof. Dr. Zaidi Bin Embong, UTHM, Malaysia

Prof. Md. Sheikh Sadi, Dept of CSE, KUET, Khulna

PID:316	An ANN-based Approach to Identify Smart Appliances for Ambient Assisted Living (AAL) in the Smart Space <i>Mohammad Helal Uddin, Mohammad Nahid Hossain and S.-H Yang</i> <i>Department of Electronic Engineering, Kwangwoon University, Seoul 139-701, South Korea</i>
PID:336	Bangla Real-Word Error Detection and Correction Using Bidirectional LSTM and Bigram Hybrid Model <i>Mir Noshin Jahan, Anik Sarker, Shubra Tanchangya, Mohammad Abu Yousuf</i> <i>Jahangirnagar University, Dhaka-1342, Bangladesh</i>
PID:410	Performance Analysis of Machine Learning Approaches in Software Complexity Prediction <i>Sayed Moshin Reza¹, Md. Mahfujur Rahman², Hasnat Parvez³, Omar Badreddin¹ and Shamim Al Mamun⁴</i> <i>1University of Texas at El Paso, 2Daffodil International University, 3Gono Bishwabidyalay, 4Jahangirnagar University</i>
PID:426	Quantitative Analysis of Deep CNNs for Multilingual Handwritten Digit Recognition <i>Mohammad Reduanul Haque, Md. Gausul Azam, Sarwar Mahmud Milon, Md. Shaheen Hossain, Md. Al-Amin Molla, Mohammad Shorif Uddin*</i> <i>Daffodil International University, *Jahangirnagar University</i>
PID:433	Application of Feature Engineering with Classification Techniques to Enhance Corporate Tax Default Detection Performance <i>Md. Shahriare Satu¹, Mohammad Zoynul Abedin², Shoma Khanom³, Jamal Ouenniche⁴, and M Shamim Kaiser⁵</i> <i>1Dept. of MIS, Noakhali Science and Technology University, Bangladesh</i> <i>2Dept. of Finance and Banking, Hajee Mohammad Danesh Science and Technology University, Dinajpur 5200, Bangladesh, 3Department of Electronics and Communication Engineering, Institute of Science Trade and Technology, Dhaka, Bangladesh; 4University of Edinburgh, Business School, 29 Buccleuch Place, Edinburgh EH8 9JS, United Kingdom, 5Institute of Information Technology, Jahangirnagar University, Bangladesh</i>
PID:434	Handwritten Bangla Character Recognition Using Deep Convolutional Neural Network: Comprehensive Analysis on Three Complete Datasets <i>M Mashrukh Zayed, M Neyamul Kabir Utsha and Sajjad Waheed</i> <i>Mawlana Bhashani Science and Technology University</i>

Technical Session 3B (9.30—11.00)

Track 2: Cognitive Science and Computational Biology

Session Chairs

Prof. Dr. Mohammad Hanif Ali, JU, Dhaka

Prof. Dr. Mostofa Kamal Nasir, MBSTU, Tangail

PID:323	Detection of Ovarian Malignancy from Combination of CA125 in blood and TVUS using Machine Learning <i>Laboni Akter and Nasrin Akhter</i> <i>Khulna University of Engineering & Technology (KUET), Khulna -9203, Bangladesh</i>
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PID:351	<p>Thermo-mechanism: Snake pit membrane <i>Pushendra Singh</i>^{1,2*}, <i>Kanad Ray</i>^{1*}, <i>Preecha Yupapin</i>^{3,4}, <i>Ong Chee Tiong</i>⁵, <i>Jalili Ali</i>⁶, and <i>Anirban Bandyopadhyay</i>^{2*} ¹Amity University Rajasthan, Kant Kalwar, NH-11C, Jaipur, Rajasthan 303007, India; ²Advanced Key Technologies Division, National Institute for Materials Science, 1-2-1 Sengen, Tsukuba, Japan 305-0047; ³Computational Optics Research Group, Advanced Institute of Materials Science, Ton DucThang University, District 7, Ho Chi Minh City, 700000, Vietnam; ⁴Faculty of Applied Sciences, Ton DucThang University, District 7, Ho Chi Minh City, 700000, Vietnam; ⁵Department of Mathematical Sciences, Faculty of Science Universiti Teknologi Malaysia, 81310 UTM Skudai, Johor Bahru Malaysia; ⁶Laser Centre: IBNU SINA ISIR, Universiti Teknologi Malaysia 81310 Johor Bahru, Malaysia.</p>
PID:352	<p>EM Signal Processing in Bio-living System <i>Pushendra Singh</i>^{1,2*}, <i>Kanad Ray</i>^{1*}, <i>Preecha Yupapin</i>^{3,4}, <i>Ong Chee Tiong</i>⁵, <i>Jalili Ali</i>⁶, and <i>Anirban Bandyopadhyay</i>^{2*} ¹Amity University Rajasthan, Kant Kalwar, NH-11C, Jaipur, Delhi Highway, Jaipur, Rajasthan 303007, India; ²Advanced Key Technologies Division, National Institute for Materials Science (NIMS), 1-2-1 Sengen, Tsukuba, Japan 305-0047; ³Computational Optics Research Group, Advanced Institute of Materials Science, Ton DucThang University, District 7, Ho Chi Minh City, 700000, Vietnam; ⁴Faculty of Applied Sciences, Ton DucThang University, District 7, Ho Chi Minh City, 700000, Vietnam; ⁵Department of Mathematical Sciences, Faculty of Science Universiti Teknologi Malaysia, 81310 UTM Skudai, Johor Bahru Malaysia; ⁶Laser Centre: IBNU SINA ISIR, Universiti Teknologi Malaysia 81310 Johor Bahru, Malaysia.</p>
PID:374	<p>Comparative Analysis of different Classifiers on EEG Signals for Predicting Epileptic Seizure <i>M K Sharma</i>¹, <i>K Ray</i>², <i>P. Yupapin</i>^{3,4}, <i>M S Kaiser</i>⁵, <i>C T Ong</i>⁶, and <i>J Ali</i>⁷ ¹Amity School of Engineering and Technology, Amity University Rajasthan, Kant Kalwar, NH11-C, Delhi Highway, Jaipur 303002, Rajasthan, India; ²Amity School of Applied Sciences, Amity University, Kant Kalwar, NH11-C, Jaipur 303002, Rajasthan, India; ³Computational Optics Research Group, Advanced Institute of Materials Science, Ton Duc Thang University, District 7, Ho Chi Minh City, Vietnam; ⁴Division of Computational Physics, Institute for Computational Science, Ton Duc Thang University, Ho Chi Minh City 700000, Vietnam; ⁵Institute of Information Tech. Jahangirnagar University Dhaka, Bangladesh; ⁶Department of Mathematical Sciences, Faculty of Science Universiti Teknologi Malaysia, 81310 UTM Skudai, Johor Bahru Malaysia; ⁷Faculty of Science, Institute of Advance Photonic Science, Universiti Teknologi</p>
PID:400	<p>An Effective Leukemia Prediction Technique using Supervised Machine Learning Classification Algorithm <i>Mohammad Akter Hossain</i>, <i>Mubtasim Islam Sabik</i>, <i>Md. Moshir Rahman</i>, <i>Shadikun Nahar Sakiba</i>, <i>A.K.M. Muzahidul Islam</i>, <i>Swakkar Shatabda</i>, <i>Salekul Islam</i>, and <i>Ashir Ahmed</i>¹ ¹Department of Computer Science and Engineering, United International University ¹Department of Advanced Information Technology, Kyushu University</p>
PID:421	<p>A Comparative Study among Segmentation Techniques for Skin Disease Detection Systems <i>Md. Al Mamun</i> and <i>Mohammad Shorif Uddin</i> ¹Jahangirnagar University, Savar, Dhaka-1342, Bangladesh</p>

Technical Session 3C (9.30—11.00)

Track 3: IoT and Data Analytics

Session Chairs

Prof. Kaushik Deb, CUET

Dr. Shazzad Hosain i, NSU, Dhaka

PID:389	<p>A Healthcare System for in-home ICU during COVID-19 Pandemic <i>Zannatun Naiem Riya</i> and <i>Tanzim Tamanna Shitu</i> ¹Khulna University Of Engineering & Technology, Khulna, Bangladesh</p>
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PID:402	<p>Normalized Approach to Find Optimal Number of topics in Latent Dirichlet Allocation (LDA) <i>Mahedi Hasan¹, Anichur Rahman¹, Md. Razaul Karim², Md. Saikat Islam Khan², and Md. Jahidul Islam³</i> ¹National Institute of Textile Engineering & Research, Dhaka, Bangladesh; ²Mawlana Bhashani Science and Technology University, Tangail, Bangladesh; ³Green University of Bangladesh, Dhaka, Bangladesh</p>
PID:416	<p>Career Prediction with Analysis of Influential Factors Using Data Mining in the Context of Bangladesh <i>Al Amin Biswas, Anup Majumder, Md. Jueal Mia, Rabeya Basri and Md.Sabab Zulfiker</i> Daffodil International University, Jahangirnagar University, Daffodil International University, Bangladesh University of Business and Technology, Daffodil International University</p>
PID:439	<p>Towards Developing a Real-time Hand Gesture Controlled Wheelchair <i>Md. Repon Islam, Md. Saiful Islam, Muhammad Sheikh Sadi</i> Department of Computer Science and Engineering, Khulna University of Engineering & Technology, Khulna-9203, Bangladesh</p>
PID:442	<p>A Novel Deep Learning Approach to Predict Air Quality Index Emam Hossain¹, Mohd Arafath Uddin Shari², Mohammad Shahadat Hossain¹, and Karl Andersson³ ¹Department of Computer Science and Engineering, University of Chittagong, Chattogram, Bangladesh; ²Department of Computer Science and Engineering, Port City International University, Chattogram, Bangladesh; ³Pervasive and Mobile Computing Laboratory, Luleå University of Technology, Sweden</p>

Keynote Session 3
Session Chairs
Dr. Chandan Karmakar, Deakin University, Australia
Dr. Marzia H Tania, University of Oxford, UK

11.15-12.45	<p>Keynote-3A Human Stereo Sensors and Quantum Consciousness Interpretation P. Yupapin <i>Computational Optics Research Group, Advanced Institute of Materials Science, Ton Duc Thang University, Ho Chi Minh City, Vietnam; and Faculty of Applied Sciences, Ton Duc Thang University, Ho Chi Minh City, Vietnam.</i></p>
	<p>Keynote-3B Web Intelligence meets Brain Informatics Ning Zhong <i>Professor, Department of Life Science and Informatics, Maebashi Institute of Technology, Japan</i></p>

Tutorial Session
Session Chair: Manjur Mahmud, Director & COO, Datasoft, Dhaka

14.00--15.30	<p>Apache Hadoop and MapReduce: A Doorway to Big Data Analytics using Distributed Computing Mufti Mahmud Dept of Computer Science, School of Science & Technology Nottingham Trent University</p>
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Day 2

50 Shakespeare Street, Nottingham, UK

Technical Session 4A (14.00—15.30)

Track 4: Network and Security

Session Chairs

Dr Mohd Kamarulzaki bin Mustafa, UTHM, Malaysia

Prof. Dr. Hasnul Kabir, IUT, Dhaka

PID:403	Evaluating Energy Efficiency and Performance of Social-Based Routing Protocols in Delay-Tolerant Networks <i>Md. Khalid Mahub Khan, Muhammad Sajjadur Rahim, and Abu Zafor Md. Touhidul Islam</i> <i>University of Rajshahi, Rajshahi 6205, Bangladesh</i>
PID:409	A Combined Framework of InterPlanetary File System and Blockchain to Securely Manage Electronic Health Records <i>Abdullah Al Mamun¹, Md. Umor Faruk Jahangir², Sami Azam³, M Shamim Kaiser¹, and Asif Karim³</i> <i>¹Institute of Information Technology, Jahangirnagar University, Dhaka, Bangladesh; ²Dept. of Computer Science & Engineering, Shahjalal University of Science and Technology, Sylhet, Bangladesh; ³College of Engineering, IT and Environment, Charles Darwin University, Australia</i>
PID:413	Secured Smart Healthcare System: Blockchain and Bayesian Inference based Approach <i>Fahiba Farhin, M. Shamim Kaiser and Mufti Mahmud*</i> <i>Jahangirnagar University, Dhaka-1342, Bangladesh, *Nottingham Trent University, Nottingham, UK</i>
PID:435	An Efficient Bengali Text Steganography Method Using Bengali Letters and Whitespace Characters <i>Md. Shazzad Ur Rahman, Amit Singha, Nahid Ibne Akhtar, Md. Fahim Ashhab</i> <i>Bangladesh University of Professionals, Dhaka, Bangladesh and *Jahangirnagar University, Dhaka, Bangladesh</i>
PID:440	Enhancing Flexible Unequal Error Control Method to Improve Soft Error Tolerance <i>Atik Shahariar, Mirazul Islam, Muhammad Sheikh Sadi, Soumen Ghosh</i> <i>Khulna University of Engineering & Technology, Khulna-9203, Bangladesh</i>

Technical Session 4B (14.00—15.30)

Track 5: Signal Processing, Computer Vision & Rhythm Engineering

Session Chairs

Prof. Dr. A. B. M. Aowlad Hossain, KUET, Khulna

A. S. M. Sanwar Hosen, JNU, South Korea

PID:419	Quantification of groundnut leaf defects using image processing algorithms <i>Ashraf Mahmud, Balasubramaniam Esakki, Sankarasrinivasan Seshathiri</i> <i>Chittagong University of Engineering and Technology, Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology, National Taiwan University of Science and Technology</i>
PID:422	Performance Analysis of Different Loss Function in Face Detection Architectures <i>Rezowan Hossain Ferdous¹, Md Murshedul Arifeen¹, Tipu Sultan Eiko¹, and Shamim Al Mamun²</i> <i>¹Dept. of ICT, Bangladesh University of Professionals, Dhaka, Bangladesh</i> <i>²Institute of Information Technology, Jahangirnagar University, Dhaka, Bangladesh</i>

PID:427	Convid-Net: An enhanced Convolutional Neural Network framework for COVID-19 detection from X-ray images <i>Sabbir Ahmed, Md. Farhad Hossain and Manan Binth Taj Noor</i> <i>Jahangirnagar University, Dhaka-1342, Bangladesh</i>
PID:432	Cascade Classification of Face Liveliness Detection using Heartbeat Measurement <i>Md. Mahfujur Rahman, Shamim Al Mamun, M. Shamim Kaiser and Md. Shahidul Islam, Md. Arifur Rahman</i> <i>Daffodil International University, Dhaka, Bangladesh</i> <i>Jahangirnagar University, Jahangirnagar University, Jahangirnagar University</i>
PID:437	An Integrated CNN-LSTM Model for Bengali Lexical Sign Language Recognition <i>Nanziba Basnin¹, Lutfun Nahar¹, and Mohammad Shahadat Hossain²</i> <i>¹International Islamic University Chittagong, Bangladesh</i> <i>²University of Chittagong, Chattogram, Bangladesh</i>
PID:443	Deep Learning Based Algorithm for Skin Cancer Classification <i>M Afzal Ismail, Nazia Hameed and Jeremie Clos</i> <i>University of Nottingham, Jubilee Campus NG8 1BB, United Kingdom</i>

Keynote Session 4

Session Chair

Anirban-Bandyopadhyay (Chair), NIMS, Japan

Mufti Mahmud, NTU, UK

15:45--17.15	Keynote-4A Ryad Benosman <i>Professor, University of Pittsburgh Medical Center, Adjunct professor at CMU Robotics Institute and Professor with Sorbonne University, French</i>
	Keynote-4B Bioimage informatics plays pivotal role to answer fundamental biological questions Dr. M. Julius Hossain <i>Research Scientist, European Molecular Biology Laboratory, Germany.</i>

17-18 December 2020

Closing ceremony

17.20--18:00	Speech by Technical Chair Speech by Guest of Honor Speech by Pro-VC Speech by Pro-VC Prize giving Speech by Honorable VC Declaration of TCCE 2021
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