



Trends in Computational and  
Cognitive Engineering (TCCE)

## 2nd International Conference on Trends in Computational and Cognitive Engineering

Organized by



Trends in Computational and  
Cognitive Engineering (TCCE)

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



Institute of Information Technology Jahangirnagar  
University, Dhaka, Bangladesh

## CONFERENCE PROGRAM

Publication Partner



Springer 2020

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Bangladesh Chapter



Institute of Information Technology  
17-18 December 2020

Jahangirnagar University, Dhaka, Bangladesh



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## 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

Trends in Computational and  
Cognitive Engineering(TCCE)

17-18 December 2020



Institute of Information Technology  
Jahangirnagar University, Dhaka, Bangladesh

## DETAIL PROGRAM

17 December 2020

### Inauguration ceremony

Zoom link:

9:15--10:00	Inauguration Welcome speech by Organizing Chair Speech by General Co-Chair 1 Speech by General Co-Chair 2 Speech by UGC Chairman/Member Speech by Honorable Education Minister Speech by Honorable VC
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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	<b>Keynote-1A</b> <b>4IR: Challenges and Opportunities of Bangladesh</b> <b>Prof. Dr. Md. Sazzad Hossain</b> Member, University Grants Commission of Bangladesh & Director, Bangladesh Satellite Company Limited
	<b>Keynote-1B</b> <b>Deep Learning Methodologies and Their Applications in Computational and Cognitive Engineering</b> <b>Prof. Tae-Seong Kim, Ph.D.</b> <i>Professor, Dept. of Biomedical Engineering, Kyung Hee University, Republic of Korea &amp; Director, Bioimaging and Brain Engineering Laboratory, Kyung Hee University, Republic of Korea</i>

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



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

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**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

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



<b>PID:444</b>	<b>Gaze movement's entropy analysis to detect workload levels</b> <i>Sergio Mejia-Romero<sup>1</sup>, Jesse Michaels<sup>1</sup>, J. Eduardo Lugo<sup>1</sup>, Delphine Bernardin<sup>1,2</sup> and Jocelyn Faubert<sup>1</sup></i> <sup>1</sup> FaubertLab, School of Optometry, Université de Montréal, QC, Canada; <sup>2</sup> Essilor Canada Ltd., Montréal, QC, Canada
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<b>Keynote Session 2/Technical Talk</b> Session Chair Prof. Dr. Subrata Kumar Aditya, Sheikh Hasina University, Netrokona Prof. Samsul Arifeen, CUET	
<b>14:00--15.30</b>	<b>Keynote-2A</b> <b>Elements of Book Publishing</b> <b>Aninda Bose</b> Senior Editor, Applied Sciences, Computational Intelligence, Energy, Water, Springer
	<b>Keynote-2B</b> <b>How AI-ML is transforming the Telecom Industry</b> <b>Asif N Rashid</b> CIO, Robi
	<b>Keynote-2C</b> <b>Failures of e-Government projects in low-income countries</b> <b>Diana Frost</b> Nottingham Business School Nottingham Trent University, UK

<b>Technical Session 2A (15:30--17:00)</b> <b>Track 3: IoT and Data Analytics</b> Session Chairs Dr. Mohammad Zahidur Rahman, JU, Dhaka Prof. Md. Al Mamun, RUET, Rajshahi	
<b>PID:321</b>	<b>Virtual Heritage of the Saith Gumbad Mosque, Bangladesh</b> <i>Md Masood Imran and Minar Masud</i> Jahangirnagar University, Dhaka-1342, Bangladesh
<b>PID:343</b>	<b>Implementation of Robotics to Design a Sniffer Dog for the Application of Metal Detection</b> <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
<b>PID:344</b>	<b>6G Access Network for Intelligent Internet of Healthcare Things: Opportunity, Challenges, and Research Directions</b> <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
<b>PID:347</b>	<b>Towards a Blockchain Based Supply Chain Management for E-Agro Business System</b> <i>Sm Al-Amin, Shipra Rani Sharkar, M. Shamim Kaiser* and Milon Biswas,</i> Bangladesh University of Business & Technology, Dhaka; Jahangirnagar University, Savar, Dhaka-1342, Bangladesh

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

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

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

#### Track 5: Signal Processing, Computer Vision & Rhythm Engineering



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Session Chairs	
Dr. Nilanjan Dey, JIS University, Kolkata, India Dr. Md. Golam Rashed, Rajshahi University, Rajshahi	
<b>PID:326</b>	<b>Predicting Level of Visual Focus of Human's Attention using Machine Learning Approaches</b> <i>Partha Chakraborty<sup>1</sup>, Mohammad Abu Yousuf<sup>2</sup> and Saifur Rahman<sup>1</sup></i> <sup>1</sup> Comilla University, <sup>2</sup> Jahangirnagar University, Bangladesh
<b>PID:339</b>	<b>Facial Spoof Detection Using Support Vector Machine</b> <i>Tandra Rani Das, Sharad Hasan, S M Sarwar, Jugal Krishna Das, Muhammad Arifur Rahman</i> Jahangirnagar University, Savar, Dhaka-1342, Bangladesh
<b>PID:345</b>	<b>MobileNet Mask: A Multi-phase Face Mask Detection Model to Prevent person-to-person Transmission of SARS-CoV-2</b> <i>Samrat Kumar Dey<sup>1</sup>, Arpita Howlader<sup>2</sup>, and Chan-drika Deb<sup>3</sup></i> <sup>1</sup> Dhaka International University, 66 Green Road, Dhaka-1205, Bangladesh <sup>2</sup> Patuakhali Science and Technology University, Dumki-8602, Bangladesh <sup>3</sup> Amdocs, Cyber City Tower 2, Pune, Maharashtra, India
<b>PID:371</b>	<b>Two-Stage Facial Mask Detection Model for Indoor Environments</b> <i>Aniqua Nusrat Zereen<sup>1</sup>, Sonia Corraya<sup>2</sup>, Matthew N. Dailey<sup>1</sup> and Mongkol Ekpanyapong<sup>1</sup></i> <sup>1</sup> Asian Institute of Technology, Pathumthani, Thailand <sup>2</sup> Jagannath University, Dhaka Bangladesh
<b>PID:372</b>	<b>Machine Learning Approach Towards Satellite Image Classification</b> <i>Humayra Ferdous, Tasnim Siraj, Shifat Jahan Setu, Muhammad Arifur Rahman</i> Jahangirnagar University, Savar, Dhaka-1342, Bangladesh
<b>PID:393</b>	<b>Anonymous Person Tracking across Multiple Camera Using Color Histogram and Body Pose Estimation</b> <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**



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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

<b>PID:316</b>	<b>An ANN-based Approach to Identify Smart Appliances for Ambient Assisted Living (AAL) in the Smart Space</b> <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>
<b>PID:336</b>	<b>Bangla Real-Word Error Detection and Correction Using Bidirectional LSTM and Bigram Hybrid Model</b> <i>Mir Noshin Jahan, Anik Sarker, Shubra Tanchangya, Mohammad Abu Yousuf</i> <i>Jahangirnagar University, Dhaka-1342, Bangladesh</i>
<b>PID:410</b>	<b>Performance Analysis of Machine Learning Approaches in Software Complexity Prediction</b> <i>Sayed Moshin Reza<sup>1</sup>, Md. Mahfujur Rahman<sup>2</sup>, Hasnat Parvez<sup>3</sup>, Omar Badreddin<sup>1</sup> and Shamim Al Mamun<sup>4</sup></i> <i>1University of Texas at El Paso, 2Daffodil International University, 3Gono Bishwabidyalay, 4Jahangirnagar University</i>
<b>PID:426</b>	<b>Quantitative Analysis of Deep CNNs for Multilingual Handwritten Digit Recognition</b> <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>
<b>PID:433</b>	<b>Application of Feature Engineering with Classification Techniques to Enhance Corporate Tax Default Detection Performance</b> <i>Md. Shahriar Satu<sup>1</sup>, Mohammad Zoynul Abedin<sup>2</sup>, Shoma Khanom<sup>3</sup>, Jamal Ouenniche<sup>4</sup>, and M Shamim Kaiser<sup>5</sup></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>
<b>PID:434</b>	<b>Handwritten Bangla Character Recognition Using Deep Convolutional Neural Network: Comprehensive Analysis on Three Complete Datasets</b> <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

<b>PID:323</b>	<b>Detection of Ovarian Malignancy from Combination of CA125 in blood and TVUS using Machine Learning</b> <i>Laboni Akter and Nasrin Akhter</i> <i>Khulna University of Engineering &amp; Technology (KUET), Khulna -9203, Bangladesh</i>
<b>PID:351</b>	<b>Thermo-mechanism: Snake pit membrane</b>



	<p>Pushpendra Singh<sup>1,2*</sup>, Kanad Ray<sup>1*</sup>, Preecha Yupapin<sup>3,4</sup>, Ong Chee Tiong<sup>5</sup>, Jalili Ali<sup>6</sup>, and Anirban Bandyopadhyay<sup>2*</sup></p> <p>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>
<b>PID:352</b>	<p><b>EM Signal Processing in Bio-living System</b></p> <p>Pushpendra Singh<sup>1,2*</sup>, Kanad Ray<sup>1*</sup>, Preecha Yupapin<sup>3,4</sup>, Ong Chee Tiong<sup>5</sup>, Jalili Ali<sup>6</sup>, and Anirban Bandyopadhyay<sup>2*</sup></p> <p>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>
<b>PID:374</b>	<p><b>Comparative Analysis of different Classifiers on EEG Signals for Predicting Epileptic Seizure</b></p> <p>M K Sharma<sup>1</sup>, K Ray<sup>2</sup>, P. Yupapin<sup>3,4</sup>, M S Kaiser<sup>5</sup>, C T Ong<sup>6</sup>, and J Ali<sup>7</sup></p> <p>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>
<b>PID:400</b>	<p><b>An Effective Leukemia Prediction Technique using Supervised Machine Learning Classification Algorithm</b></p> <p>Mohammad Akter Hossain, Muhtasim Islam Sabik, Md. Moshir Rahman, Shadikun Nahar Sakiba, A.K.M. Muzahidul Islam, Swakkhar Shatabda, Salekul Islam, and Ashir Ahmed<sup>1</sup></p> <p>Department of Computer Science and Engineering, United International University</p> <p>1Department of Advanced Information Technology, Kyushu University</p>
<b>PID:421</b>	<p><b>A Comparative Study among Segmentation Techniques for Skin Disease Detection Systems</b></p> <p>Md. Al Mamun and Mohammad Shorif Uddin</p> <p>Jahangirnagar 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, NSU, Dhaka

<b>PID:389</b>	<p><b>A Healthcare System for in-home ICU during COVID-19 Pandemic</b></p> <p>Zannatun Naiem Riya and Tanzim Tamanna Shitu</p> <p>Khulna University Of Engineering &amp; Technology, Khulna, Bangladesh</p>
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<b>PID:402</b>	<b>Normalized Approach to Find Optimal Number of topics in Latent Dirichlet Allocation (LDA)</b> <i>Mahedi Hasan<sup>1</sup>, Anichur Rahman<sup>1</sup>, Md. Razaul Karim<sup>2</sup>, Md. Saikat Islam Khan<sup>2</sup>, and Md. Jahidul Islam<sup>3</sup></i> <sup>1</sup> National Institute of Textile Engineering & Research, Dhaka, Bangladesh; <sup>2</sup> Mawlana Bhashani Science and Technology University, Tangail, Bangladesh; <sup>3</sup> Green University of Bangladesh, Dhaka, Bangladesh
<b>PID:416</b>	<b>Career Prediction with Analysis of Influential Factors Using Data Mining in the Context of Bangladesh</b> <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
<b>PID:439</b>	<b>Towards Developing a Real-time Hand Gesture Controlled Wheelchair</b> <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
<b>PID:442</b>	<b>A Novel Deep Learning Approach to Predict Air Quality Index</b> <b>Emam Hossain<sup>1</sup>, Mohd Arafath Uddin Shari<sup>2</sup>, Mohammad Shahadat Hossain<sup>1</sup>, and Karl Andersson<sup>3</sup></b> <sup>1</sup> Department of Computer Science and Engineering, University of Chittagong, Chittogram, Bangladesh; <sup>2</sup> Department of Computer Science and Engineering, Port City International University, Chattogram, Bangladesh; <sup>3</sup> Pervasive and Mobile Computing Laboratory, Luleå University of Technology, Sweden

<b>Keynote Session 3</b> Session Chairs Dr. Chandan Karmakar, Deakin University, Australia Dr. Marzia H Tania, University of Oxford, UK	
<b>11.15-12.45</b>	<b>Keynote-3A</b> <b>Human Stereo Sensors and Quantum Consciousness Interpretation</b> <b>P. Yupapin</b> 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.
	<b>Keynote-3B</b> <b>Web Intelligence meets Brain Informatics</b> <b>Ning Zhong</b> Professor, Department of Life Science and Informatics, Maebashi Institute of Technology, Japan

<b>Tutorial Session</b> Session Chair: Manjur Mahmud, Director & COO, Datasoft, Dhaka	
<b>14.00--15.30</b>	<b>Apache Hadoop and MapReduce: A Doorway to Big Data Analytics using Distributed Computing</b> <b>Mufti Mahmud</b> Dept of Computer Science, School of Science & Technology Nottingham Trent University 50 Shakespeare Street, Nottingham, UK

Day 2

### 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

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

<b>PID:419</b>	<b>Quantification of groundnut leaf defects using image processing algorithms</b> <i>Ashraf Mahmud, Balasubramaniam Esakki, Sankarasrinivasan Seshathiri</i> <i>Chittagong University of Engineering and Technology, Vel Tech Rangarajan Dr. Sagunthala R &amp; D Institute of Science and Technology, National Taiwan University of Science and Technology</i>
<b>PID:422</b>	<b>Performance Analysis of Different Loss Function in Face Detection Architectures</b> <i>Rezowan Hossain Ferdous<sup>1</sup>, Md Murshedul Arifeen<sup>1</sup>, Tipu Sultan Eiko<sup>1</sup>, and Shamim Al Mamun<sup>2</sup></i> <i><sup>1</sup>Dept. of ICT, Bangladesh University of Professionals, Dhaka, Bangladesh</i> <i><sup>2</sup>Institute of Information Technology, Jahangirnagar University, Dhaka, Bangladesh</i>
<b>PID:427</b>	<b>Convid-Net: An enhanced Convolutional Neural Network framework for COVID-19 detection from X-ray images</b> <i>Sabbir Ahmed, Md. Farhad Hossain and Manan Bith Taj Noor</i> <i>Jahangirnagar University, Dhaka-1342, Bangladesh</i>



<b>PID:432</b>	<b>Cascade Classification of Face Liveliness Detection using Heartbeat Measurement</b> <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>
<b>PID:437</b>	<b>An Integrated CNN-LSTM Model for Bengali Lexical Sign Language Recognition</b> <i>Nanziba Basnin<sup>1</sup>, Lutfun Nahar<sup>1</sup>, and Mohammad Shahadat Hossain<sup>2</sup></i> <i>1International Islamic University Chittagong, Bangladesh</i> <i>2University of Chittagong, Chattogram, Bangladesh</i>
<b>PID:443</b>	<b>Deep Learning Based Algorithm for Skin Cancer Classification</b> <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

<b>15:45--17:15</b>	<b>Keynote-4A</b> <b>Ryad Benosman</b> <i>Professor, University of Pittsburgh Medical Center, Adjunct professor at CMU Robotics Institute and Professor with Sorbonne University, French</i>
	<b>Keynote-4B</b> <b>Bioimage informatics plays pivotal role to answer fundamental biological questions</b> <b>Dr. M. Julius Hossain</b> <i>Research Scientist, European Molecular Biology Laboratory, Germany.</i>

#### Closing ceremony

<b>17.20--18:00</b>	<b>Speech by Technical Cochair</b> <b>Speech by Guest of Honor</b> <b>Speech by Pro-VC</b> <b>Speech by Pro-VC</b> <b>Prize giving</b> <b>Speech by Honorable VC</b> <b>Declaration of TCCE 2021</b>
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17-18 December 2020



Institute of Information Technology  
Jahangirnagar University, Dhaka, Bangladesh