

# **2021 International Conference on Computer, Communication, Chemical, Materials and Electronic Engineering (IC4ME2 2021)**

**Rajshahi, Bangladesh  
26 – 27 December 2021**



**IEEE Catalog Number: CFP21O58-POD  
ISBN: 978-1-6654-0638-3**

**Copyright © 2021 by the Institute of Electrical and Electronics Engineers, Inc.  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

***\*\*\* This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP21O58-POD
ISBN (Print-On-Demand):	978-1-6654-0638-3
ISBN (Online):	978-1-6654-0637-6

**Additional Copies of This Publication Are Available From:**

Curran Associates, Inc  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: (845) 758-0400  
Fax: (845) 758-2633  
E-mail: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# International Conference on Computer, Communication, Chemical, Materials and Electronic Engineering (IC4ME2), 26-27 December 2021

## Table of Contents

Page	Title Author Name
1	DC-Bus Voltage Regulation and Power Balance in DC Microgrids Using a Power Reaching Law-Integral Sliding Mode Control Approach <i>Tabassum Haque, Tushar Kanti Roy, Farjana Faria, Mahmuda Khatun, Tanmoy Sarkar, Anik Kumar Hore</i>
5	Power Reaching Law-Double Integral Sliding Mode Controller Design to Mitigate SSR Problems in a DFIG-Based Wind Farm <i>Farjana Faria, Tushar Kanti Roy, Tanmoy Sarkar, Tabassum Haque, Mahmuda Khatun, Anik Kumar Hore</i>
9	Enhancement of Transient Stability of SMIB Power Systems Using a Robust Integral Backstepping-Partial Feedback Linearize Approach <i>Mahmuda Khatun, Tushar Kanti Roy, Farjana Faria, Tabassum Haque, Tanmoy Sarkar, Anik Kumar Hore</i>
13	Transient Stability Enhancement in SMIB Power Systems using a Power Reaching Law-Sliding Mode Controller <i>Tanmoy Sarker, Tushar Kanti Roy, Anik Kumar Hore, Mahmuda Khatun, Farjana Faria, Tabassum Haque</i>
17	Common-mode Current Reduction by Applying Mode-conversion Suppression Technique to Power Delivery Network as Side-channel Attack Countermeasure <i>Md Ashrafal Islam, Masaki Himuro, Kengo Iokibe, Yoshitaka Toyota</i>
21	Cost Effective and Efficient Absorbent Brick Sand Particles (Surkhi) for Removal of Chromium from Solution <i>Md. Anwarul Karim, Sharmin Sultana Dipti, Md. Abul Kalam Azad</i>
25	Machine Learning and Bioinformatics Models to Identify Gene Expression Patterns of Glioblastoma Associated with Disease Progression and Mortality <i>Zakia Zinat Choudhury, Utpala Nanda Chowdhury, Shamim Ahmad, M. Babul Islam, Julian M.W. Quinn, Mohammad Ali Moni</i>
31	Design of a Double Integral Sliding Mode Controller for DC-DC Boost Converters in Applications for Fuel Cells <i>Hasibul Islam Peyal, Md. Abu Hanif Pramanik, Subarto Kumar Ghosh, Tushar Kanti Roy</i>
34	Silver Nano Materials Coated Textiles for Antiviral Protection <i>Md. Ashadur Rahman, Joykrisna Saha, Md. Ibrahim H Mondal</i>
38	A Low-Cost Rough Terrain Explorer Robot Fabrication Using Rocker Bogie Mechanism <i>S. M. Fahim Faisal, Tanvir Rahman, Md. Ahesan Kabir</i>
42	Design of Rectangular Patch Microstrip Antenna with Bandwidth and Gain Enhancement for UWB Applications <i>M. Firoz Ahmed, M. Hasnat Kabir, A. Z. M. Touhidul Islam</i>
46	Survival Prediction for Prostate Cancer Using Machine Learning and Bioinformatics Models <i>Utpala Nanda Chowdhury, Shamim Ahmad, M. Babul Islam, Mohammad Ali Moni</i>
51	Improvement of Spectral and Energy Efficiency by Coordinated Transmission in C-RAN <i>Mst. Rubina Aktar, Md. Shamim Anower</i>
55	Impact of Temperature to Predict Covid-19 Transmission in Bangladesh: A Comparative Study by Using Deep Learning <i>Mijanur Rahman, Rakibul Hassan, Bishajit Chakraborty, Nur-Ur Rahman</i>
59	ZnO Nanoparticles Impregnated Starch/ PVA Biocompatible Composite Hydrogel- An Advanced Wound Care Product <i>H. Jahan Kadri, Md. Ibrahim H. Mondal, Firoz Ahmed, Md. Qamruzzaman, Md. Ahsan Habib</i>
63	Removal of Reactive Brown Dye from Industrial Effluent by Chitosan-Sodium tri-poly Phosphate Nano-dispersion Adsorbent <i>Md. Nuruzzaman, Firoz Ahmed, Md. Ibrahim H. Mondal</i>
67	Determination of Angle & Velocity of a Welding Robot functioning in a cylindrical workspace <i>Abu Salman Shaikat, Rezwan Us Saleheen, Farhan Mahbub, Rumana Tasnim, Md. Mizanur Rahman</i>
73	Predictive Analysis For Risk of Stroke Disease Using Machine Learning Techniques <i>Redwanul Islam, Sourav Debnath, Torikul Islam Palash</i>
77	Low Cost Smart COVID-19 Patient Monitoring and Support System <i>Torikul Islam Palash, Redwanul Islam, Sourav Debnath</i>
81	Development of a Modular Simulation Tool for Thermochemical Equilibrium Calculation <i>M.G. Toufik Ahmed, Tareque Ahmed, Md. Sohel Rana, Rubaita Younus Aurthi, Kawnish Kirtania</i>

<b>Page</b>	<b>Title</b>
86	Room Occupancy Detection from Temperature, Light, Humidity, and Carbon Dioxide Measurements Using Deep Learning <i>Galib Hassan Khan, Md. Akibur Rahman</i>
90	Multiple Weather Scene Detection Utilizing the EfficientNet Family <i>Rabeya Tus Sadia, Md. Atik Ahamed, Md. Ali Hossain</i>
94	Design of a Mobile Aeration System for Aquaculture and Proof of Concept <i>A K M Rubaiyat Reza Habib, Md. Minul Alam, Mohammad Rezaul Islam</i>
99	Preparation of chitosan-coated silica from rice husk and its application in chromium adsorption <i>Shovro Chakrabarty, Md. Ibrahim H. Mondal, Md. Nuruzzaman, Firoz Ahmed</i>
103	A Real-Time Blinking Reminder Supportive System for Eye Care of Computer Gamers <i>S. M. Fahim Faisal, Asiful Haque Joarder</i>
107	Structural analysis of the suction valve leaf of household refrigerator compressors: effects of edge radius <i>Md. Zahid Hasan, Md. Shamiul Islam, Debangshu Paul, S. M Almas Rahman</i>
111	IoT Based Multi-layered Security & Automated Monitoring System <i>Md Khalid Syfullah, Hasibul Islam Peyal, Sapnil Sarker Bipro, Saleh Mohammed Shahriar, Md. Halim Mondol</i>
115	A Cyber Physical Industry 4.0 Framework of Image Based Defect Detection for Additive Manufacturing <i>Md Shihab Shakur, Md Ariful Islam, M. Azizur Rahman</i>
121	A Machine Learning Model to Predict Earthquake Utilizing Neural Network <i>Tamal Joyti Roy, Md. Ashiq Mahmood, Diti Roy</i>
125	Convolutional Neural Network Approach for Precise Fingerprint Recognition <i>Md Harun Or Rashid, Sabiha Raihana, Mst. Jebunnesa Satu, Ahmed Salman Tariq</i>
129	A Framework for Tracing the Real Identity of a Bitcoin Scammer <i>Md. Nur Islam, Md. Golam Shakhawat Hossen, Samson P. Baidya, Md. Ahsan Ullah Emon, Md. Sakir Hossain</i>
133	Detecting Diabetes in Human Body using Different Machine Learning Techniques <i>S.M. Tahsin Zaman, Subrata Kumer Paul, Rakhi Rani Paul, Md. Ekramul Hamid</i>
139	Active Contouring with Morphology Assisted Automated Glaucoma Detection <i>Zannatun Naiem Riya, Md. Foisal Hossain</i>
143	Segmentation of nine Retinal layers for Detecting Accumulated Fluid Regions in Retina using a novel U-net Architecture <i>Reana Raen, Muhammad Muinul Islam</i>
147	An Efficient Approach for Appearance Based Eye Gaze Estimation with 13 Directional Points <i>Bipin Saha, Md. Johirul Islam, Arindam Sanyal Dipto, Shaikh Khaled Mostaque</i>
152	In-silico Screening of Arjun Plant ( <i>Terminalia arjuna</i> ) Compounds Against Cardiovascular Disease Targeting GRK2 Protein <i>Md. Asaduzzaman, Jahangir Alom, Mohammad Taufiq Alam, Md. Anwarul Karim</i>
156	Understanding World Happiness using Machine Learning Techniques <i>Fabiha Ibnat, Jigmey Gyalmo, Zulfikar Alom, Abdul Awal, Mohammad Abdul Azim</i>
160	OLGBM: Optuna Optimized Light Gradient Boosting Machine for Intrusion Detection <i>Md. Mashrur Arifin, Md Abdul Based, Khondoker Mirazul Mumenin, Ali Imran, Dr. Mohammad Abdul Azim, Zulfikar Alom, Md. Abdul Awal</i>
164	Design of 4-element Circular Polarized MIMO Antenna for C-Band Wireless Application <i>Fowzia Hossain, Taieba Taher, Md. Azad Hossain</i>
168	Influential Causes that Affect Largely for the Survival of a Patient with Heart-failure: A Machine Learning Perspective <i>Iffat Talin, Mahmudul Abid, Md Abdul Awal, Abdullah-Al Nahid</i>
172	COVID-19 Fake News Detection on Social Media <i>Khondoker Mirazul Mumenin, Khondker Jahid Reza, Swarna Saha Shathi, Humayra Akter, M. Raihan, Md. Mehedi Hassan, Shagoto Rahman, Md. Abdul Awal</i>
176	Binary Classification using K-Nearest Neighbor Algorithm on FPGA <i>Nahin Ul Sadad, Afsana Afrin, Md. Nazrul Islam Mondal</i>
180	Ranking Mental Illness among Social Media Users <i>Md. Mehedy, Utpala Nanda Chowdhury and Md. Omar Faruqe</i>
184	The Development of a Communication System for Enhanced Security in Computer Generated Hologram by Using Fresnel Algorithm <i>Farzana Akter, Md. Rakib Hossain, Md. Astamul Haque</i>

<b>Page</b>	<b>Title</b>
	<b>Author Name</b>
188	A Framework to Detect and Prevent Cyberbullying from Social Media by Exploring Machine Learning Algorithms <i>Shutonu Mitra, Tasfia Tasnim, Md. Arr Rafi Islam, Nafiz Imtiaz Khan, Mohammad Shahjahan Majib</i>
192	An Efficient Transfer Learning Model for Predicting Forged (Handwritten) Signature <i>Md Rafsun Sheikh, Tarek Hasan Masud, Nafiz Imtiaz Khan, Muhammad Nazrul Islam</i>
196	Arithmetic Mental Task of EEG Signal Classification Using Statistical Modeling of The DWT Coefficient <i>Sk. Md. Ziad Rahman, Israt Tawana, H.M. Raihan Mostafiz, Tanima Tasmin Chowdhury, Celia Shahnaz</i>
200	Modeling of an Implant for Humerus Bone from the Perspective of Rehabilitation Engineering <i>Md Adil Arman, Nasrin Akhter</i>
204	Modeling Thermodynamic and Kinetic Simulation of Hydrogen Production from Dry Reforming of Natural Gas <i>M. G. Toufik Ahmed, Sk. Yasir Arafat Siddiki, Galib Hassan Khan, Kazi Bayzid Kabir, Kawnish Kirtania</i>
208	Breast Cancer Classification from Histopathological Images using Convolutional Neural Network <i>Mohiuddin Ahmed, Md. Rabiul Islam</i>
212	Implementation of Scalable Non-Recursive Merge Sort on FPGA <i>Nahin Ul Sadad, Afsana Afrin, Md. Nazrul Islam Mondal</i>
216	Effect of Feed Point Position on the Bandwidth, Centre Frequency and Return Loss of Rectangular Patch Microstrip UWB Antenna <i>M. Firoz Ahmed, M.Hasnat Kabir, Abu Zafor Md. Touhidul Islam</i>
220	Real Time Implementation of a Decentralized Virtual Linkage Swarm Robotics Algorithm <i>Kala Meah, Donald Hake II, David Babcock, Josiah Sam, Kyle Leatherman, Jason Steinberg, Jared Tribett, Earl Kennedy</i>
226	Remote Health Monitoring with Cloud Based Adaptive Data Collection and Analysis <i>Zahedur Rahman, Md. Ismail Hussain, Md. Emdadul Haque</i>
230	Generating Face Image Dataset Using a 3D Head Model <i>Tomas Goldmann, Martin Drahansky</i>