

2021 2nd International Conference on Computational Methods in Science & Technology (ICCMST 2021)

**Mohali, India
17 – 18 December 2021**



**IEEE Catalog Number: CFP21BR7-POD
ISBN: 978-1-6654-5867-2**

**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:	CFP21BR7-POD
ISBN (Print-On-Demand):	978-1-6654-5867-2
ISBN (Online):	978-1-6654-5866-5

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
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

2021 2nd International Conference on Computational Methods in Science & Technology (ICCMST) ICCMST 2021

Table of Contents

Welcome Message	xi
Message from the Conference Chairs	xii
Acknowledgements	xv
Message from the General Chair	xvi
Message from the Program Chair	xvii
Organizing Committee	xviii
Program Committee	xix
Reviewers	xx

Track #1

Smart System for Real-Time Remote Patient Monitoring Based on Internet of Things	1
<i>Nasser M. Al-Zidi (MGM University, India), Mohammed Tawfik (Babasaheb Ambedkar Marathwada University, India), Aymen M. Al-Hejri (MGM University, India), Ibraheam Fathail (Babasaheb Ambedkar Marathwada University, India), Talal A. Aldhaheri (Babasaheb Ambedkar Marathwada University, India), and Qasem Al-Tashi (Albaydha University, Yemen)</i>	
Internet of Things-Based Middleware Against Cyber-Attacks on Smart Homes using Software-Defined Networking and Deep Learning	7
<i>Mohammed Tawfik (Dr. Babasaheb Ambedkar Marathwada University, India), Nasser M. Al-Zidi (Albaydha University, Yemen), Belal Alsellami (Dr. Babasaheb Ambedkar Marathwada University, India), Aymen M. Al-Hejri (Albaydha University, Yemen), and Sunil Nimbhore (Dr. Babasaheb Ambedkar Marathwada University, India)</i>	
Data Security in IOT using Trust Management Technique	14
<i>Dipra Mitra (Chandigarh University, India) and Shikha Gupta (Chandigarh University, India)</i>	
Fog Computing Framework for Multi-Constraints Based Resource Utilization	20
<i>Heena Wadhwa (Lovely Professional University, India) and Rajni Aron (NMIMS University, India)</i>	
Integrating Artificial Intelligence and 5G in the Era of Next-Generation Computing	24
<i>Monika Singh (Chandigarh University, India)</i>	

IoT Security Challenges in Cloud Environment	30
<i>Anupam Bonkra (Chandigarh Group of Colleges, India) and Pummy Dhiman (Chitkara University, India)</i>	
Challenges in Conglomerating Fog Computing with IOT for Building Smart City	35
<i>Poonam Rana (Chandigarh Group of Colleges, India), Kirti Walia (Chandigarh University, India), and Amanpreet Kaur (Chandigarh Engineering College, India)</i>	
SHMS: Smart Healthcare Monitoring System using Internet of Things	41
<i>Sonali Goyal (MMEC, Maharishi Markandeshwar (Deemed to be University)) and Neera Batra (MMEC, Maharishi Markandeshwar (Deemed to be University))</i>	
Cryptographic Algorithms in IoT- a Detailed Analysis	45
<i>Pavandeep Kaur (Chandigarh University, India) and Shivani Aggarwal (Chandigarh University, India)</i>	

Track #2

Hybrid Scheduling Strategy in Cloud Computing Based on Optimization Algorithms	51
<i>Komal Komal (Chandigarh Engineering College), Gaurav Goel (Chandigarh Engineering College), and Milanpreet Kaur (Chandigarh Engineering College)</i>	
Hybrid Approach for Virtual Machine Optimization using BAT Algorithm in Cloud	57
<i>Amanpreet Kaur (CGC, Landran, India), Sushil Kamboj (CGC, Landran, India), Bikrampal Kaur (CGC, Landran, India), and P. N. Hrisheekesha (CGC, Landran, India)</i>	
Multilevel Secure Multilevel Share Based Visual Cryptography Color Images for Cloud Storage	62
<i>Mohd Amaan Siddiqui (RGPV, India), Kaptan Singh (RGPV, India), and Amit Saxena (RGPV, India)</i>	
Enhanced Data Management Framework for Cloud Based System	68
<i>Dapinder Kaur (Chandigarh Engineering College, India), Pritpal Singh (Chandigarh Engineering College, India), Vinit Kumar (Chandigarh Engineering College, India), and Ayush Gupta (Chandigarh Engineering College, India)</i>	
Provide Society Easier Cloud Based E-Health System	73
<i>Navleen Kaur (Chandigarh University, India), Shanky Goyal (IKGPTU, India), Mandeep Singh Devgan (IKGPTU, India), and Amitabh Sharma (Chandigarh University, India)</i>	
Investigation of SLA Management in Cloud Computing and Future Directions	78
<i>Mandeep Singh (Chandigarh Engineering College, India), Shashi Bhushan (Amity University, India), and Shanky Rani (Chandigarh Engineering College, India)</i>	

Track #3

Skin Cancer Multiclass Classification through Different Types of Convolutional Neural Networks	84
<i>Mohit Kumar (University Institute of Engineering, Chandigarh University Mohali, India) and Syam Machinathu Parambil Gangadharan (Sr Big Data Engineer General Mills, USA)</i>	
Latent Space Data Augmentation for Facial Diagnosis from Face Images of Multiple Diseases	88
<i>Hari Babu (JNTUA CEA, India) and Eswara Reddy (JNTUA CEA, India)</i>	
Ethiopic Base Characters Image Recognition using LSTM	94
<i>Ruchika Malhotra (Delhi Technological University, India) and Maru Tesfaye Addis (Delhi Technological University, India)</i>	
Novel Methods for Multimodal Biometric System to Strengthen the Security	99
<i>Aditya Aditya (Chandigarh Group of Colleges) and Sumit Kaur (Chandigarh Group of Colleges)</i>	
Predictive Model for Students' Academic Performance Using Classification and Feature Selection Techniques	106
<i>Mukesh Kumar (Chitkara University, India), Nidhi Nidhi (CSE, Chandigarh University, India), Sachin Majithia (Chandigarh Engineering College, India), and Neeraj Sharma (Chandigarh Engineering College, India)</i>	
Detection of DDoS Attacks using Semi-Supervised Based Machine Learning Approaches	112
<i>Umang Garg (Graphic Era Hill University, India), Maninder Kaur (Chandigarh Engineering College, India), Malvika Kaushik (Chandigarh Engineering College, India), and Neha Gupta (Graphic Era Deemed to be University, India)</i>	
Comparative Study of Machine Learning Based Tumor Detection Techniques in Human Brain	118
<i>Dapinder Kaur (Chandigarh Engineering College, India), Aman Ummat (Chandigarh Engineering College, India), and Sandeep Kaur (Chandigarh Engineering College, India)</i>	
An Approach on an Autonomous Grading System using Adaptive Booster Gradient Technique	123
<i>Kamalinder Kaur (Chandigarh Engineering College, India) and Navdeep Kaur (Chandigarh Engineering College, India)</i>	

Track #4

Privacy Preservation Techniques for Social Networks Users	127
<i>Monika Singh (Chandigarh University Mohali, India)</i>	
Selection of Optimum Grid Size and Unlabeled Data for Fingerprinting based Indoor Localization	132
<i>Sushil Tiwari (VIT-AP University, Amaravati, AP, India), Vipin Tiwari (AIT-CSE, Chandigarh University, Mohali, Punjab), and Sonam Maurya (SRM University, Amaravati, Andhra Pradesh)</i>	
Dynamic Trust Based IDS to Mitigate Gray Hole Attacks in Mobile Adhoc Networks	137
<i>Samita Devi (CGC, India), Manish Kumar (CGC, India), Sachin Bhardwaj (CGC, India), and P. N. Hrisheeksha (CGC, India)</i>	

Cryptography: Analysis of SYN and UDP Attacks using wire Shark	143
<i>Rubika Walia (M.M. (Deemed to be University), India) and Prachi Garg (M. M. (Deemed to be University), India)</i>	
Performance Investigation of Centroid Based Localization Algorithm and Comparison of Improvement Achieved in Localization Error using Optimization Techniques in WSN	147
<i>Vikas Gupta (Chandigarh Engineering College, India), Abhishek Gupta (Chandigarh Engineering College, India), and Milanpreet Kaur (Chandigarh Engineering College, India)</i>	
An Optimized Multiple Malicious Node Detection Method for Detection of Security Attacks in VANETs	152
<i>Sushil Kamboj (Chandigarh Engineering College, India), Kulwinder Singh Mann (Guru Nanak Dev Engineering College, India), and Sukhpreet Kaur (Chandigarh Engineering College, India)</i>	
Performance Analysis of DCF Compensation Techniques	158
<i>Raju Sharma (AP, ECE Baba Banda Singh Bahadur Engineering College, India), Anuj Kumar Gupta (Chandigarh Group of Colleges, India), Sukhpreet Kaur (Chandigarh Group of Colleges, India), and Neetu Singh (Chandigarh Group of Colleges, India)</i>	
Dual-Band Filtenna Resonating at 2.4 GHz and 5.8 GHz to Improve Wireless Local Area Efficiency	162
<i>Harminder Singh (University of South Australia, Australia), Rajeev Sharma (Chandigarh Engineering College), and Monika Gosain (Chandigarh Engineering College)</i>	
Convolutional Neural Network Based Novel Automatic Recognition System for License Plates	168
<i>Parneet Kaur (CEC, Landran, India), Vinit Kumar (CEC, Landran, India), Prabhjot Kaur (CEC, Landran, India), Raghav Rana (CEC, Landran, India), and Gagandeep Jindal (CEC, Landran, India)</i>	

Track #5

A Chaotic and Hyperchaotic Map Based Image Encryption Protocol for High-End Colour Density Images using Enhanced S-Box Pixel Permutator	174
<i>Priya Kaushik (Maharshi Dayanand University, India) and Ankit Attkan (NIT, India)</i>	
A Comparative Study on Hyperparameter Optimization Methods in Software Vulnerability Prediction	181
<i>Deepali Bassi (Guru Nanak Dev University, India) and Hardeep Singh (Guru Nanak Dev University, India)</i>	
Comparative Analysis of Classifier Methods for Effort Estimation	185
<i>Swati Rehal (CGC, India), Priya Dogra (CGC, India), and Neeraj Sharma (CGC, India)</i>	
Evaluating the Effectiveness of Various IR Models for Requirements Traceability	191
<i>Manpreet Kaur (Chandigarh Engineering College, India) and Harpreet Kaur (Chandigarh Engineering College, India)</i>	

Closure Properties of General Jumping Finite Automata	197
<i>Harjot Singh (Chandigarh Engineering College, India), Jashanpreet Singh (Chandigarh Engineering College, India), and Neetika Gupta (CGC, Landran, India)</i>	
Roles and Research Trends of Artificial Intelligence in Mathematics Education	202
<i>Rachna Kaushik (Chandigarh Engineering College, India), Mamta Parmar (Chandigarh Engineering College, India), and Shelja Jhamb (Chandigarh Engineering College, India)</i>	

Track #6

Study On Design And Viability For Enhancement Of Smart Cities Urban Rain Flood Ecosphere	206
<i>Rubal Jeet (Chandigarh Engineering College, India), Sukhpreet Kaur (Chandigarh Engineering College, India), and Milanpreet Kaur (Chandigarh Engineering College, India)</i>	
Comparative Analysis of Heterogeneous Ensemble Learning using Feature Selection Techniques for Predicting Academic Performance of Students	212
<i>Nidhi Nidhi (Chandigarh University, India), Mukesh Kumar (Chitkara University, India), and Shweta Agarwal (Chandigarh University, India)</i>	
Danger Warning System for Blinds using Computer Vision (Sixth Sense) and OCR	218
<i>Chetan Arora (Jaypee Institute of Information Technology, India), Deval Verma (Chandigarh University, India), Gaurav Verma (Jaypee Institute of Information Technology, India), and Jyoti Kandpal (G. B. Pantnagar University of Agriculture and Technology, India)</i>	
An Analysis of the Assessment Criteria for Learning Analytics	223
<i>Amandeep Kaur (Guru Nanak Dev University, India) and Karanjeet Singh Kahlon (Guru Nanak Dev University, India)</i>	
Prediction of Parkinson Disease in Unsupervised Way using Hybrid Approach through MRI Images	229
<i>Kamlesh Kumar Dubey (Invertis University, India) and Anjali Goswami (Saudi Electronic University)</i>	
Reinforcement Learning on the Credit Risk-Based Pricing	233
<i>Tri Handhika (Gunadarma University, Indonesia), Ahmad Sabri (Gunadarma University, Indonesia), and Murni Murni (Gunadarma University, Indonesia)</i>	
Scrutiny of Block-Chain Technology with Use Cases	237
<i>Jaspreet Kaur (Chandigarh Engineering College, India), Anmol Kaur (Chandigarh Engineering College, India), Kaustubh Mongia (Chandigarh Engineering College, India), Keshav Kumar (Chandigarh Engineering College, India), and Aditya Raj (Chandigarh Engineering College, India)</i>	
Artificial Intelligence Framework for Identifying the Population Addicted to Drugs: Markov Decision Process	243
<i>Shubpreet Kaur (Chandigarh Group of College, India), Nishi Nishi (Chandigarh Group of College, India), Yashandeep Kaur (Chandigarh Group of College, India), and Shivoangi Thakur (Chandigarh Group of College, India)</i>	

Techniques of Trajectory Mining using Clusters	247
<i>Geetanjali Babbar (CGC, India), Aditi Sharma (CGC, India), Chinmay Puri (CGC, India), and Deepanshu Sethi (CGC, India)</i>	

Track #7

A Brief Systematics Visualization of Blockchain Technology in Healthcare and Insurance: A Bibliometrics Analysis	252
<i>Vivek Pandey (Chandigarh University, India) and Krishnendu Rarhi (Chandigarh University, India)</i>	
COVID-19, Corona Virus Detection Using Artificial Intelligence	261
<i>Parveen Kumar Sharma (Chandigarh Engineering College, India), Gagandeep Gagandeep (Chandigarh Engineering College, India), Manish Kumar (Chandigarh Engineering College, India), and Gagandeep Bhatia (Guru Kashi University, India)</i>	
Automated Line Segmentation for Gurmukhi Text Recognition System	264
<i>Gurovir Kaur (Punjabi University Patiala) and Ajit Kumar (Multani Mal Modi College Patiala, India)</i>	
First Principle Contemplation of Carbon Peapod (C20@CNT) Junction	270
<i>Milanpreet Kaur (Chandigarh Engineering College, India), Rubal Jeet (Chandigarh Engineering College, India), Gaurav Goel (Chandigarh Engineering College, India), Vikas Gupta (Chandigarh Engineering College, India), and Ravinder Singh (Guru Nanak Dev University, India)</i>	
Attacks Opportunities in the Cyber Physical Space and the Role of Cybersecurity	276
<i>Navansh Aggarwal (Chandigarh Group of Colleges, India), Bhawana Tripathi (Chandigarh Group of Colleges, India), Diksha Chottani (Chandigarh Group of Colleges, India), and Pardeep Singh Tiwana (Chandigarh Group of Colleges, India)</i>	
A Study of Augmented Reality Performance in web Browsers (WebAR)	281
<i>Nitika Nitika (APG Shimla University, India), Tanuja Kumari Sharma (Chandigarh Engineering College, India), Saumya Rajoanshi (Chandigarh Engineering College, India), and Keshav Kishore (APG Shimla University, India)</i>	
Lightweight Security Framework for IoT Enabled Tracking of COVID-19 and its Variants	287
<i>Manik Gupta (Chitkara University, India), R.B. Patel (Chandigarh College of Engineering & Technology, India), and Shaily Jain (Chitkara University, India)</i>	
Author Index	293