

2022 Second International Conference on Interdisciplinary Cyber Physical Systems (ICPS 2022)

**Chennai, India
9-10 May 2022**



**IEEE Catalog Number: CFP22CG0-POD
ISBN: 978-1-6654-7023-0**

**Copyright © 2022 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:	CFP22CG0-POD
ISBN (Print-On-Demand):	978-1-6654-7023-0
ISBN (Online):	978-1-6654-7022-3

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

2022 Second International Conference on Interdisciplinary Cyber Physical Systems (ICPS) **ICPS 2022**

Table of Contents

Message from the Conference Chair	xi
Organizing Committee	xii
Keynotes	xvi

2022 Second International Conference on Interdisciplinary Cyber Physical Systems

An Ensemble-Based Machine Learning Model for Accurate Predictions using Multiple Categorical Datasets	1
<i>Rajni Bhalla (Lovely Professional University, India), Amit Sharma (Lovely Professional University, India), Amandeep Bagga (Arctic Wolf, Canada), and Jyoti Gupta (Lovely Professional University, India)</i>	
Blockchain-Based Smart Home Gateway using Secure Chaotic Hash Function	5
<i>Farhana Begum (Vardhaman College of Engineering, India) and Swapna Siddamsetti (GITAM University, India)</i>	
HR Analytics : Early Prediction of Employee Attrition using KPCA and Adaptive K-Means Based Logistic Regression	11
<i>Pratibha G (JNTUH, Hyderabad, Telangana, India) and Nagaratna P Hegde (Vasavi College of Engineering, Hyderabad, Telangana, India)</i>	
Applying Machine Learning Techniques to Predict Breast Cancer	17
<i>Shilpa K (Osmania University, India), Adilakshmi T (Osmania University, India), and Chitra K (Osmania University, India)</i>	
A Residual Network Model (ResNet152) for Bronchitis Detection using X-ray Images	22
<i>S Komal Kaur (Vasavi College of Engineering, India), T Adilakshmi (Vasavi College of Engineering, India), and Jalaja T (Vasavi College of Engineering, India)</i>	
Sustainable Power Sector in Bangladesh and Nature of IoT in Building Smart Grid	28
<i>Dushyant Kumar Singh (Lovely Professional University, India), Md Ariful Islam (Lovely Professional University, India), Mostaque Ahmed Sakil (Lovely Professional University, India), S M Abdullah Rumi (Lovely Professional University, India), Shiva Kumar Reddy Dandyala (Lovely Professional University, India), and Ahmed Abdellatif Ibrahim Osman (Lovely Professional University, India)</i>	

Fake News Detection using Ensemble Model	34
<i>Ayush Gupta (SRM Institute of Science and Technology, Kattankulathur, India), Vikash Mishra (SRM Institute of Science and Technology, Kattankulathur, India), and Briskilal J (SRM Institute of Science and Technology, Kattankulathur, India)</i>	
Suicidal Prediction using Video, Audio, And Text Analysis	40
<i>Gagan Chordia (Vellore Institute of Technology, India), Yash Mehta (Vellore Institute of Technology, India), Nayan S (Vellore Institute of Technology, India), Harshit Soni (Vellore Institute of Technology, India), Aayush Gupta (Vellore Institute of Technology, India), and Jayakumar K (Vellore Institute of Technology, India)</i>	
An Imperious Verdict for The Recognition of Vehicles Number-Plate using an Innovative Methodology	46
<i>Adarsh Sunil (Amrita School of Arts and Sciences Kochi, Amrita Viswa Vidyapeetham, India), Antony Samuel (Amrita School of Arts and Sciences Kochi, Amrita Viswa Vidyapeetham, India), and Prasannakumar C V (Amrita School of Arts and Sciences Kochi, Amrita Viswa Vidyapeetham, India)</i>	
A Behavioral Chatbot using Encoder Decoder Architecture	51
<i>Jalaja Tattari (Vasavi College of Engineering, India), Adilakshmi T (Vasavi College of Engineering, India), Sharat Chandra Manchi Sarapu (Vasavi College of Engineering, India), Mohammed Imran Mirza (Vasavi College of Engineering, India), and Sashi Kumar MSV (Vasavi College of Engineering, India)</i>	
Visualization and Diagnosis of Medical Images, using Virtual Reality Tools	55
<i>Wilover Auccahuasi (Universidad Tecnológica del Perú, Lima, Perú), Lucas Herrera (Universidad Continental, Huancayo, Perú), Richard Aguilar Paredes (Universidad Tecnológica del Perú, Lima, Perú), Edwin Felix (Universidad Nacional de Jaén, Cajamarca, Perú), Esteban Medina Rafaile (Universidad Nacional Santiago Antúnez de Mayolo, Ancash, Perú), Jorge Figueroa Revilla (Universidad de San Martín de Porres, Lima, Perú), Ana Barrera Loza (Universidad Nacional José Faustino Sánchez Carrión, Huacho, Perú), Zoila Ayvar (Universidad César Vallejo, Lima, Perú), Wilfredo Meza (Universidad César Vallejo, Lima, Perú), Moisés Tongo (Universidad Nacional Daniel Alcides Carrión, Pasco, Perú), Christian Ovalle (Universidad Autónoma de Ica, Ica, Perú), and Hernando Martín Campos Martínez (Universidad Autónoma de Ica, Ica, Perú)</i>	

Low Cost System on IOT Technology, for Remote Control of Biomedical Equipment	59
<i>Wilver Auccahuasi (Universidad Privada Del Norte, Lima, Perú), Lucas Herrera (Universidad Continental, Huancayo, Perú), Karin Rojas (Universidad Tecnológica del Perú, Lima, Perú), Edwin Felix (Universidad Nacional de Jaén, Cajamarca, Perú), Esteban Medina Rafaile (Universidad Nacional Santiago Antúnez de Mayolo, Ancash, Perú), Jorge Figueroa Revilla (Universidad de San Martín de Porres, Lima, Perú), Ana Barrera Loza (Universidad Nacional José Faustino Sánchez Carrión, Huacho, Perú), Zoila Ayvar (Universidad César Vallejo, Lima, Perú), Sandra Meza (Universidad Científica del Sur, Lima, Perú), Moisés Tongo (Universidad Nacional Daniel Alcides Carrión, Pasco, Perú), Christian Ovalle (Universidad Autónoma de Ica, Ica, Perú), and Hernando Martín Campos Martínez (Universidad Autónoma de Ica, Ica, Perú)</i>	
Methodology for the Transmission of Medical Images in Telehealth Systems	64
<i>Wilver Auccahuasi (Universidad Privada del Norte, Lima, Perú), Lucas Herrera (Universidad Continental, Huancayo, Perú), Karin Rojas (Universidad Tecnológica del Perú, Lima, Perú), Christian Ovalle (Universidad Autónoma de Ica, Ica, Perú), Monica Diaz (Universidad Norbert Wiener, Lima, Perú), Jorge Figueroa Revilla (Universidad de San Martín de Porres, Lima, Perú), Ana Barrera Loza (Universidad Nacional José Faustino Sánchez Carrión, Huacho, Perú), Zoila Ayvar (Universidad César Vallejo, Lima, Perú), Edward Flores (Universidad Nacional Federico Villarreal, Lima, Perú), Iván Perez (Universidad César Vallejo, Lima, Perú), Esteban Medina Rafaile (Universidad Nacional Santiago Antúnez de Mayolo, Ancash, Perú), and Moisés Tongo (Universidad Nacional Daniel Alcides Carrión, Pasco, Perú)</i>	
State-of-Charge Estimation Algorithm for Li-ion Batteries using Long Short-Term Memory Network with Bayesian Optimization	68
<i>Akshat Dubey (Delhi Technological University, India), Ayaan Zaidi (Delhi Technological University, India), and Ayush Kulshreshtha (Delhi Technological University, India)</i>	
Wireless Link Analysis of LoRa in Vegetation and Semi Urban Scenarios	74
<i>Kaushal Kishore Tiwari (Indian Institute of Information Technology, India) and Raja Vara Prasad Yerra (Indian Institute of Information Technology, India)</i>	
Depression Detection in Twitter Tweets using Machine Learning Classifiers	81
<i>Shruthi K Kumar (Amrita Vishwa Vidyapeetham India), Nanditha Dinesh (Amrita Vishwa Vidyapeetham, India), and Nitha L (Amrita Vishwa Vidyapeetham, India)</i>	
Cyber Attack Detection and Mitigation Through System Identification	87
<i>AnilKumar Badavath (IIT Roorkee, India), Yogesh V. Hote (IIT Roorkee, India), Avinash Singh (MBM Engineering College, India), and Bhawna Jain (MBM Engineering College, India)</i>	
Transmission Modeling and Attack Simulation of Bluetooth Low Energy	93
<i>Midhun Raj (Center for Cyber Security Systems and Networks, Amrita school of Engineering, Amritapuri Amrita Vishwa Vidyapeetham, India) and Krishnashree Achuthan (Center for Cyber Security Systems and Networks, Amrita school of Engineering, Amritapuri Amrita Vishwa Vidyapeetham, India)</i>	

Credit Card Fraud Identification Using Logistic Regression and Local Outlier Factor	99
<i>Keerthi K (Prasad V Potluri Siddhartha Institute of Technology, India), Meghana B (Prasad V Potluri Siddhartha Institute of Technology, India), Sahitya K (Prasad V Potluri Siddhartha Institute of Technology, India), Jyothi Priyanka D (Prasad V Potluri Siddhartha Institute of Technology, India), and Sree Lakshmi D (Prasad V Potluri Siddhartha Institute of Technology, India)</i>	
DNAIoT - Dynamic Network Architecture for IoT	104
<i>Gyanesh Samanta (SRM Institute of Science & Technology, India), Rishal Ramesh (SRM Institute of Science & Technology, India), Rushil Saxena (SRM Institute of Science & Technology, India), Devdarshan K Sardar (SRM Institute of Science & Technology, India), Sidhant Chourasiya (SRM Institute of Science & Technology, India), and Fancy C (SRM Institute of Science & Technology, India)</i>	
Use of Virtual Tools to Develop Reading Animation and Comprehension Through Gamification for Learning	108
<i>Lenny Giovanna Herrera Sandoval (Universidad César Vallejo, Lima, Perú), Wilver Auccahuasi (Universidad Privada del Norte, Lima, Perú), Sandra Paola Tello Peramas (Universidad César Vallejo, Lima, Perú), Juan José Tello Peramas (Universidad César Vallejo, Lima, Perú), Francisco Hilario (Universidad César Vallejo, Lima, Perú), Ilich Ivan Pumacayo Palomino (Universidad César Vallejo, Lima, Perú), and Lucas Herrera (Universidad Continental, Huancayo, Perú)</i>	
Smart Home Personal Assistants: Fueled by Natural Language Processor and Blockchain Technology	113
<i>Syed Anas Ansar (Babu Banarasi Das University, India), Kriti Jaiswal (University of Lucknow, India), Shruti Aggarwal (Thapar Institute of Engineering and Technology Patiala, India), Shruti Shukla (Babu Banarasi Das University, India), Jaya Yadav (University of Lucknow, India), and Nupur Soni (Babu Banarasi Das University, India)</i>	
Quick Shelves for Medical and Retail Industries using RFID Technology	118
<i>Koteswar Rao Uppada (Lovely professional University, India), Guru Vasista Vanam (Lovely professional University, India), Kiran Kumar Narayanasetti (Lovely professional University, India), Sumanth Settypalli (Lovely professional University, India), Venkata Naga Harish C. (Lovely professional University, India), and Mohit Kumar Goel (Lovely professional University, India)</i>	
Modernizing CPS with Blockchain: Applications, Challenges & Future Directions	124
<i>Syed Anas Ansar (Babu Banarasi Das University, India), Archita Singh (Babu Banarasi Das University, India), Shruti Aggrawal (Thapar Institute of Engineering and Technology, India), Amitabha Yadav (National Post Graduate College, India), Prabhash Chandra Pathak (Babu Banarasi Das University, India), and Raees Ahmad Khan (Babasaheb Bhimrao Ambedkar University, India)</i>	
Machine Learning-Based S-CNN Model for Automated Post-Covid X-RAY Identification	130
<i>Suchismita Deb (Dr B C Roy Engineering College, India), Amiya Dey (Dr B C Roy Engineering College, India), Joyjit Patra (Dr B C Roy Engineering College, India), Monalisa Chakraborty (Dr B C Roy Engineering College, India), and Subir Gupta (Dr B C Roy Engineering College, India)</i>	

A Technique to Detect Music Emotions Based on Machine Learning Classifiers	136
<i>Devi Unni (Amrita Vishwa Vidyapeetham, India), Aminta Melta D’Cunha (Amrita Vishwa Vidyapeetham, India), and Deepa G (Amrita Vishwa Vidyapeetham, India)</i>	
Optimization of Resource Scheduling and Allocation Algorithms	141
<i>Satyakam Rahul (Lovely Professional University, India) and Vinay Bhardwaj (Lovely Professional University, India)</i>	
Vehicle Tracking and Speed Estimation using Deep Sort	146
<i>Bhanu Sekhar Giddaluri (Velagapudi Ramakrishna Siddhartha Engineering College, India), Srilatha Manam (Velagapudi Ramakrishna Siddhartha Engineering College, India), Srinivasulu Javvaji (Velagapudi Ramakrishna Siddhartha Engineering College, India), and Bhargav Chowdary Maguluri (Velagapudi Ramakrishna Siddhartha Engineering College, India)</i>	
Progress of Nursing Informatics for Mental Health Initiatives	152
<i>Atallah Alenezi (Shaqra University, Shaqra, Saudi Arabia) and Abdulrahman A Alghamdi (Shaqra University, Shaqra, Saudi Arabia)</i>	
Clickbait Detection using Long Short-Term Memory	159
<i>Aromal A Balan (Amrita Vishwa Vidyapeetham, India), Anoop P (Kochi, Amrita Vishwa Vidyapeetham, India), and Mahesh A S (Kochi, Amrita Vishwa Vidyapeetham, India)</i>	
Live Fit: A Smart Fitness App	164
<i>Kavitha R (Velammal College of Engineering and Technology, India), Amala Rosy Mishma J (Velammal College of Engineering and Technology, India), Charulatha J (Velammal College of Engineering and Technology, India), and Roshini NB (Velammal College of Engineering and Technology, India)</i>	
Bank Loan Default Prediction using Ensemble Machine Learning Algorithm	170
<i>Aman Soni (SRM Institute of Science and Technology, India) and K.C. Prabu Shankar (SRM Institute of Science and Technology, India)</i>	
Optimum Investigation and Priority Ranking of Hazards in Aviation Maintenance	176
<i>Shilpa Rana (European International University Paris, France), Kavya S Nair (College of Engineering Trivandrum, India), Paul Russel US (Maintenance Training Organisation, Air India Engineering Services Limited Trivandrum, India), and Vinod M (College of Engineering Trivandrum, India)</i>	
Cyberbullying Detection and Hate Speech Identification using Machine Learning Techniques	182
<i>Tanmay Agrawal (SRM Institute of Science and Technology, India) and V. Deeban Chakravarthy (SRM Institute of Science and Technology, India)</i>	
Online Jewelry Application for Predicting users Buying Habits	188
<i>Shobanaboina Sai Pranup (Lovely Professional University, India), Adarsh P Nair (Lovely Professional University, India), Akash Kumar (Lovely Professional University, India), Pillala Venu Dhana Kumar (Lovely Professional University, India), Sakshi Takkar (Lovely Professional University, India), Manik Rakhra (Lovely Professional University, India), and Shruti Aggarwal (Lovely Professional University, India)</i>	

Enhanced Security In Medical Image Steganography — A Hybrid Approach using Spatial and Transform Domain	197
<i>Anumol V B (Amrita School of Arts and Sciences, Amrita Vishwa Vidyapeetham, Kochi, India), Pooja Thejus (Amrita School of Arts and Sciences, Amrita Vishwa Vidyapeetham, Kochi, India), and Leena Vishnu Namboothiri (Amrita School of Arts and Sciences, Amrita Vishwa Vidyapeetham, Kochi, India)</i>	
Deep Learning Based DDoS Attack Detection in Emerging Networks	203
<i>Saravanan M. (KPR Institute of Engineering and Technology, India) and Sushmitha S. (KPR Institute of Engineering and Technology, India)</i>	
Web Application Security on top of Public Cloud	210
<i>Manoj Kumar S (KPR Institute of Engineering and Technology, India), Gokula Santhiya R (KPR Institute of Engineering and Technology, India), Jeni V (KPR Institute of Engineering and Technology, India), and Joshika Bhavna J (KPR Institute of Engineering and Technology, India)</i>	
Development of Cyber Attack Model for Private Network	216
<i>Mostafa Al-Amin (Jagannath University, Bangladesh), Mirza Akhi Khatun (Jagannath University, Bangladesh), and Mohammed Nasir Uddin (Jagannath University, Bangladesh)</i>	
Performance Analysis of DDoS Mitigation in Heterogeneous Environments	222
<i>Rahul Saha (Lovely Professional University, India) and Amandeep Verma (Lovely Professional University, India)</i>	
System for Biometric Recognition as a Security Agent Through Gps Protocols	231
<i>Santiago RubinOs (Universidad Nacional Del Callao, Lima, Perú), Wilver Auccahuasi (Universidad Privada Del Norte, Lima, Perú), Lucas Herrera (Universidad Continental), Karin Rojas (Universidad Tecnológica del Perú, Lima, Perú), Walter Maguiña (Universidad Nacional Santiago Antúñez de Mayolo, Ancash, Perú), Herbert Grados (Universidad Nacional del Callao, Lima, Perú), Juan Mendoza (Universidad Nacional del Callao, Lima, Perú), Freedy Sotelo (Universidad Nacional del Callao, Lima, Perú), Edwin Huarcaya (Universidad Nacional del Callao, Lima, Perú), Verónica Tello (Universidad César Vallejo, Lima, Perú), Juan Grados (Universidad Nacional del Callao, Lima, Perú), and Abilio Cuzcano (Universidad Nacional del Callao, Lima, Perú)</i>	
Author Index	237