## **2022 IEEE World Conference** on Applied Intelligence and Computing (AIC 2022)

Sonbhadra, India 17 – 19 June 2022



**IEEE Catalog Number: CFP22BT1-POD ISBN**:

978-1-6654-7989-9

## 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:
 CFP22BT1-POD

 ISBN (Print-On-Demand):
 978-1-6654-7989-9

 ISBN (Online):
 978-1-6654-7988-2

#### **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



# 2022 IEEE World Conference on Applied Intelligence and Computing AIC 2022

### **Table of Contents**

Pelcome from IEEE AIC 2022 General Chairs	
Velcome from IEEE AIC 2022 Program Chairs	
Conference Committeesi	ii
Track-A: Intelligent Systems	
Identification of NPPs Transients Using Transductive Semi-supervised  Learning Algorithm(  Khalil Moshkbar-Bakhshayesh	001
Efficacy of Sine Cosine Algorithm With Different Remedies for Search Space Violation	308
A User-based Collaborative Filtering Method to deal with Sparsity in Recommendation Systems by an unsupervised learning of Users' Hidden Preferences	014
An Architecture to Enhance, Optimize and Validate Software Reliability using Machine Learning: A contemplate solution	)21
Predicting the trajectories of the development of situations from a given phase based on the logical conclusion of the consequences	)27
Cross-Domain Aware Approach for Improving Word Embeddings-Application Oriented Analysis	ງ32
An Efficient Predicting Lifeforms Using QGIS	038
Liver Disease Diagnosis Using Machine Learning	041
Human Activity Recognition on Accelerometer Data using Machine Learning Algorithms	)48
Trend Analysis in Landsat Based Scheme for Burned Area over Northwestern Region of India	<b>)54</b>
Gurjeetpal Bawa, Akashdeep Sharma, Harish Kumar, Sakshi Kaushal	
Heart Disease Prediction Using Different Machine Learning Algorithms	)60
An Innovative Technique for Intelligent Decision Making: Smart TOPSIS using Naïve Bayes Classification Algorithm	)66

Developing a Multi-Module Machine Learning System to Identify Clinically Important  Traumatic Brain Injuries in Children
Performance Analysis of March M & B Algorithms for Memory Built-In Self-Test (BIST)078 Khushi, Kuldeep Singh
A Survey on Computational Approaches for Raga Identification
Optimization of Dynamic Economic Dispatch Problem for micro grid with incorporation of wind energy by using Seagull Optimization
Performance Analysis of Soft Computing ANN Based MPPT Technique for Solar PV  Generator
Design of Efficient Intelligent Autonomous Surface Cleaner
Detection of Two-Wheeler Traffic Rule Violation Using Deep Learning
Presaging Software Maintainability Using Collaborative Techniques and Arranged Broad View 115 Rajesh Ranjan, Arvind Mishra
Solving speed reducer design problem by memorized differential evolution
A Concurrent Intelligent Natural Language Understanding Model for an Automated Inquiry System
Search Engine for Assorted Media in Chat Applications
Health Care Chatbot using Natural Language Processing with SGD and ADAM Optimizer Parameter Optimization
Mohit Patel, Priya Kausal
Extreme Learning Machine Tuning by Original Sine Cosine Algorithm
Deep Residual Learning based Discriminator for Identifying Deepfakes with Cut-Out Regularization
Crowd Counting Model Using Convolutional Neural Network
A Review on Swarm intelligence & Evolutionary Algorithms based Approaches for Diabetic Retinopathy Detection
Track-B: Image Processing and Machine Vision
Indoor Home Scene Recognition through Instance Segmentation Using a Combination of  Neural Networks
Amlan Basu, Keerati Kaewrak, Lykourgos Petropoulakis, Gaetano Di Caterina, John Soraghan

Identification of Tomato Plant Diseases Using CNN - A Comparative Review	.174
A review on deep learning models for optic disc segmentation and glaucoma classification	.182
Room Layout Estimation based on Planar Semantic Segmentation	188
A real-time model for COVID19 face-mask identification with "YOLOv4"	.195
Evolutionary Generative Adversarial Networks for Sentence Generation from Keyword	.201
Semantic Image Segmentation using CNN(Convolutional Neural Network) based Technique  Bahar Uddin Mahmud, Guan Yue Hong	.210
Edge Detection in Digital Images Through Fast Gradient Filters using Fuzzy Inference System Rakesh Ranjan, Vinay Avasthi	.215
Cassava plant disease detection with imbalanced dataset using transfer learning	.220
Face Recognition System with 2D Anti-Spoofing	.226
Binary Jaya Algorithm based on Dice Similarity for Cancer Classification using Microarray Dataset	231
	.237
Performance Analysis of Weighted Low-Rank Approximation Models for Robust Face Recognition	.242
A Review on Virtual Reality for 3D Virtual Trial Room	.247
3D Grid Based Virtual Trial Room	.252
Stack Type Detection Using Few-Shot Learning	260
Face Spoofing and Presentation Attack Detection	267
Optimum thresholding for nodule segmentation of lung CT images	.272
Early Detection of Potato Leaf Diseases using Convolutional Neural Network with Web Application	.277
Secure Content-Based Image Retrieval Scheme for Multi-User Scenario Over Cloud	.283
Embedded System and Smart Phone based Object Recognition Technique for Visually Impaired Person	.293
Covid-19 Detection based on Transfer Learning & LSTM Network using X-ray Images	.300

Plants Diseases Prediction Framework: An Image-Based System Using Deep Learning	307
Identification of Image Forgery based on various Corner Detection methods	314
COVID-19 Detection Using Raw Chest X-Ray Images	320
Performance Analysis of Wiener filter in restoration of Covid-19 Chest X-Ray images, Ultrasound images and Mammograms	326
English to Tamil Multi-Modal Image Captioning Translation	332
Development of an Integrated Image Acquisition Setup for Assigning Selling Price of Rough and Milled Rice (Oryza Sativa L.) in The Supply Chain	339
Review on Automatic Covid-19 detection from chest CT images using Artificial intelligence  Dhanshri B. Mali, Shrinivas A. Patil	344
Virtual Therapy for Phobias: A Human Computer Interaction	348
Sign Language Detection using Convolutional Neural Network (CNN)	354
Capsule Networks with Chest X-Ray Enhancement for detection of COVID-19	361
Image retrieval framework for anomalies detection in X-Ray radiographical images	368
Machine Learning Techniques in Predicting Heart Disease: A Survey	373
Automated Vehicle Speed Estimation and License Plate Detection for Smart Cities  Development	378
A Study on Human-Computer Interaction based on Surveillance Tasks	384
Track C: Robotics, Internet of Things (IoT) and Control System	
An IoT based Smart Medicine Dispenser Model for Healthcare	391
Review of Security Enhancement in IoT using Blockchain	396
Efficient EEG Data Compression Technique for Internet of Health Things Networks	403
Human joints Analysis System: A Machine Learning Approach	410
A Formally Verified Message Validation Protocol for Intelligent IoT E-Health Systems	416

Classification of Indian Sign Language Characters Utilizing Convolutional Neural Networks and Transfer Learning Models With Different Image Processing Techniques	423
A comparative study of handwritten Devanagari script character recognition techniques	431
Robotic Arm with Obstacle Detection Designed for Assistive Applications	437
Comparative Analysis of Fruit Fly-Inspired Multi-Robot Cooperative Algorithm for Target Search and Rescue	444
Development of a Low-Cost Multipurpose Autonomous Navigation Robot  Jerin Peter, Mervin Joe Thomas	451
Electromechanical SETS with RL technique	455
Challenges for Electronic Access Control Systems amid pandemic: A Survey	462
Damage detection and smart warning for eventual structure failures in mechatronic systems Ciprian Dragne, Veturia Chiroiu, Mihaiela Iliescu, Isabela Todirite	467
Frog Digital Model and Vibration Study to Extend Service Life	473
IOT based Advanced building automation and Energy Management	478
Smart Agriculture System using IOT	482
Al Modelled Clutch Operation For Automobiles	.487
Renewable Energy Generation and its Grid Synchronization using IOT	492
Ultra-wideband Frequency-Reconfigurable Circular Antenna with Directional Patterns	497
IOT Assisted Smart Farming using Data Science Techniques	503
Performance Analysis of Robotic Arm using Simulink	508
IOT and WSN integration for Data Acquisition and Supervisory Control	513
Indoor Real-Time Location System for Efficient Location Tracking Using IoT	517
Challenges and Prospects of Adopting Industry 4.0 and Assessing the Role of Intelligent Robotics	.524

Lane Estimation using Improved Hough Transform for Isolated and Metro Highway	.530
A Wearable Biometric Performance Measurement System for Boxing- A Survey Brindha J, Nallavan G	.536
Design and real-time simulation of Robotic Arm	.541
Leveraging VR to spread awareness about energy conservation among children	.547
Design of Rectangular Microstrip Patch Antenna for WiFi Application: Enhancement of Bandwidth and Gain	.552
Track D: Big Data and Data Analytics	
Automated Student Merit Prediction using Machine Learning	.556
Use of soft computing techniques in credit risk management of an Indian Bank: Application of Artificial Neural network	.562
Fuzzy TOPSIS and evidence theory based multi-criteria decision making method for intraday stock selection	.568
Critical success factors in combating dengue and COVID-19: lessons for future pandemics  Fernando Xavier, Gerson Laurindo Barbosa, Cristiano Corrêa de Azevedo Marques,  Antonio Mauro Saraiva	.576
Classification Accuracy in Sentiment Analysis using Hybrid and Ensemble Methods	.583
Personality Traits Prediction from Text via Machine Learning	.588
Comparative Study of Feature Engineering for Automated Short Answer Grading	.594
A Comparative Study of Supervised and Unsupervised Machine Learning Algorithms on Consumer Reviews	.598
Using Genetic Algorithm to Optimize Information Dissemination	.604
Study on Online Review Based Consumer sentimental Analysis using Machine Learning Approaches	.610
Loan default predictive analytics	.617
	.623
Hima Bindu Ankem Venkata, Andrea Calazacon, Taha Mahmoud, Thomas Hanne  A Machine Learning Model for Spam Reviews and Spammer Community Detection	.632
Kiran Rangari, Atiya Khan  CDEF: Cross-Domain Explanatory Framework for Non-overlapping Data	.639

Prachi P Kshirsagar, Anant V Nimkar	
Deep Learning for Time Series Forecasting – With a focus on Loss Functions and Error Measures	646
Sujeeth R Malhathkar, Thenmozhi S	
An Improved Technique to Identify Fake News on Social Media Network using Supervised Machine Learning Concepts	652
Syed Thouheed Ahmed, Sreedhar Kumar S, Greeshma Sreejesh	
Precise Agriculture in Machine Learning	659
Hybrid Feature Approach for Plant Disease Detection and Classification using Machine Learning	665
Punitha Kartikeyan, Gyanesh Shrivastava	
Linear Regression vs LSTM for Time Series Data	670
National Policies & their Significance in Bangladesh for the Adoption of Industry 4.0	676
Machine Learning Approaches For Disease Prediction: A Review	682
Gender Contrasts in Employer's Perspectives in the Recruitment of Fresh Engineering Graduates in the Information Technology Sector	689
Assamese Dialect identification using Semi-supervised learning	694
A Framework for Automated Personality Prediction from Social Media Tweets	698
Heart Rate Prediction from Human Speech using Regression Models	702
Analysis of a Cascade Scaling Algorithm using Data Mining Methods	708
Social Image Content Analysis for Fashion using Deep Learning	714
Determinants of loan prepayment and comparison of machine learning approaches	719
Comparative Analysis on Ensemble Learning Techniques for Groundwater Quality Assessment of Chattisgarh Region	726
•	722
Multi label Image classification using optimized ensemble deep learning	/32
An update on cooking recipe generation with Machine Learning and Natural Language  Processing	739
Nikolaos-Ioannis Galanis, George A. Papakostas	
AutoSleepNet: A Multi-Signal Framework for Automated Sleep Stage Classification	
Classification of Heart Sounds with RF Feature Extraction and CNN Modeling	751

Assessing The Spatial Variability of Soil Nutrients Prediction Using GIS-based Interpolation Techniques	757
Chiranjit Singha, Kishore C. Swain	.101
Detecting Stress Level of Students using Brain Waves and Reducing it Using Yoga	704
Therapy	.764
Improved Hotel Recommendation System Using Machine Learning Technique	769
Efficient Recognition and Classification of Stuttered Word from Speech Signal using Deep	774
Learning Technique	774
Blended selection in Ant Colony Optimization for solving Travelling Salesman Problem	782
A Cloud Based Novel Framework for Addressing Repetitive Behavior in Autistic Individuals  Bassem Alhalabi, Harshal A. Sanghvi, Riki H. Patel, Abhijit S. Pandya, Elisa Cruz Torres	.788
Revivify: A depression detection and control system using tweets and automated Chatbot	706
Samiksha Patil, Riddhi Hakani, Sakshi Patil, Siddhi Jhunjhunwala, Khushali Deulkar	.130
Track E: Al and Emerging Topics in Networking	
Review on Deployment, Coverage and Connectivity in Wireless Sensor Networks	.802
Phishing Websites Detection using Machine Learning with URL Analysis	.808
A Web based Application for Optimization of Less than Truckload Problem	813
Performance Analysis of Network Selection Technique for Handover Strategies in Heterogeneous 5G Network	818
Ashok Kumar Yadav, Hasnain Alam, Vinay Kumar Singh, Ashwani Kumar	010
Triple Band Stepped Microstrip Antenna for Wireless Energy Harvesting	825
A Proposed Framework for Stutter Detection : Implementation on Embedded Systems	.829
Track F: Computing System Privacy and Security	
The AdaBoost Approach Tuned by Firefly Metaheuristics for Fraud Detection	834
Cognitive Security Anomaly Detection from Real-time Log Data Using Supervised Learning  Md Al Amin	840
DLSIPABM: Design of A Novel Deep Learning Framework for Improving High-School Student-Inclination Prediction via Augmented Bio Inspired Computing Model	846
Computational synthesis of bio-inspired corrugated airfoils for micro air vehicle's wing at low Speed	.854

Yagya Dutta Dwivedi, K.S Vepa, Anitha D, Swamy Naidu N.V.
Real Time Protection of Farmlands from Animal Intrusion
ResStorage- Blockchain Based Decentralized Resume Storage Application
Generative Adversarial Networks: Models and Techniques - A Review870  Pooja Audichya, Deepak Gupta, Amritpal Singh
Investigating the Charity Funding System using Blockchain Technology877  Ajendra Saxena, Dileep Kumar, Bhanu Pratap Singh, Bhairu Lal Jatt, J. Sathish Kumar
A review on Security in Internet of Things
Attribute-based hybrid encryption & privacy preservation framework for securing broadcast communication channels
Bio-Computing Based Algorithms for Cloud Security: A Critical Review894  Ankita Srivastava, Shish Ahmad
A framework for digital forensics using blockchain to secure digital data899  Jibin Jacob, Sandeep Kumar
Feature Selection Technique-Based Network Intrusion System Using Machine Learning905  Mahsa Mirlashari, Syed Afzal Murtaza Rizvi
Data Security in IoT Networks using Software-Defined Networking: A Review909 Sunil Kumar Shah, Raghavendra Sharma, Neeraj Shukla
Paging Vulnerabilities in 5G New Radio Networks and Mitigation to enhance Security Performance
A deep multi-architectural approach for online social network intrusion detection system919  Edward Kwadwo Boahen, Ebenezer Owusu, Martin Mabeifam Ujakpa,  Justice Kwame Appati, Samuel Akwasi Frimpong, Rexford Nii Ayitey Sosu,  Otu Larbi-Siaw, Ernest Acheampong
IoT Framework for Healthcare : A Review
Author Index