2023 International Conference on Modeling, Simulation & **Intelligent Computing** (**MoSICom 2023**)

Dubai, United Arab Emirates 7-9 December 2023



IEEE Catalog Number: CFP23IZ8-POD

ISBN:

979-8-3503-9342-2

Copyright © 2023 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:
 CFP23IZ8-POD

 ISBN (Print-On-Demand):
 979-8-3503-9342-2

 ISBN (Online):
 979-8-3503-9341-5

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



Table of Contents

S.No	Title of Paper/Author's Name	Page Number
1	Enhancing The Evaluation Of Teaching Questionnaires In Educational Systems Using Sentiment Analysis Techniques Laila A. Abd-Elmegid, Mohamed Hegazy Mohamed, SAYED ABDELGABER	1-6
2	Probabilistic Modeling, Statistical Analysis, and Stochastic Optimization for Random Horizontal Ranges of Projectile Mahesh Bitragunta and Sainath Bitragunta	7-12
3	Analysis of Ear Canal Echograms for Personality Verification Using AlConstructor Software Package Alexey Sulavko, Alexander Samotuga	13-18
4	Low Power and High Speed Comparator Design in Quantum-dot Cellular Automata Anas Khan and Chetan Vudadha	19-23
5	Position Mapping using Content Based Image Retrieval and Annoy Riya Dalal, Simrat Kaur Randhawa, Rahul Vishwakarma and Shrey Modi	24-29
6	Self-supervised Language Identification ASR models for Low Resource Indic Languages Ashok Kumar L, Karthika Renuka D, Harshitha Phaniraj, Dineshraja V, Sree	30-34
7	Resmi S, Fatima Abdul Jabbar and Naveena K S Monitoring and Control of Discrete-Event System Using Augmented Reality and Open-Source PLC Erik Kucera, Oto Haffner, Lukas Beno, Rudolf Pribis, Martin Pajpach and	35-40
8	Dominik Janecký An Investigation of Context-Aware Object Detection based on Scene Recognition	41-46
9	Syed Ayman Naushad and Radu-Casian Mihailescu Enlightening University Students about Containerization through an Interactive Webpage Lukas Beno, Rudolf Pribis, Erik Kucera, Oto Haffner, Martin Pajpach and Jan Baranovic	47-52
10	Emerging Trends in Education For Industry 4.0 and 5.0 Engineers in Slovakia Using E-learning Web Applications Rudolf Pribis, Oto Haffner, Lukas Beno, Dominik Janecký, Erik Kucera, Martin Pajpach, Adam Juriš, Michal Hamrák and Šimon Zajac	53-58
11	ASIC Design and Implementation of a Power-Delay Product Optimized Arithmetic Operational Unit Tanya Mendez and G Subramanya Nayak	59-64
12	Versioning of SysML v2 for simulation by using Graph Databases in a CI/CD process Mario Schwaiger	65-70

13	Gesture Recognition System Based on Motion Capture Suit and LSTM Neural Network Oto Haffner, Erik Kucera, Rudolf Pribis, Martin Pajpach, Dominik Janecký and Lukas Beno	71-76
14	Exspiro - Mobile Application for Food Sustainability Martin Pajpach, Ľuboš Sekerák, Erik Kucera, Oto Haffner, Rudolf Pribis, Lukas Beno and Dominik Janecký	77-82
15	Application For Interfacing 3D Engine Unity With Robot Operating System Dominik Janecký, Erik Kucera, Oto Haffner, Juraj Kišš and Martin Pajpach	83-88
16	SPATIALLY-RESOLVED HYPERLOCAL WEATHER PREDICTION AND ANOMALY DETECTION USING IOT SENSOR NETWORKS AND MACHINE LEARNING TECHNIQUES Rohit Rajesh, Nitin Arul and Anita Agrawal	89-93
17	Single CFOA-based Grounded Negative Impedance Simulator Circuit	94-98
	MEGHANA SHRIVASTAVA, Pragati Kumar and Data R Bhaskar	
18	Investigating the Effect of Dust on the Performance of Rooftop Solar Photovoltaic System	99-104
19	Rahma Aman, Mohammad Rizwan and Astitva Kumar	105-110
13	Framework to Drone Part Selection, Verification and Fabrication of UAV for Multiple Applications Nanda Kumar BVN and Anita Agrawal	103-110
20	A Cluster Based Routing Protocol for IoT Based WSNs to Enhance	111-116
	Performance	
	PUNITH BEKAL, Pramod Kumar, Pallavi R Mane and Ghanshyam Prabhu	
21	Modeling and Simulation of Suspension for Electric Vehicle: Comfort vs. Road Holding Trade-offs	117-122
	Zuzana Záňová, Vladimír Kutiš and Oto Haffner	
22	SignSpeak: Exploring the Sign Language Communication Using Deep Neural Networks <i>Bhumaraju Mani Teja, Bhuvaneswari R, NATARAJAN B and Elakkiya R</i>	123-128
23	Classification of Cardiovascular Diseases using PCG	129-133
	Manideep Bhupalam, Hari Charan Reddy Manthoor and Ananthakrishna Thalengala	
24	Application of Gradient Boosting and Digital Simulation for Burner Optimization	134-137
	Ruslan Fedorov, Vyacheslav Sherkunov, Dmitry Generalov, Nikita Gladilin, Valeriy Sapunov and Igor Shepelev	
25	2D CNN vs 3D CNN: An Empirical Study on Deep Learning-based Facial	138-143
	Emotion Recognition	
26	Arav Dhoot, N. Ben Hadj-Alouane and M. Turki-Hadj Alouane	111110
26	TrALPR: Automatic License Plate Recognition using Transformers Vinay Kumar, Vivek Rai, GAURAV kUMAR, Ankit Kumar Kushwaha, ASHISH PANDEY and Dr. Sadanand Yadav	144-149
27	Estimation of activation sequences of the heart using cardiac cell models Reshma H, Vikas R Bhat and Anitha H	150-155

28	Capacitive Proximity Sensor Using Dickson Pump Charge Circuit Sanchit Choudhary and Anjali Singh	156-160
29	Stability Analysis of Flexible Aircraft Using Gerschgorin Circle Theorem Sanchit Choudhary and Anjali Singh	161-166
30	Image Quality Assessment of Breast Cancer with Various Modalities Al Sameera Muhammad and Vilas Gaidhane	167-172
31	Advancing Indian Stock Market Prediction with TRNet: A Graph Neural Network Model	173-178
	Manali Patel, Krupa Jariwala and CHIRANJOY CHATTOPADHYAY	
32	Crop Disease Detection and Classification using Transfer Learning and Deep Convolutional Neural Networks	179-184
33	V N Suchir Vangaveeti, Anurag Jha, Alok Joseph and Venkatesan Kalaichelvi Multirate VBR Model of Synchronous Machines for EMTP-Type Simulation	185-190
	Programs Rahul Raman Ramesh, Erfan Mostajeran, Seyyedmilad Ebrahimi and Juri Jatskevich	
34	A Novel State Feedback Controller for Permanent Magnet Synchronous Machines	191-196
	Ziliang Feng, Sheraz Baig, Seyyedmilad Ebrahimi and Juri Jatskevich	
35	Design and Development of a Robotic Arm for an Assistive Robot using ROS Sudeep Sharan, Duc Thuan Nguyen, Peter Nauth, Julian Umansky and Juan José Domínguez-Jiménez	197-202
36	Design and Analysis of Full Adder and Full Subtractor Circuit Using Hybrid Logic Style DR P KARUPPANAN Pitchai and Mohd Rafik	203-208
37	LoRaWAN: A Boon for the Remote Region IoT Applications Anamika Sharma and Samya Muhuri	209-212
38	New Filter-based Supervised Learning Approach for State of Charge Estimation of Li-Ion Battery for EV Applications	213-218
20	Mohammad Rizwan, Deepak Kumar and Amrish Kumar Panwar	240 222
39	Automated Lung Cancer Detection Using Lightweight Neural Network Mohd Mohsin Ali, Vasu Jain, Anand Chauhan, Vibhav Ranjan and manish raj	219-222
40	Enhancing Traffic Management with Deep Learning-Based Vehicle Detection and Scheduling Systems	223-227
11	Ashwini Raorane, Archita Patil and Jyoti Kundale	228-233
41	Comparison of Various Meteorological Parameters for Solar Radiation Prediction Using Artificial Neural Network	228-233
42	Dattatray Sawant, Puneet Kumar and Priyanka Verma	224 220
42	Pothole detection using smartphone: A Driver Assistant Shyamapada Mukherjee, Deepak Kumar, Amar Kamalapuri and Nehal Choudhury	234-239
43	Autoencoders in Graphical Document Retrieval: Cost Function Influence and Rotation Impact	240-245
	Rasika Gururaj Khade, Krupa Jariwala and CHIRANJOY CHATTOPADHYAY	

44	Hexagon Shaped Six Port DRA based MIMO Antenna with Pattern Diversity for Wireless Applications Gautam Kumar and Anshul Gupta	246-251
45	Revolutionizing Cancer Diagnosis in IoMT with a Novel Lightweight Deep Learning Model for Histopathological Image Classification Warish Patel, Amit Ganatra and Hakan koyuncu	252-257
46	Evaluating Flood Frequency Analysis Techniques: Performance Analysis of Log Pearson Type III, Gumbel's, and Log Normal Methods for Stream Discharge Estimation Monal Patel and Dr. Falguni Parekh	258-263
47	Reducing Labeling Costs in Alzheimer's Disease Diagnosis: A Study of Semi- Supervised and Active Learning with 3D Medical Imaging Rida Abdul Qayyum Patel, Radu-Casian Mihailescu	264-269
48	Fractional Order PID Controller for Quadrotor Murad A. Yaghi, Abdelhafez Shehadeh and Tarek A. Tutunji	270-274
49	Maximizing the Lifetime of Wireless Sensor Networks through Fuzzy Controller-Based LEACH Protocol with Longevity Constraints AMAR JUKUNTLA	275-280
50	Reducing Computation Requirements for Autonomous Navigation on Low Powered Embedded Systems Abhinav Pathak, Aditya Singhal, Adit Tewari, Aadish Jain and Venkatesan Kalaichelvi	281-285
51	Performance Analysis of Non Linear Energy Harvesting in Relay assisted NOMA Cooperative Network Krati Mittal, Akash Gupta and Parul Garg	286-290
52	Enhancing Microarchitecture Performance through Synergistic Dynamic Branch Prediction and Cache Prefetching Janib Bashir, Uzmat Nisa, Kalimullah Lone and Saleem Mir	291-295
53	High Voltage Circuit Breakers Arcing Contacts Operational Condition Indices Extracted from the Dynamic Resistance and Contact Motion Trajectory Kerim Obarcanin and Radenko Ostojic	296-301
54	A Method for Condition Assessment of the High Voltage Disconnector Switch Electric Motor Drive Kerim Obarcanin and Faris Ramovic	302-306
55	Early diagnosis of polycystic ovarian syndrome (PCOS) using machine learning: an ensemble learning approach Shivam Krishana, Dr Sparsh Sharma, Saurabh Singh and Byungun Yoon	307-312
56	Regression Analysis of Metamaterial Antenna using Decision and Extra Tree Regressors George Paulson, Kaustubh Upadhyay, Praneet Dighe, sameena pathan,	313-316
57	Tanweer Ali and Shweta Vincent IGBT using Deep Trench Gate Engineering for Low Loss Switching Application Alok Naugarhiya, Chumki Das and Mahesh Vaidya	317-321

58	Enhanced Average-Value Modeling of Voltage-Source Inverters in Variable Frequency Drives for Efficient Simulation of Marine Propulsion Systems Seyyedmilad Ebrahimi, Taleb Vahabzadeh, Arash Safavizadeh and Juri Jatskevich	322-327
59	ATCNN-DWT Integration: A Combined Approach for Advanced Medical Image Fusion Mamta Rani, Jyoti Yadav and Neeru Rathee	328-332
60	Design and comparison of traditional cyberbullying detection models using NLP	333-338
61	Megha Manoj and Sujala Shetty A Novel Approach to Enhance the Performance of Polarity Controlled TFET using Metal Strip Layer for High-Frequency Applications Bandi Venkata Chandan, Dharmender - and Kaushal Nigam	339-344
62	Advanced 3D Modeling for Augmented Reality Visualizations in Engineering Education: Issues, Challenges, and Future Trishna Paul and Mukesh Kumar Rohil	345-350
63	Mitigation of Renewable Power Evacuation Constraints in Practical Utility Grid by Restricting Power Flow on the EHV AC Transmission Lines Ram Niwash Mahia and Om Prakash Mahela	351-355
64	Augmented Reality Indoor Navigation with Smart Appliance control Pramod Bide, Nishtha Sharma, Danish Sheikh and Amaresh Baranwal	356-361
65	Unveiling Customer Segmentation Patterns in Credit Card Data using K-Means Clustering: A Machine Learning Approach Sakshi Priyadarshni, Rakshan Fathima, Siddhaling Urolagin, Anupkumar Bongale and Deepak Sudhakar Dharrao	362-366
66	Comparative Analysis of Machine Learning Models for Energy Consumption Prediction in Residential Buildings Sanober Ahmed and Sujala Shetty	367-372
67	A Modified Circular-Shaped Flexible UWB Antenna for Wireless Body Area Network Vikas Kumar Jhunjhunwala, Tanweer Ali, Pramod Kumar, Aditya Manoj Malchandka and Subham Srivastava	373-377
68	Design of CMOS-Based Ring Oscillator for VCO Application Using Neural Network Bhavadev Gajendiran and Vilas Gaidhane	378-382
69	Modeling of Textile Antenna Sensors for Breast Cancer Detection Using Artificial Intelligence Techniques Zainab Abdelmawgood, Sara Abdalawy, Habiba Mohamed, Angie Eldamak, Omar Fahmy and Dalia Elsheakh	383-386
70	An Improved Onboard Electric Vehicle Battery Charger Using Optimized Fractional Order Power Factor Correction Controller Dr. Komathi C and DURGADEVI S	387-392

71	High-Isolation, Wideband Two-Element MIMO Antenna with Novel Decoupling Coupling Structure for Millimeter Wave 5G Wireless Applications Akshay Anil Naik, Parveez Shariff B G, Sanjay S Prabhu, Tanweer Ali, Pallavi R Mane and Prayeen Kumar	393-398
72	Comparative Analysis of Intelligence Strategies for UAV-Assisted Device Communication PRAVEEN PAWAR	399-403
73	Slotted 1×2 Array Antenna With Defective Ground Plane For 5G Millimeter Wave Applications Sammed S Muppane, Jeevan V, Khushboo Daga, Jagadeesh Chandra RB and Tanweer Ali	404-407
74	Water quality analysis using Normalized Difference Chlorophyll Index (NDCI) and Normalized Difference Turbidity Index (NDTI), using high resolution imageries in Google Earth Engine platform Kishan Rawat	408-413
75	The Impact of Urbanization on Hydrological Parameters: A Review Article Kishan Rawat	414-419
76	Develop Soil Moisture data using Optical and Microwave Satellite observations Kishan Rawat	420-423
77	Modelling Spatial-Temporal Change of High Altitude Lake (HAL) Using Earth Observational Data: a case study of Nani Lake of Uttarakhand Kishan Rawat	424-428
78	Development of Virtual Soil Moisture Sensor (VSMS) using Optical and Microwave Remote sensing data Kishan Rawat	429-432
79	A Time-aware Knowledge Graphs model for Explainable recommendation Yupu Guo	433-437
80	A Comparative Study of Dislocation Dynamics in Ductile and Brittle Crystalline Materials Santosh Chhetri, Eduardo de Moraes, Maryam Naghibolhosseini and Mohsen Zayernouri	438-441
81	Performance Analysis of UAV Assisted Dual-Hop Multi-user Uplink NOMA System prerna sahariya, Akash Gupta, Parul Garg and saloni das	442-445
82	Efficient Feature Selection Approach for Prediction of Cervical Cancer Using Machine Learning Algorithms Alauddeen Shaikh, Priyanka Verma and Ketki Deshmukh	446-451
83	Design and Numerical Investigation of FTO/TiO2/FA0.85Cs0.15Pb(I0.85Br0.15)3/MoO3/Au perovskite solar cell Ashutosh Srivastava	452-455
84	Improving Diabetic Retinopathy Diagnosis with Transfer Learning and Filtered Fundus Images: An Automated Approach Preeti Verma and E. Sivasankar	456-461

85	A Comparative Study of Q-Learning and DQN on Large Grid World Environments	462-467
86	Hari Prasad, Prithvi J and Imthias Parambath Grade and Subtype Classification for Glioma Tumors using Clinical and Molecular mutations. Vishan Oberoi, Priyanka Verma, Dev Chandan, Brshank Singh Negi and Vaishali Kulkarni	468-473
87	Unsupervised Segmentation and Data Augmentation in Image Sequences of Skeletal Muscle Contraction by Cycle-Consistent Generative Adversarial NetworkArash Saboori and Christer Grönlund	474-479
88	SigScatNet: A Siamese + Scattering based Deep Learning Approach for Signature Forgery Detection and Similarity Assessment Anmol Chokshi, Vansh Jain, Rajas Bhope and Sudhir Dhage	480-485
89	Project Lingua Franca: Democratizing Information through Unified Optical Character Recognition and Neural Machine Translation Suvaditya Mukherjee, Aaryadev Chandra, Krisha Chemburkar and Vaishali Kulkarni	486-491
90	PERFORMANCE ANALYSIS OF SUBSEA PIPELINE DEFECT CLASSIFICATION USING SUPERVISED MACHINE LEARNING Shriya Shenoy Tariber, Shreehari A, Poornachandra M, Pooja Belaldavar and Shruthi MLJ	492-497
91	Currency detection for visually impaired people using edge devices divya srivastava and Gaurav Singal	498-503
92	Real Time Quality Assessment in a Production Line: Machine Learning Approach Ritvik Mahapatra and Kumar Gaurav	504-509
93	Predicting Defective and Good Tyre Quality Status with Pre-Trained CNN Models Yavuz Selim Taspinar	510-514
94	Automating CT Diagnostic Image Quality Control Using Transfer Learning Anubhav Gupta, Mohamed Shehata, W. John Braun, Rebecca Emily Feldman and Thorarin Albert Bjarnason	515-520
95	Lithium-Ion Battery Health Prediction Using a GRU Model with Protective Characteristics. Pooja Ramani, Rohan Vaghela, Yashvi Popat, Hirva Patel, Dr. Jigar Sarda and Dr.ARPITA PATEL	521-525
96	A Study on 5G Multiband and Wideband MIMO Antenna for Wireless Application Dr. ARPITA PATEL and Dr. Jigar Sarda	526-531
97	Designing Smart Grid and Irrigation Management Systems for Information Sharing for Enhanced Efficiency and Sustainability Jagendra Singh, Neeraj, Neha Garg, Mayank Saini, Ishaan Singh and Shachi Mall	532-537
98	Enhancing Class Monitoring Through Video Analytics and Deep Learning Models	538-543

Riti Kushwaha, Himanshu Rawat, Suman Bando, Aman Kumar Dass, Lakshya Panwar, Divya Srivastava and Gaurav Singal

99	A Photonic Crystal Fiber based SPR Biosensor for Escherichia Coli(E-Coli) Detection	544-547
100	ANKUR SAHARIA and DR. MANISH TIWARI Single CMOS VCII Based Inverse Filter Configuration (URTI KALIARIMAR, Report Property Kyronomy and Report Reports)	548-553
101	KIRTI KAHARWAR, Ram Bhagat, Pragati Kumar and Data R Bhaskar IoT-Enhanced Agricultural Water Management System Utilizing Conventional Machine Learning Methods Jagendra Singh, Neha Garg, Sonal Kukreja, Mayank Saini, Ishaan Singh and Shachi Mall	554-559
102	Performance Analysis of Lightweight Ciphers for securing images Keerthan Nekkanti, SaiSumanth Lade, Renuka A, Musica Supriya and Arun Kumar	560-564
103	Clinical Efficacy Of Ensemble Learning For Cardiovascular Disease Prediction: A Comparative Analysis With Traditional Machine Learning Classifiers Deepak Rai, Janhavi Agrawal, Deepika Pandey, Divyanshu Pandey and Mudit Jain	565-569
104	EarSiamNet: Leveraging Siamese Networks and SVM for Ear Biometric Authentication Devansh Gupta, Shireen Chand, Dev Chandan, Divyata Shah, Aryan Bhapkar and Vaishali Kulkarni	570-575
105	A modified class topper algorithm and it's hybridizations with K-means for clustering agriculture, health-care and geology data Dr. Pranesh Das	576-580
106	Hybrid LQR Control Optimized with PSO and TLBO Algorithms for Single Area Load Frequency Control Incorporating Renewable Energy Systems Manish Kumar Pandey and Ram Niwash Mahia	581-586
107	Guiding the Student's Learning Curve: Augmenting Knowledge Distillation with Insights from GradCAM Suvaditya Mukherjee, Shreyas Dongre and Dev Chandan	587-591
108	Nearest Neighbor Based Unsupervised Deep Learning Image Recognition Method <i>Enoch Solomon, Abraham Woubie and Eyael Emiru</i>	592-596
109	Face Image Recognition Using Deep learning Through Autoencoder Pre- Training	597-602
110	Enoch Solomon, Abraham Woubie and Eyael Emiru Enhancing Wastewater Treatment Plant Efficiency: Constraint Optimization and Regression Analysis Approach Aparna K.G, R Swarnalatha	603-608
111	Decomposed and hybridized deep learning models: An application to stock price prediction Dr. Pranesh Das	609-613

112	Deep Learning-Powered Multiclass Classification of DDoS Attacks on 6G- Connected IoT Devices Pooja Kumari and Ankit Jain	614-618
113	A Study to Evaluate Various Machine Learning Approaches for Breast Cancer Prediction and Detection Radhika Khatri, Sanober Ahmed, Neeru Sood and Anubhav Gupta	619-624
114	Plant Leaf Disease Detection: A Deep Hybrid Learning Approach Santosh Kumar	625-630
115	Exploring Breast Cancer Detection Techniques Using Artificial Intelligence Arindam Kolay, Trishna Paul and Ravindra Pal Singh	631-636
116	Comparative study of different machine learning models for customer churn analysis using SMOTE and feature variation along with customer segmentation Mary Thankam and Neamat El Gayar	637-642
117	Computational Design and Development of On-Board Device for Driver's Health Monitoring using Microfluidic Technology Sanchanna Ganesan, Vimala Juliet and SWARNALATHA RAJAGURU	643-647
118	Efficient Implementation of Fast Half Adder using 8T SRAM for In-Memory Computing Applications SREEJA KUMAR	648-652
119	A Q-NF Pairing in NOMA-IoT System Under Im-SIC Sandeep Singh Rana, Gaurav Verma and O. P. Sahu	653-658
120	Plasmonic Lens Structures for Focusing Optical Fields Aparna U and M. Sathish Kumar	659-662
121	ChatGPT and the Social Media Echo: A Sentiment Analysis Ram Krishn Mishra, Rushit Palesha, Rahul Sumbly and Chandra Mani Sharma	663-668
122	Two-Layer Security for Confidentiality in User Assisted Cooperative NOMA System Dhanusuya Rajendiran, Sharon Jenifer Albert and Gunaseelan K	669-674
123	Graphene based microwave sensor for determining dielectric permittivity of different materials for food evaluation application Nitika Nitika, Jaswinder Kaur and Rajesh Khanna	675-678
124	A compact and superstrate-loaded Implantable antenna for Leadless Cardiac Pacemaker System at ISM band Sukhpreet kaur, Jaswinder Kaur and Rajesh Khanna	679-682
125	Experimental Investigations Towards the Design of Power Management System Using Indoor Photovoltaic Anna Merine George, Ciji Pearl Kurian, S.Y Kulkarni, Veena KN and V. I. George	683-688