2024 Control Instrumentation System Conference (CISCON 2024)

Manipal, India 2-3 August 2024



IEEE Catalog Number: CFP24VC2-POD **ISBN:**

979-8-3503-7549-7

Copyright © 2024 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:	CFP24VC2-POD
ISBN (Print-On-Demand):	979-8-3503-7549-7
ISBN (Online):	979-8-3503-7548-0

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



(Conference Record # 62171)

Table of Contents

SL.NO.	Track 1: Control and Automation	PG.NO.
1.	An Offline Engineering Analysis Software Platform for Oscillatory	1
	Stability Assessment	
	Arup Anshuman, Rishav Kumar, Manas Kumar Jena, Bijaya Ketan	
	Panigrahi	
2.	Enhancing Control Strategy in Switched Reluctance Motors(SRM):	6
	A Focus on Event-Triggered Control	
	Shanmukha Siddharth Tata, Gopalam Rahul Malik, Gopanapalli Sai	
	Sindhura,Penumetsa Sri Sai Ashish Varma,Jayasree P.R.,V	
	Ravikumar Pandi, Surender Reddy Salkuti	
3.	Fractional Order Approach based Multi-Model Cascade Control	12
	strategy for Nonlinear Processes	
	A.Adithya Kashyap, E.Chandramohan Goud, Suresh Kumar	
	Chiluka, A.Seshagiri Rao & G.Uday Bhaskar Babu	
4.	Enhancing Accuracy Through Data Augmentation using Variational	17
	Autoencoders in Machine Learning Techniques	
	Vaibhav Dubey, Bhavneet Kaur, Paurav Goel	
5.	Filter Based Saturated Controller for a class of nonlinear Singularly	23
	Perturbed System	
	Dipak Prasad, Sudarshan K. Valluru, Madan Mohan Rayguru	
6.	BEL-PID controller for Vibration Mitigation	28
	Sri Harsha Kilaru, Gaurav kumar	
7.	Fault Detection and Machine Health Monitoring in Cylinder Block	32
	Production Lines through Ignition in Industry 4.0	
	Ankita Banerjee, Ravi Bhushan, Soumyadeep Mukherjee	
8.	Virtual Prototyping of DC-DC Converter in MATLAB and Closed	38
	Loop Hardware Implementation using Arduino UNO	
	Rijil Ramchand, Sai Sanjay M S	
9.	Design of Low-Cost PLC to Drive Three-Phase Induction Motor	44
	using Variable Frequency Drive	
	Rajashree Rout, Sudhansu Kumar Samal, Gautam Modak	
10.	Time-optimal Known Maneuvering Target Interception with Impact	49
	Angle in 2D Plane	
	Prasanna Mathavan J T, Saabiq Ahamed M, Revanth Chowdary D,	
	Dhavapriyan J B, Nikhil Kumar Singh	

11.	Simulink Exploration of Design and Control Techniques for BLDC-	55
	Driven Compliant Actuators in the Legged Robotics	
	Dhananjay Shendre, Vinodini Bhole, Sunil Ghunage	
12.	IoT and Machine Learning based Valve Stiction Estimation in	61
	Process Industry	
	Vimal kumar V, Ragesh G. K., Aparna George, Priya S.	
13.	Implementation of Plant Model of an Air Vented Dryer system using	67
	Data Driven Approach in MATLAB/Simulink	
	Dhanashree Gonde, Archana Thosar, Itishree Sethi	
14.	BLDC motor speed control using Selective Harmonics Elimination	73
	(SHE)Inverter	
	Tanushree Mistry ,Sudhansu Kumar Samal,Smitanjali Rout	
	Track 2: Biomedical and Healthcare	
15.	Fast Image Processing Approach for the Reliable Quantification of	78
	Intracranial Hematoma Volume in Brain CT Images	
	Vidhya V, Anjan Gudigar, Raghavendra U, Akanksha Shetty, Lekha	
	Shree B.T, Parvathy Nair K, Ajay Hegde, Girish R Menon	
16.	Optimizing Process Monitoring Efficiency through Control Limit	84
	Adjustment in Multivariate EWMA Charts	
	Amir Khurshid, Ajaya Kumar Pani	
17.	Sensors for therapeutic drug monitoring for ciprofloxacin	89
	Vrinda Kini, Pooja Nag, Kapil Sadani	
18.	Detection of Intracranial Hemorrhage – A Comparative Study of	92
	Traditional Machine Learning Techniques and Mask Generation	
	using CNN	
1.0	Srushti D Rai, Mithun Kanchan, Omkar S Powar	
19.	Enhanced Brain Tumor Detection using Support Vector Classifier	97
	and Logistic Regression with Principal Component Analysis	
20	Shravya Salian, S Cherishma , Omkar S Powar	100
20.	Alternative Technological Interventions for Analysis of	102
	Neurodegenrative Tremors	
	Riddhiman Ganguly, Pooja Nag, Eshita Thippana, Dhruvam	
21	Nagarsheth Mismafiyidia Analysia of Misma Needla fan Draw Daliyara	100
21.	Microfluidic Analysis of Micro Needle for Drug Delivery	108
	Moorthi.M, Gugan.B.M, Mohammed	
	Suhail.K.S., Thiruneelan.R, Chee Yong Lau, Alexander. C.H.C, Sathish Kumar. S	
22.	ESERS Sensing:challenges and opportunities	112
<i>LL</i> .	Ashwini G Shenoy, Vrinda Kini, Kapil Sadani, Pooja Nag	112
23.	AI-Enabled Sign language detection: Bridging communication gaps	115
23.	for the hearing impaired	115

	Vinitha Itham,Kalyani Gadupudi,Pavani Sri Jaya Prathyusha	
	Kota,Pavan Kumar Dora	
24.	Performance Study of Machine Learning Models for Kidney Stone	120
	Diagnosing	
	Dhairya Gudhadhe, Monali Gulhane, Nitin Rakesh, S Pratap Singh,	
	Sandeep Kumar, Ajay Deep	
25.	Computational Efficient ER of Wireless Nano Sensor Network	127
	under Interference	
	Paneri Fulbandhe, Sharayu Kalambe, Gunjal Chauhan, Nitin	
L	Rakesh, S Pratap Singh, Monali Gulhane, Sandeep Kumar	
26.	Revolutionizing Retinal Imaging using Transfer Learning for	132
	Pathology Detection	
	Pratham Kaushik, Kanwarpartap Singh Gill, Rahul Chauhan,	
	Hemant Singh Pokhariya	
27.	Melanoma Skin Cancer Detection Using InvolutionNet	137
	Shubham Chaudhary, Vishal Gupta, Kunal Deo, Kapil Sharma	
28.	MedSeg: A Medical Image Analyzer	143
	Shlok Mehta, Keyur Pancholi, Sakshi Pandey, Sudhir Dhage	
29.	Innovative Expert System for Coronary Heart Disease Diagnosis	149
	Utilizing Soft Sets	
	Jackson S, Sasikala D, Deepa M	
30.	Gut Microbiome based Cardiovascular Prediction using Random	155
	Forest Model	
	Akash Shah, Akshat Duggal, Arya Gaurkar, Shyam Pratap Singh,	
	Nitin Rakesh, Monali MV Gulhane, Sandeep Kumar	
31.	Characterizing the Effect of Imagined Phonemes using EEG Signals	161
	Gokulmuthu Narayanaswamy, Anuradha Choudry, Praphulla	
	Shukla	
32.	Simplistic refinement of self-supervised feature representations for	166
	classification of Brain strokes using contrastive learning on CT	
	Images	
	Mahesh Inamdar, Anjan Gudigar, Raghavendra U, Raja Rizal	
	Aman, Nadia Gowdh, Izzah Ahir, Ajay Hegde	
33.	Wireless Measurement System for Real-Time Kinematic Analysis	172
	of Human Motion	
	Madhulika Baruah, Shilpa Suresh	
34.	Real-time video based detection of retained surgical instruments	178
	during intraoperative procedures	
	Chandana K R, Nimal P S, Navaneeth E U, Sony N S	
35.	Detecting COVID-19 Infection Using Customized Convolutional	184
	Neural Network	

	Sahil Kumar, Bablu Kisku, Sai Harsha Vardhan K, Sunil Kumar,	
	Biswajit Bhowmik	
36.	Cardiovascular Health Prediction Using HRV Parameters: A	190
	Comparative Study of Machine Learning Techniques	
	Hari Sankar S, Varun Krishna Jyothis, Gowri Prasad, Abhijith S,	
	Anudev J	
37.	Accurate identification and Advanced mapping for comprehensive	196
	Skin Cancer Staging	
	Devulapalli Praneetha, Madhavi Latha Pandala, Gopu Nithin Sai	
	Track 3: Computing and Data Science	
38.	A Wood Anomaly Detection System Based on Electrical Resistivity	202
	Tomography and Tiny Machine Learning	
	Hongyuan Ru, Jiaxiang Chen, Zexu Sun, Shuo Tai, Wei Zhao, Roshan	
	Kumar	
39.	Robust Control of Pitch Motion of Satellite Using Negative-	207
	Imaginary Systems Theory	
	Santosh Kumar Choudhary, Shreesha Chokkadi	
40.	Predictive Maintenance of Industrial Equipments combining IoT	213
	and Data Science Techniques using Feed Forward Neural Network	
	Suman Sekhar Meher, Vandana Kakran	
41.	Enhanced Crop Protection: Mobile-Net V2 for Pest Identification	219
	Abhishek ,Shrey Vardhan Dhiman ,Dr. S. Sadagopan	
42.	Enhancing Foreground-Background Segmentation for Indoor	225
	Autonomous Navigation using Superpixels and Decision Trees	
	Suresh Dodda	
43.	Prediction of Pulmonary Fibrosis Disease	232
	Palak Khurana, Disha Jain, Seema Sharma, Sakshi Yadav	
44.	Enhanced Weather Prediction with Feature Engineered, Time Series	238
	Cross Validated Ridge Regression Model	
	Dina Stephan K, Jisha G	
45.	Enhancing skin lesion Classification: A machine learning approach	244
	using KNN, XGBoost, and Random Forest	
	SK. Rhaber Hussain , Omkar S Powar	
46.	Improving prognostic prediction of cirrhosis using an optimised	248
	ensemble machine learning approach	
	Diksha Bhardwaj, Gagninder Kaur ,Gundarapu lali Babu	
47.	Automated Sentiment Analysis for Instant Feedback on YouTube	254
	videos through comments	
	P.Dhanalakshmi, Balli Ashbel Raj, Balusu Bharath Kalyan,	
	Anamalamuri Rifath Ashreen, Alikonda Arun Kumar, N.	
	Balakrishna	

48.	Navigating Data Imbalances in Credit Risk Management: A One- Sided Selection Approach	260
	Shashank J Bennehalli, Sharan Vakkund, Anusha Hegde H, Biswajit Bhowmik	
49.	Adaptive Layered Machine Learning Approach to Detect and Mitigate Behavioral Based Intrusions in Wireless Sensor Network Saathvika S, Accamma B L, Santhosh Kumar B J	266
50.	A framework for Optimizing Resources and Performance Management in Cloudlet Computing Environment <i>Ambika Jaiswal, V.M. Thakare, Suhashini Awadhesh Chaurasia,</i> <i>Sivaram Ponnusamy, Bhisham Sharma</i>	273
51.	Optimizing Cloudlet Architectures for Enhanced Mobile Cloud Computing Performance Ambika Jaiswal, V.M. Thakare, Amitesh Jaiswal, Suhashini Awadhesh Chaurasia, Bhisham Sharma	278
52.	Counterfeit Currency Detection using Machine Vision and Image Processing Satwik Shivaram Bhat, Shilpa Suresh	284
	Track 4: Telecommunications, Networking and IOT devices	
53.	LETFM: A Robust and Key-Space Enhanced Map for Secure IoT Image Encryption Manish Kumar Thukral	290
54.	Botnet Detection by including payload information of packets through machine learning <i>Samarendranath B, Dinesh Rao B, Balachandra M, Prathiksha</i>	295
55.	Patient Health Classification Using Various Machine Learning Algorithms Aryan Rahul Shah, Ammu Anna Mathew, Karthikeyan V, Vivekanandan Shanmugasundaram	300
56.	A Smart Coherent Security Model (SCSM) using Intelligent Optimization and Ensemble Deep Learning Mechanisms for Healthcare-IoT Networks <i>Dr. S. Venkatesan, Dr. M. Ramakrishnan</i>	306
57.	A Deep Learning Approach to Gun Detection in Surveillance System using YOLOv9 <i>Lucy Sumi, Shouvik Dey</i>	315
58.	Robust Serial Driver Verification Through UVM Framework P.Siva Kumar, R. Rajalakshmi, N.Hemanth Kumar, B.Prem Gupta, C H.Nikhilesh, J.Sai Padma Pavan	320
59.	Deep Learning-Based Oral Cancer Detection through Speech Analysis	326

	Maitreya Cherukupalli, Ragavan B, Pooja S, Srivaas Jaideep, Dr. Supriya.P	
60.	Suprogram Wireless Reseeding Scheme for Lightweight PRNG Architecture on FPGA - Design and Analysis Sivaraman R, Varada Sai Madhukar, Sriranjana V, Kavyadharshni S, Naresh Kumar H, Siva J	331
61.	S, Harcon Hamar H, Strue FPGA Governed Edge Device Confidentiality: Lightweight Cryptography with Enhanced Security Sivaraman R, Gowtham S, Gopalakrishnan G, Muralidharan D, Muthaiah R, Shankar Sriram V S	337
62.	Investigation of Dynamic Eccentricity in Switched Reluctance Motors: A Fusion of Finite Element Analysis and Machine Learning <i>Archana P, Praveen Kumar N</i>	343
63.	Remote Sensing Approach for Plant Disease Detection Using Unmanned Aerial Vehicles (UAVs): A case study in Nagaland <i>Kartikeya Shukla, Prakash Marimuthu, Shakila Baskaran</i>	349
64.	Investigation of metasurface absorber using CdTe,Graphene and InSb for Terahertz applications Nishant Sharan, Mohit Kumar Singh, Gundlapalli Mamatha, Naggalla Chandrika, Gujjapaneni masthan babu	355
65.	Impact of Fading Models on Information Dissemination in VANETs under Intelligent Transportation Systems <i>Rajkumar Joydev Borah, Dr. D. Ganga</i>	360
66.	Simulation investigations of a pixelated metasurface absorber comprising CdTe, InAs, and InSb pixels for terahertz radiation <i>Mohit Kumar Singh, V Chandana, P Nikitha, K Rakshitha</i>	366
67.	Dual Polarized CPW-Fed Multi-Band Antenna for 5G, ISM, and X- Band Applications <i>Kishore N, Avinash Chandra, Aswath S, V Varun</i>	373
68.	Smart Traffic Control: Leveraging DQN for Improved Urban Mobility Snehith Kommuri, Vijaya Lakshmi Korupu, Anand Yellanki, Anusha Chippala, Yamini Nuthalapati	379
69.	Enhancing VoIP in Telemedicine by Hybrid Jitter Buffer Algorithm Bhupathi Vishva Pavani	385
70.	Design of a Wideband Slotted Monopole Antenna for C-band and RFID Applications Tanmaya Kumar Das, Yashasvi Kuldeep, Prashast Singh, Pratosh Ramji, Abhinav Prasad, Siddharth R Iyer	391
71.	Priority Based Efficient User Scheduling in Quadcopter Assisted 5G Network Sudeep Manohar, Kiran M	396

	Track 5: Emerging Technologies	
72.	Enhancing Anomaly Detection in Electric Vehicle Supply Equipment (EVSE) Networks Using Classical and Ensemble Learning Approaches	402
	Sandeep R Hegde, Vijayabhaskaramoorthy V, K.R.M. Vijaya Chandrakala, Gireesh Kumar T, V.K. Arun Shankar	
73.	Comparative Analysis of Fault Detection Techniques in Power System Sri Raksha Kiran, Sangeeta Modi	407
74.	Investigation of Dynamic Eccentricity in Interior Permanent Magnet Synchronous Motor through Finite Element Method and Machine Learning <i>Abeena A, Praveen Kumar N</i>	413
75.	Battery State of Health Prediction using Hybrid PSO-LSTM Algorithm Ambati Lokeswara Reddy, Shakila Baskaran, Prakash Marimuthu	419
76.	Uncertainty Quantification of LSTM Model for SoC Estimation against Aleatoric and Epistemic Uncertainties <i>Anbumalar Pandian, Sutha Subbian, Pappa Natarajan, Seevagan</i> <i>Senthilkumar Deepa</i>	425
77.	Integrated Deep Learning and Optimization Strategies for Accurate Cinnamon Bark Disease Classification Shrutha V Bhat, Sujithra T	431
78.	Exploring Variational Autoencoders and Generative Latent Time- Series Models for Synthetic Data Generation and Forecasting Suresh dodda	437
79.	Real time audio pattern recognition-based door locking system using NI myDAQ Jathin Bharadwaz P, Nitin Pavuluru, Vaisakh Melaveetil Shaju and V.Sravani	443
80.	Effective Intrusion Detection and Prevention System of Botnet attack in Blockchain Technology using Recurrent Neural Network Santhosh Kumar B J, Nimish Kumar Patel, Anagha N	447
81.	Enhancing Cybersecurity Through Machine Learning: Differentiating Browsing Patterns to Identify Potential Threats <i>M. Gayathri Reddy , Charulatha Tammana , Sriya Komaragiri , J.</i> <i>Hemalatha</i>	453
82.	Design and Optimisation of a Telescopic Operational Amplifier J S Siddhanth, Sujata Kotabagi, Mohammed Ali, Sahana Kolur, and Srushthi Joshi	459
83.	Cubic Boron Arsenide MOSFETs: A DC Characterization study for Next Generation Semiconductor Devices	465

	P. Harikrishnan, P. Sivakumar	
84.	Energy Trading Interface for Grid-Tied Wind-Solar Power	472
	Generation System	
	Nikhil Nitin Patil, Yeetendra Dubey, M. Himani, J Ramprabhakar,	
	Anand R, and V. P. Meena	
85.	Effect of high k dielectric layer on the performance of Silicon based	478
	Nanoscale MOSFET	
	Basavaraj S. Sannakashappanavar, Meghashree M,	
	MaithriShridhar Bhat, Arjun Sunil Rao, Guruprasad B, Aniruddh	
	Bahadur Yadav	