PCET's Pimpri Chinchwad College of Engineering and Research, Ravet, Pune

Publication Booklet (A.Y. 2022-23)

Research and Development Cell, PCCOER, Ravet, Pune

Index

Summary of Publication

Department-wise Summary of publications (A.Y. 2022-23)

Sr. No.	Department	Publications				
		Journal	Conference	Book Chapter	Books	Total
1	Applied Science	01	-	-	01	02
2	Civil Engineering	04	01	-	-	05
3	Computer Engineering	09	08	02	03	22
4	Electronics and Telecommunication	04	10	01	-	15
5	Information Technology	00	-	-	-	00
6	Mechanical Engineering	04	-	-	-	04
Total Publications		22	19	03	03	47

Summary of Publications

Journal Paper Indexing	
WoS (SCI/ESCI/SCIE)	00
Scopus	17
UGCCare	00
Conference Paper	
National Conference	-
International Conference	19
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List of Journal Publication

Sr. No	Paper Id	Department	Title of Article	Author(s)	Journal	Volume	Issue	Pages	DOI	Indexing
1	JP202223_AS_1	Department of Applied Sciences and Humanities	Impact of Lockdown due to COVID-19 on Human Life and Environment in India	Manisha Deshpande	Industrial Engineering Journal	52	2	651-661	http://www.journal-iiie-india.com/1_feb_23.html	UGCcare
2	JP202223_CI_1	Department of Civil Engineering	Performance Evaluation of Soil and Water Conservation Constructed Structures in Drought Prompt Areas of Satara, India	Tapase A.;Desai R.;Bobade S.;Kadam D.;Karande U.;Jagdale S.;Sabale R.	Journal of Performance of Constructed Facilities	36	6	-	10.1061/(ASCE)CF.1943-5509.0001762	Scopus
3	JP202223_CI_2	Department of Civil Engineering	Review on Bio-Medical Waste Management	Sahil Sanjeev Salvi, Shubhangi Waghmare, Vikas Thombare, Sagar Mandlik, Saurabh Veer, Prajwal Walke, Prathamesh Zambare	International Journal of Engineering Research & Technology	11	1	63-69	10.17577/IJERTV11IS010038	NA
4	JP202223_CI_3	Department of Civil Engineering	Lifecycle Assessment of a Building by Using BIM	Prof. Sahil Salvi, Mr. Abhijit Patil, Ms. Sejal Mhetre, Ms. Yamini Patil, Mr. Anand Shinde	Journal of Interdisciplinary Cycle Research	14	-	1347-1357	10.22214/ijraset.2022.39901	Scopus
5	JP202223_CI_4	Department of Civil Engineering	Functionally Graded Piezoelectric Plates in Cylindrical Bending by Semi-analytical Approach	Sawarkar S.;Pendhari S.	Mechanics of Advanced Composite Structures	9	2	409-424	10.22075/macs.2022.25808.1376	Scopus
6	JP202223_CO_1	Department of Computer Engineering	An optimized framework for VANET routing: A multi-objective hybrid model for data synchronization with digital twin	Badole M.H.;Thakare A.D.	International Journal of Intelligent Networks	4	-	272-282	10.1016/j.ijin.2023.10.001	Scopus
7	JP202223_CO_2	Department of Computer Engineering	Embedded security framework for M2M	Salunke M.B.;Mahalle P.N.;Shinde G.R.	Journal of Discrete	26	3	793-806	10.47974/JDMSC-1755	Scopus

			communication using ULBC and Rubik's Cube encryption algorithm		Mathematical Sciences and Cryptography					
8	JP202223_CO_3	Department of Computer Engineering	Introduction of machine learning with applications to communication system	Kumar J.R.;Chobe S.;Nikam S.;Zanwar S.;Borawake M.;Hirolikar D.	Journal of Autonomous Intelligence	6	3	-	10.32629/jai.v6i3.1244	Scopus
9	JP202223_CO_4	Department of Computer Engineering	Fast anomaly detection in video surveillance system using robust spatiotemporal and deep learning methods	Kotkar V.A.;Sucharita V.	Multimedia Tools and Applications	82	22	34259-34286	10.1007/s11042-023-14840-0	Scopus
10	JP202223_CO_5	Department of Computer Engineering	GridBoost: A classifier with Increased Accuracy to Detect Anomaly in Social Media Networks	Lunawat S.;Rao J.;Patil P.	Journal of Engineering Science and Technology Review	16	5	13-18	10.25103/jestr.165.02	Scopus
11	JP202223_CO_6	Department of Computer Engineering	Rubik's Cube Encryption Algorithm-Based Technique for Information Hiding During Data Transmission in Sensor-Based Networks	Salunke M.B.;Mahalle P.N.;Shinde G.R.	International Journal of Intelligent Systems and Applications in Engineering	10	1s	429-439	https://www.ijisae.org/index.php/IJISAE/article/view/2310/893	Scopus
12	JP202223_CO_7	Department of Computer Engineering	Natural Calamity Detection Using Deep Learning	Swati Nikam et.al.	Dogo Rangsang Research Journal (UGC CARE)	11		5-Jan	NA	NA
13	JP202223_CO_8	Department of Computer Engineering	Gesture Recognition based Virtual Mouse and Keyboard	Dipti Chaudhari	IJSREM	12		5-Jan	NA	NA
14	JP202223_CO_9	Department of Computer Engineering	Automated Irrigation System Using IOT	Mrs.Madhavi Kapre	International Journal of Creative Research Thoughts (IJCRT)	11	5	e274-e279	NA	NA
15	JP202223_ETC_1	Department of Electronics and Telecommunication Engineering	Fusion of Features: A Technique to Improve Autism Spectrum Disorder Detection Using Brain MRI Images	Dhamale T.D.;Bhandari S.U.;Harpale V.K.	Biomedical and Pharmacology Journal	16	4	2443-2455	10.13005/bpj/2819	Scopus
16	JP202223_ETC_2	Department of Electronics and	Hybrid artificial neural network algorithm for air	Vijayalaxmi S. Kumbhar ., Shaminder Singh Sohi ., V	International journal of health				10.53730/ijhs.v6ns5.9080	NA

		Telecommunication Engineering	pollution estimation	Jayaram ., Pillai G Sreelekshmy ., Surendra Kumar Shukla ., K S Abhilash .,	sciences					
17	JP202223_ETC_3	Department of Electronics and Telecommunication Engineering	Pulse charging based intelligent battery management system for electric vehicle	Sunil Somnath Kadlag, Pawan Tapre, Rahul Mapari	Bulletin of Electrical Engineering and Informatics	12	4	1947~1959	10.11591/eei.v12i4.4564	Scopus
18	JP202223_ETC_4	Department of Electronics and Telecommunication Engineering	A novel pulse charger with intelligent battery management system for fast charging of electric vehicle	Sunil Somnath Kadlag, Mohan P. Thakre, Rahul Mapari, Rakesh Shriwastava, Pawan C. Tapre, Deepak P. Kadam	Bulletin of Electrical Engineering and Informatics	12	3	1388~1396	https://doi.org/10.11591/eei.v12i3.4890	Scopus
19	JP202223_ME_1	Department of Mechanical Engineering	FEA of Bajaj Discover 100 cc Connecting Rod for Aluminum Material	Gorane P.S.;Fegade R.S.;Sampat N.S.;Roundal V.B.;Siraskar G.D.;Patil P.S.;Gadhave S.;Javanjal D.V.K.	Panamerican Mathematical Journal	33	2	15-Jan	https://doi.org/10.52783/pmj.v33.i2.871	Scopus
20	JP202223_ME_2	Department of Mechanical Engineering	Finite Element Analysis (FEA) of Swift's Connecting Rod Considering 'I' Cross Section	Gorane P.S.;Fegade R.S.;Sampat N.S.;Roundal V.B.;Siraskar G.D.;Patil P.S.;Gadhave S.;Javanjal V.K.	Panamerican Mathematical Journal	33	2	16-29	https://doi.org/10.52783/pmj.v33.i2.872	Scopus
21	JP202223_ME_3	Department of Mechanical Engineering	Diesel engine performance with nickel-oxide-doped Calophyllum oil biodiesel under varying injection timings	Bawane R.K.;Gadge N.B.;Bawane D.;Gadge P.	International Journal of Ambient Energy	44	1	1284-1297	10.1080/01430750.2023.2172608	Scopus
22	JP202223_ME_4	Department of Mechanical Engineering	Design and Manufacturing of Automated Card sheet Cutting Machine	Sukhadip Chougule	International Research Journal of Engineering and Technology (IRJET)	9	8	364-368	NA	NA

List of Conference Publication

Sr. No	Paper ID	Department	Author(s)	Conference Paper Title	Conference Name	volume	Pages No	International/ National	DOI	Date of Conefrence (Month-Year)	Location of Conference	Link of Paper
1	CP202223_CI_1	Department of Civil Engineering	Yeole M.;Jain R.K.;Menon R.	Road traffic accident prediction for mixed traffic flow using artificial neural network	Materials Today Proceedings	77	832-837	International	10.1016/j.matpr.2022.11.490	Dec, 2022	Pune, India	Scopus
2	CP202223_CO_1	Department of Computer Engineering	Chaugule A.;Gupta P.	Advanced Irrigation and Cultivation System Based on Machine Learning in IOT Environment	2023 4th International Conference on Communication Systems Computing and IT Applications Cscita 2023 Proceedings	-	164-169	International	10.1109/CSCITA55725.2023.10104638	April, 2023	Mumbai, India	Scopus
3	CP202223_CO_2	Department of Computer Engineering	Govind Suryawanshi	Multiclass Discriminator for Blind Steganalysis Using Statistical Features of Digital Images	International Conference on Smart Trends in Computing and Communications	-	625-637	International	https://doi.org/10.1007/978-981-99-0769-4	Jan, 2023	Jaipur, India	Scopus
4	CP202223_CO_3	Department of Computer Engineering	Minal Bodke; Shweta Koparde; Atharv Salunke; Abhijeet Waghmare	A Survey on various Machine Learning approach to predict Health Insurance Cost	2023 1st International Conference on Cognitive Computing and Engineering Education (ICCCEE)	-	1-5	International	10.1109/ICCCEE55951.2023.10424614	27-29 April 2023	Pune, India	Scopus
5	CP202223_CO_4	Department of Computer Engineering	Chaudhari P.;Kale D.;Kamineni A.;Kolambkar V.;Badole M.	A Platform for Anonymous Tip-Off and Evidence Validation	Proceedings of the 2nd International Conference on Edge Computing and Applications Icecaa	-	634-639	International	10.1109/ICECAA58104.2023.10212204	19-21 July 2023	Namakkal, India	Scopus

					2023							
6	CP202223_CO_5	Department of Computer Engineering	Latke V.;Narawade V.	A New Approach towards Detection of Periapical Lesions using Artificial Intelligence	14th International Conference on Advances in Computing Control and Telecommunication Technologies Act 2023	2023-June	396-402	International	-	June, 2023	Hydrabad, India	Scopus
7	CP202223_CO_6	Department of Computer Engineering	Yogeshwari V. Mahajan Pame, Yash Gajanan and Kottawar, Vinayak G	A Novel Approach to Maze Solving Algorithm	International Conference on Emerging Smart Computing and Informatics (ESCI)	-	1--6	International	10.1109/ESCI56872.2023.10099728.	01-03 March 2023	AISSM, Pune	Scopus
8	CP202223_CO_8	Department of Computer Engineering	Salunke M.B.;Mahalle P.N.;Shinde G.R.	Importance of Lightweight Algorithm for Embedded Security in Machine-to-Machine Communication towards Internet of Things	ACM International Conference Proceeding Series	-	1-7	International	10.1145/3590837.3590939	Dec, 2022	Jaipur, India	Scopus
9	CP202223_CO_9	Department of Computer Engineering	Vaishali Latke, Thaksen Parvat,Vaibhav Narawade	Detection and Classification of Dental Caries Using Artificial Intelligence: A Review	International Conference on (ICICITES-2021)	-	1-5	International	NA	March, 21	Pandaharpur, India	NA
10	CP202223_ETC_1	Department of Electronics and Telecommunication Engineering	Maithili Andhare ., Kishor Bhangale ., Vijayalaxmi S. Kumbhar ., Arti Tekade ., Suyash Choudhari ., Ajinkya	IoT-Enabled RFID-Based Library Management and Automatic Book Recommendation System Using Collaborative Learning	Shakya, S., Du, KL., Ntalianis, K. (eds) Sentiment Analysis and Deep Learning. Advances in Intelligent Systems and Computing, vol 1432	-	1-5	International	10.1007/978-981-19-5443-6_57	May, 2023	Detecting Cybersecurity Attacks in Industrial Internet of Things: A Systematic	NA

			Deshpande ., Sanket Chavan .,								Literature Review	
11	CP202223_ETC_2	Department of Electronics and Telecommunication Engineering	Andhare M.S.;Kumbhar V.S.;Tekade A.A.	Detecting Cybersecurity Attacks in Industrial Internet of Things: A Systematic Literature Review	5th Biennial International Conference on Nascent Technologies in Engineering Icnte 2023	-	-	International	10.1109/ICNTE56631.2023.10146705	20-21 January 2023	Navi Mumbai, India	Scopus
12	CP202223_ETC_3	Department of Electronics and Telecommunication Engineering	Patil M.;Waware T.;Yawalkar A.;Kumbhar V.;Andhare M.;Tekade A.	Design of Ultra Low Power, Area Efficient Ring Counter Based SAR ADC	2023 3rd International Conference on Intelligent Technologies Conit 2023	-	-	International	10.1109/CONIT59222.2023.10205732	23-25 June 2023	Hubli, India	Scopus
13	CP202223_ETC_4	Department of Electronics and Telecommunication Engineering	Patil A.;Kapare S.;Shinde G.;Tekade A.;Andhare M.;Kumbar V.	Create a 32-bit Vedic Multiplier and Compare it Against Other Multipliers Using A Carry Look-Ahead Adder	2023 4th International Conference for Emerging Technology Incet 2023	-	-	International	10.1109/INCET57972.2023.10170076	26-28 May 2023	Belgaum, India	Scopus
14	CP202223_ETC_5	Department of Electronics and Telecommunication Engineering	Pisale P.;Kope M.;Naik T.;Bhangale K.B.	IOT Based Automation of Pre-treatment Plant for Surface Coating with Multiple Batch System	5th International Conference on Energy Power and Environment Towards Flexible Green Energy Technologies Icepe 2023	-	-	International	10.1109/ICEPE57949.2023.10201573	15-17 June 2023	Shillong, India	Scopus
15	CP202223_ETC_6	Department of Electronics and Telecommunication Engineering	Gupta N.;Thakur V.;Patil V.;Vishnoi T.;Bhangale K.	Analysis of Affective Computing for Marathi Corpus using Deep Learning	2023 4th International Conference for Emerging Technology Incet 2023	-	-	International	10.1109/INCET57972.2023.10170346	26-28 May 2023	Belgaum, India	Scopus
16	CP202223_ETC_7	Department of Electronics and Telecommunication Engineering	Bhangale K.;Dhake D.;Kawade R.;Dhamale T.;Patil	Deep Learning-based Analysis of Affective Computing for Marathi Corpus	2023 3rd International Conference on Intelligent Technologies Conit	-	-	International	10.1109/CONIT59222.2023.10205770	23-25 June 2023	Hubli, India	Scopus

			V.;Gupta N.;Thakur V.;Vishnoi T.		2023							
17	CP202223_ETC_8	Department of Electronics and Telecommunication Engineering	Dhamale T.D.;Bhandari S.U.	Generative Adversarial Network based Brain MRI Data Augmentation	2023 7th International Conference on Computing Communication Control and Automation Iccubea 2023	-	-	International	10.1109/ICCUBEA58933.2023.10392247	18-19 August 2023	Pune, India	Scopus
18	CP202223_ETC_9	Department of Electronics and Telecommunication Engineering	Dhamale T.D.;Bhandari S.U.	Recent Trends in Automatic Autism Spectrum Disorder Detection Using Brain MRI	Lecture Notes in Networks and Systems	587	375-387	International	10.1007/978-981-19-7874-6_27	September 9-10, 2022	Tribhuvan University, Nepal	Scopus
19	CP202223_ETC_10	Department of Electronics and Telecommunication Engineering	Dhake D.;Gaikwad K.;Gunjal S.;Walunj S.	LSTM Algorithm for the Detection of Mental Stress in EEG	2023 3rd International Conference on Intelligent Technologies Conit 2023	-	-	International	10.1109/CONIT59222.2023.10205636	23-25 June 2023	Hubli, India	Scopus

List of Book Chapter Publication

Sr.No.	ID	Department	Title	Author(s)	Book Chapter	Volume	Pages	DOI	Indexing
1	BC202223_CO_1	Department of Computer Engineering	An Empirical Review on Secure Edge Computing Architecture	Kollu A.;Chennam K.K.;Mahajan D.	Cognitive Science and Technology	Part F1466	661-668	10.1007/978-981-99-2742-5_68	Scopus
2	BC202223_CO_2	Department of Computer Engineering	Multi-party secure communication using blockchain over 5G	Archana K.;	Artificial Intelligence Blockchain Computing and Security Volume 1	1	597-604	10.1201/9781003393580-91	Scopus
3	BC202223_ETC_1	Department of Electronics and Telecommunication Engineering	FPGA-Based Automatic Speech Emotion Recognition Using Deep Learning Algorithm	Kawade R.;Dhamale T.;Dhake D.	Artificial Intelligence Applications and Reconfigurable Architectures	1	187-204	10.1002/9781119857891.ch10	Scopus

List of Books Publication

Sr. No	Book ID	Department	Name of the Author	Title of the book/chapters published	National / International	ISBN/ISSN number of the proceeding	Name of the publisher
1	BO202223_AS_1	Department of Applied Sciences and Humanities	Dr Jyothi Ramesh Pai	A Journey Beyond Stars: Life and Times of Dr Jayant	National/International	ISBN-10 : 9393757860 ISBN-13 : 978-9393757869	Vishwakarma Publications
2	BO202223_CO_1	Department of Computer Engineering	Dr. Archana Kollu	Knowledge Reasoning And Planning In Artificial Intelligence	International	978-93-9470-757-3	Xoffencer
3	BO202223_CO_2	Department of Computer Engineering	Mrs. Sarika Dilip Dhurgude	Artificial Intelligence	International	978-93-5757-165-4	SIPH

Journal Publication
(A.Y. 2022-23)

Industrial Engineering Journal
ISSN: 0970-2555
Volume : 52, Issue 2, No. 1, February : 2023

IMPACT OF LOCKDOWN DUE TO COVID-19 ON HUMAN LIFE AND ENVIRONMENT ININDIA

Manisha Deshpande (Asst Professor – Mathematics, PCCOE&R),
Hemant deshpande

Abstract
The Pandemic COVID-19 is causing lockdown with enormous changes in human life and the Environment. It has an impact on the economy and keeps on giving rise to unemployment. This research paper includes an Analysis of the Statistical Data obtained from the survey to come to a consensus to conclude what is the impact of COVID-19 pandemic lockdown on living being and the environment. The research also compares the results obtained from the statistical survey on Environmental changes, impact on Economy and understanding importance of self and social hygiene due to lockdown. The insight rom article provides an account of the potential impact of COVID-19 in Indian society and helps one to draw measures to mitigate the effects off pandemic.

Keywords :COVID-19, Pandemic, Lockdown, Survey, Hygiene, Skills.

Introduction

The eruption of COVID-19 in Wuhan, China set the whole world in a situation of panic on how tocontrol this Pandemic as there is no vaccine available for overcoming corona virus 2. Social distancing and taking hygiene related precaution was the only option available with all countries.'With more than 1.36 billion population India is highly populated country in the world with population density of 414 people per km2.' **[1]** COVID-19 situation was a sitting time bomb to be exploded had the lockdown not been imposed. In India first a one-day Isolation being declared on 21st March 2020 thereafter understanding the situation worldwide extended the lockdown for 21days from 24th of March 2020 and continued the lockdown till 17th May 2020 to keep control on the pandemic in areas of high alerts considering the request from various state governments. Due to this lockdown various difficulties were faced by human beings as it was a period of more than two months. This research has a survey of how this Pandemic has helped human beings to explore the different technological advancement for sustaining daily life and how this has helped them to be more conscious of their own health and wellbeing. This research also studies the changes caused due lockdown on environment especially on Air and Water pollution. This surveyalso tries to explore the thought process of human beings on how the economy would be impacted due to this lock down. It explores the assertiveness of India's fight against COVID-19 comparedto the rest of the world. Another facet of this survey is to look how the mortality rate has changed due this pandemic. This research will also compare the data obtained from the survey with actualresearch done in past and current that will help to take some precautionary steps for reducing the post pandemic effect.

Literature Survey

The study done in UK **[2]** showed that period utilized for employment-related activities had a dropof d by 17–43 minutes on average compared to before the pandemic. Although the trajectory of change was constant throughout population subgroups, the magnitude varies. There was a shift in negative side for time spent on employment activities for employee **[2].** Also our survey results are in line with survey done in China **[3]** where the relationship between parents and children shows a positive trend due to quality time spent during lockdown. Lot of research has already been done on parent and child relationship comparing time spent by mother and father with children in

ASCE

Performance Evaluation of Soil and Water Conservation Constructed Structures in Drought Prompt Areas of Satara, India

Anand Tapase, Ph.D., A.M.ASCE[1]; Raj Desai[2]; Sudarshan Bobade, Ph.D.[3]; Digvijay Kadam[4]; Usharani Karande[5]; Swati Jagdale[6]; and Ranjeet Sabale[7]

Abstract: Along with the varied climate, topography, and uncertain rainfall, the ever-increasing population has resulted in lowering the groundwater level by 2 m to 3 m in many areas of the Satara district. The present work focuses on investigating the performance of the constructed structures, which are the initiatives toward the conservation of soil and water in the drought prompt areas. The work was divided into three major stages; the initial stage is about data compilation, the second stage is related to the site investigation and collection of data based on the survey requirements, and finally, the interpretation of the obtained data. From the observations obtained through the field survey and ground-level investigations, it is noted that the soil and water conservation works have made a significant impact. From the survey data, it is observed that the change in local crop patterns along with its increased yield and the lifestyle of people residing nearby highlights the usefulness of the various incorporated initiatives. In the drought prompt areas due to the implementation of such schemes, the groundwater table levels significantly increased. But on the other side, several shortfalls were noticed and reported including manual errors, climatic and seasonal reasons, and site selections based on the selected site studies. Overall suggestions for future improvements in the performance of such constructed facilities are presented through this field investigation. **DOI: 10.1061/(ASCE)CF.1943-5509.0001762.**

Author keywords: Performance of constructed facilities; Soil and water conservation structures; Site investigation; Performance evaluation; Soil and water conservation.

Introduction

Many areas including Man, Khatav, and some parts of Koregaon from the Satara district of the state of Maharashtra (India) Fig. 1 face heavy droughts due to varied climatic, geological, and topographic conditions. Based on the increasing problems due to infrastructural and population growth, the government has taken several initiatives to minimize the water scarcity problem and meet the ever-increasing demand for water for daily usage and agriculture purposes in those drought prompt areas. Out of which soil and water conservation work carried out under various schemes (initiatives) including Jalyuktshivar Abhiyan (JYS), District planning schemes, IWMP, and MNREGA were onsite verified, and its impact on the surrounding was studied in detail. The groundwater table in those areas was found very deep. Based on the response received from the field survey and technical investigation, observations are drawn, and suggestions for future performance improvements of such structures are reported. The present work comprises site investigation, a compilation of data based on observations from a field study, and an interpretation of the performance of constructed facilities.

Literature Review

The overall growth of any nation depends on the water resources available and their management. Javadinejad et al. (2019) carried out a study to evaluate the sustainable water management that has been practiced in different areas like the environment, urban, commercial, and agriculture. Kolekar et al. (2020) reported the usefulness of the Jalyukt Shivar Abhiyan (JYS) government initiative to overcome the drought in areas where the scheme/project is implemented. For site selection and implementation of such water conservation schemes, GIS tools have been used for the last four decades (Durbude and Venkatesh 2004). Since (1990), the modern soil conservation technique, i.e., no-tillage (NT) has been followed in Australia and other countries. The advantage of such NT practices was observed in the reduction of soil erosion, conservation of

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Note. This manuscript was submitted on April 29, 2022; approved on June 6, 2022; published online on August 27, 2022. Discussion period open until January 27, 2023; separate discussions must be submitted for individual papers. This paper is part of the ***Journal of Performance of Constructed Facilities***, © ASCE, ISSN 0887-3828.

Published by :
http://www.ijert.org

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 11 Issue 01, January-2022

Review on Bio-Medical Waste Management

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Saurabh Veer[5] , Prajwal Walke[6], Prathamesh Zambare[7]
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***Abstract*—This review study aims at discussing the between COVID-19 and biomedical waste management. The ongoing COVID-19 pandemic has already turned healthy places around the world into a living hell with massive death tolls because of its fastest-spreading nature, and continuously leading to lockdowns in almost every part of the world. Amid all the problems so far it created, one significant problem that can create major havoc in this already devastating and contagious atmosphere in a densely populated city is, not handling medical waste properly. It was a systemic review study regarding the relationship between COVID-19 and biomedical waste management. We have gathered total 16 articles and newsletters related to COVID-19 and biomedical waste management using different search portal. After proper literature review only 10 articles and newsletters which were related to this study were taken for this systemic review purpose. If the massive number of medical wastages cannot be managed through maintaining proper and adequate guidelines, chances of community-based spreading of COVID-19 can exceed the limit and take more lives in the upcoming days. In simple term the preferred technique for the bio medical waste management is incineration. It is Adequate for all infectious waste, most chemical waste, and pharmaceutical waste.**

Keywords—Bio-medical waste management , pandamic covid - 19

I. INTRODUCTION

Many waste are produced as a result of human activities. Such waste may be dangerous and therefore need safe disposal. Industrial waste, sewage and agricultural waste pollute water, soil and air and it can also be dangerous to human beings and environment. Solid waste can be classified into different types depending on their source [1]. It includes (a) House hold waste (b) Industrial waste (c) Biomedical waste or hospital waste or infectious waste. Hospital waste is considered as hazardous because they contain toxic substances. This waste is generated during the diagnosis, treatment or immunization of human beings or animals or in research activities in these fields. Liquid waste can be divided into two components (a) Liquid reagents/ chemicals discarded and (b) the cleaning and washing water channel ed into the drain [2]. Until recently, medical waste management was not generally considered an issue. In the 1980s and 1990s, concerns about exposure to human immunodeficiency virus (HIV) and hepatitis B virus (HBV) led to questions about potential risks inherent in medical waste. Thus, hospital waste generation has become a prime concern due to its multidimensional ramifications as a risk factor to the health of patients, hospital staff and extending beyond the boundaries of the medical establishment to the general population [3]. Hospital waste refers to all waste, biologic or non-biologic that is discarded and not intended for further use. Medical waste is a subset of hospital waste; it refers to the material generated as a result of diagnosis, treatment or immunization of patients and associated biomedical research. Biomedical waste (BMW) is generated in hospitals, research institutions, health care teaching institutes, clinics, laboratories, blood banks, animal houses and veterinary institutes Biomedical waste, also known as infectious waste or medical waste is defined as waste generated during the diagnosis, testing,
treatment, research or production of biological products for humans or animals. Biomedical
waste includes syringes, live vaccines, laboratory samples, body parts, bodily fluids and waste,
sharp needles, cultures and lancets [4]

According to the Medical Waste (Management and Processing) Rules 2008, "medical wastes could not be mixed with other wastes at any stage while producing inside hospitals, while collecting from hospitals, while transporting, and would be processed separately based on classification". The ongoing COVID-19 pandemic has already turned healthy places around the world into a living hell with massive death tolls because of its fastest spreading nature, and continuously leading to lockdowns in almost every part of the world. Amid all the problems so far it created, one significant problem that can create major havoc in this already devastating and contagious atmosphere in a densely populated city is not handling medical waste properly. China's Wuhan, the first of the cities that got viciously brutalized by the pandemic, is home to 11 million people. Its hospitals produced more than 240 tons of medical waste daily during the peak of the outbreak compared with 40 tones before the epidemic occurred, according to China's Ministry of Ecology and Environment's emergency office. To fight this enormous number of medical wastages, the central government deployed 46 mobile medical waste treatments facilitates to the city of Wuhan and built a new plant with a capacity of 30 tonnes within 15 days in March. Biomedical wastes are hazardous because they host potential virus particles that can be hidden beneath human tissues, items contaminated with blood bags, needles, syringes or any other sharp object, body fluids-remaining like dressings, plaster casts, cotton swabs, beddings contaminated with blood or body fluid etc. Experts say medical wastages are not like other wastes such as the household or industrial wastages. It can infect one directly through the skin or by ingestion and inhalation with objects like inhalers or ventilating pipes. Many contagious viruses including HIV and Hepatitis (B and C) can easily be generated from such wastes and can harm the ones who do not have the diseases. Germs and viruses, which are antibiotic-resistant (such as the COVID-19 at this point) can easily spread from medical waste. Biomedical wastes are

Journal of Interdisciplinary Cycle Research ISSN NO: 0022-1945

LIFECYCLE ASSESSMENT OF RESIDENTIAL BUILDING USING BIM

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Abstract— From the previous few years, BIM has been the most developed and implemented software in the construction industry. Building Information Modeling (BIM) is a digital depiction of a building's planning and design. From every angle, BIM is the key to modernising the construction phase. BIM serves as a stimulus for countries to develop their construction industries. BIM aids in the strengthening of ties between stakeholders. We can lessen the impact on society by adopting BIM. In this paper, we used BIM tools such as Autodesk Insight Software, Revit Software, and One Click LCA Software to investigate the energy consumption and net carbon emission of a residential building in Sawari village, Latur, Maharashtra, India.

***Keywords*— BIM, One Click LCA, Net Carbon Emission, Software and Construction, Autodesk Insight.**

I. INTRODUCTION

BIM is the abbreviation for Building Information Modeling. It's a digital representation of a structure's physical and functional properties. BIM is a 3D-based model approach that gives architects, engineers, and builders information and tools to plan, create, and manage their projects more efficient buildings and structures. It is the process of planning, constructing, and maintaining a community as a whole. Rather than separate design and construction, operate a structure using a single cohesive system of 3D models and d Drawings. BIMs (building information models) are computer files that may be retrieved, shared, and manipulated or networked to allow decision-making about a built asset (often but not always in proprietary format). BIM software is used by individuals, businesses, and government agencies to plan, design, construct, operate, and maintain buildings and a variety of physical infrastructures, such as water, waste, electricity, gas, communication utilities, roads, trains, bridges, ports, and tunnels.

In construction management research, the integration of Life Cycle Assessment (LCA) with Building Information Modeling (BIM) has been a hot topic. Building Information Modeling (BIM) tools (such as Autodesk Revit and Navisworks) for 3D building modelling; Building Energy Modelling (BEM) tools (such as Energy Plus and DOE-2); and Environmental Impact Assessment (EIA) tools (such as One Click with LCA, Athena Eco-calculator, Tally and SimaPro, and others) for conducting building LCA are all currently in use. The strategy's main limitations, particularly during the early stages of building design, are interoperability (data loss) issues and the complexity coming from the employment of various technologies. BIM and LCA integration holds a lot of promise for the construction industry's long-term viability. Using all available building data and integrating it to current LCA databases allows construction professionals to demonstrate how their decisions impact the environment. During the planning stage, when adjustments are still possible, any LCA result achieved during the decision-making process could help to sustainable development.

The LCI analysis' aim is to quantify the inputs (such as materials and energy) and outputs (such as carbon emissions and wastes) for each phase of a building's life cycle. However, BIM is only found in a small handful of tools. LCA Design is a system created by Seoet al. in 2007 that can extract quantities of building components from an object-oriented 3D CAD model (ArchiCAD), calculate inventory of the constituents of the building products, and link the results to an LCI database to perform real-time environmental impact assessments. The LCAD design includes indications such as Eco-indicator 99, as well as other indicators that are important in the context of Australia's built environment. Embodied energy, embodied water, embodied carbon, recycled content, and greenhouse gas emissions are some of the indicators used. We can obtain a better grasp of how to use a resource in such a way that it has a positive rather than a negative impact on the environment by using LCSA. LCSA aids the business owner in picking a sustainable product that will help them save money while also reducing their overall negative influence on the global ecology.LCSA and BIM must be merged into a single system. According to the findings, establishing a workflow between LCSA and BIM is necessary.

The following softwares were used to conduct a Life Cycle Assessment:

Mechanics of Advanced Composite Structures 9 (2022) 409 – 424

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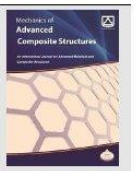
journal homepage: http://MACS.journals.semnan.ac.ir



Functionally Graded Piezoelectric Plates in Cylindrical Bending by Semi-analytical Approach

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KEYWORDS

Static analysis;
Semi-analytical method;
Functionally graded piezoelectric material;
2-D domain.

ABSTRACT

A simply supported (SS) functionally graded piezoelectric material (FGPM) plate in a 2D domain has been analyzed for stress and displacement by a Semi-analytical approach. In-plane variation in stresses and displacements is assumed to be trigonometric. The elasticity approach is used and no simplifying assumption is made on the stress and displacement fields in the through-thickness direction. The FGPM plate is subjected to a transverse electro-mechanical load whose intensity remains constant in the out-of-plane direction. Thus, the plate is under plane stress and plane strain conditions of elasticity. Exponential law or power law has been considered for smooth gradation of material properties in the through-thickness direction. The formulation is a set of first-ordered ordinary differential equations (ODE), which has been solved using numerical integration. Exact outcomes in the literature have been used to correlate and validate the present model results. Additional investigation has been carried out on FGPM plates and beams and results are provided for future reference.

1. Introduction

Stress and displacement analysis of smart materials remain to be an active area of research to date. Smart materials are formed with an elastic substrate having embedded or attached patches of piezoelectric materials. By virtue of actuation, piezo-materials undergo deformation under the applied electric field and by virtue of sensing, produce an electric charge on deforming mechanically. This ability of inter-conversion of mechanical and electrical energy of piezo-materials is judiciously used to develop self-controlling, self-governing smart materials.

FGPM is a relatively new addition to this class of materials in which, material elastic and electric properties are changed gradually, generally in the thickness direction. These eliminate the development of stress-offsets at the interfaces and reduce the threat of de-lamination, which is typically observed in layered composites.

Smart materials find numerous applications in every walk of engineering, including aerospace and aeronautical industry, robotics, and medical instrumentation. These high-end applications demand accurate and involved analysis and it is essential to have a robust, versatile, and computationally inexpensive analysis tool.

Researchers have proposed several analytical and numerical solutions based on exact and approximate theories. A functionally graded piezoelectric plate loaded with electro-mechanical loading in the 2D field has been analyzed by Lu et al. [1] with the help of elasticity solutions. Similarly, Lu et al. [2] have analyzed an all-around simply supported FGPM plate for the exact solution. Xiang and Shi [3] have presented a static analysis of the FGPM sandwich cantilever using Airy's stress function. Mikaeeli and Behjat [4] have used the three-dimensional element-free Galerkin method to investigate the static behavior of thick functionally graded piezoelectric plates. Kulikov and Plotnikova [5] have used the sampling surfaces method for the exact analysis of thick and thin FG piezoelectric laminated plates with specified accuracy. Exact

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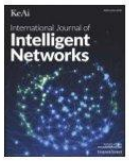
DOI: 10.22075/macs.2022.25808.1376
Received 2022-01-06; Received in revised form 2022-08-04; Accepted 2022-10-03.

International Journal of Intelligent Networks 4 (2023) 272–282

Contents lists available at ScienceDirect

International Journal of Intelligent Networks

journal homepage: www.keaipublishing.com/en/journals/international-journal-of-intelligent-networks



An optimized framework for VANET routing: A multi-objective hybrid model for data synchronization with digital twin

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ARTICLE INFO

Keywords:
Digital twin
VANET
Routing
Clustering
Optimal CH selection
Multi-objectives
Gateway selection
Two-fold objectives
HFCHBO

ABSTRACT

The utilization of Digital Twin technology allows for the simulation of network behavior, anticipating traffic surges, and implementing efficient traffic routing strategies to prevent congestion. This enhances network efficiency and improves overall speed. However, VANETs (Vehicular Ad-Hoc Networks) pose unique challenges due to their dynamic nature and frequent network disconnects. Developing and implementing effective VANET routing protocols becomes complex considering these factors. To address these challenges, a novel hybrid optimization model is proposed in this research. The model comprises optimal Cluster Head (CH) selection for data transmission. The clustering of mobile nodes is initially performed, but ensuring consistency in fast-paced environments remains a significant challenge. Therefore, the selection of the most suitable node as the CH is crucial. This research introduces a novel route selection mechanism that focuses on optimal CH selection. Multiple objectives such as mean routing load, packet delivery ratio, throughput, End-to-End Delay, and Control packet overhead are considered in the CH selection process. To determine the ideal CH from a pool of potential candidates, a new hybrid optimization model called Hunger's Foraging Behavior Customized Honey Badger Optimization (HFCHBO) is introduced. The HFCHBO combines the standard Honey Badger Algorithm (HBA) with Hunger Games Search (HGS). This hybrid model effectively formulates successful routing paths for data transmission between vehicles and the CH to the Base Station (BS). By combining these two approaches, the HFCHBO model aims to overcome the limitations of traditional clustering algorithms in ensuring consistent performance in dynamic environments. The proposed route selection mechanism incorporates multiple objectives to evaluate the performance of potential CHs, including mean routing load, packet delivery ratio, throughput, End-to-End Delay, and Control packet overhead. To facilitate data transmission between vehicles and the CH to the Base Station (BS), the HFCHBO model formulates successful routing paths. By utilizing the simulation capabilities of the Digital Twin technology, the model analyzes the network behavior, predicts traffic patterns, and makes informed decisions on routing strategies.

1. Introduction

VANETs are self-organizing, infrastructure-free connections used in vehicular surroundings to communicate among automobiles, roadside infrastructure, and pedestrian personal gadgets. VANET is a crucial field of study emphasizing accident prevention, efficient driving, and information systems (Information and Entertainment). To ensure the safety of the VANET, a greater number of numerical communications have recently been built. Furthermore, given the current situation, developing a road safety system is critical. Due to these connections, cooperative applications capable of acquiring, analyzing, and disseminating roadway traffic data may be developed. One of the most promising technologies for "wireless access in VANETs" is "IEEE 802.11p". Persistent connection breakdowns amongst VANET nodes are caused by coverage limitations, excessive node mobility, as well as the existence of impediments. Frequent topology changes, packet loss, and network fragmentation wreak havoc on connectivity. To tackle these issues, the research group spends a significant amount of time developing appropriate MAC techniques [1] and routing protocols [2]. In the VANET, two methods of communication exist i.e., "V2V communications and V2I communications". Both safety and non-safety messages are transmitted via V2V communication, which are only suited to short-range vehicular networks. As a result, these are described as rapid, dependable, and real-time safety communication [3]. V2I communication has been used

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https://doi.org/10.1016/j.ijin.2023.10.001
Received 14 December 2022; Received in revised form 30 September 2023; Accepted 2 October 2023
Available online 11 October 2023

Journal of Discrete Mathematical Sciences & Cryptography
ISSN 0972-0529 (Print), ISSN 2169-0065 (Online)
Vol. 26 (2023), No. 3, pp. 793–806
DOI : 10.47974/JDMSC-1755

Embedded security framework for M2M communication using ULBC and Rubik's Cube encryption algorithm

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Abstract

The potential of a variety of stockholders has increased as a direct result of the development of the Internet of Things and cloud computing. These individuals are now able to communicate and share data in a productive manner. This interaction with devices is regarded as extremely helpful and advantageous by a lot of users. Inadequate configuration of a network system makes it an easy target for potential security breaches. This is why it is

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Journal of Autonomous Intelligence (2023) Volume 6 Issue 3
doi: 10.32629/jai.v6i3.1244

ORIGINAL RESEARCH ARTICLE

Introduction of machine learning with applications to communication system

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ABSTRACT

This research paper presents a brief introduction to the key point of Machine Learning (ML) with the application to communication systems. Due to the exceptional accessibility of software and data abilities, there is a great deal of interest in using digital information machine learning thinking to solve issues in a variety of fields. Regarding the phenomenal amount of information and computer facilities, there is a lot more interest in using content-supervised learning methods to resolve obstacles where engineering course techniques are restricted by theoretical or methodological problems. This study starts by clarifying when and why comparable strategies may well be effective. It then goes into the fundamentals of supervised and unsupervised at a high level. Where traditional engineering solutions are being developed Modelling or algorithmic flaws are posing a problem. This paper begins by answering the why and when of these questions. Such methods can be beneficial to resolve real-time problems. It then goes into the fundamentals of classification and regression problems at a world-class level. Exemplifying software to communications infrastructure is presented both for the structured and unstructured interviews by identifying roles performed first at the network's perimeter and cloud bits at multiple levels of the internet protocol suite, with a concentration on the application layer. The core contributions of this research study are as follows: (a) this research study explores the machine learning applications in communication system and networks optimization; (b) it offers an analysis of contributions of machine learning-based anomaly detection approaches to mitigate the security threat and maintains the integrity of entire communication network; (c) additionally, this research study provides further directions for research, future trends as well as challenges including the requirement for intelligent methods for network optimization, signal processing, etc.

Keywords: communication networks; communication systems; machine learning; supervised learning; unsupervised learning

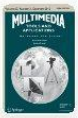
1. Introduction

During the Artificial Intelligence (AI) winter of the late 1980s and early 1990s, awareness that the use of data-driven AI-based technologies in a variety of engineering fields, like as voice recognition analysis and communication systems has increased gradually. Unlike initial studies on AI, which were concentrated on logic-based intelligent systems, the newfound faith in data-driven methodologies is fueled by the success of design recognition apparatuses based on machine learning. These technologies consist of a variety of recent computational innovations, such as unique regularization strategies and evolutionary optimization schedules,

Fast anomaly detection in video surveillance system using robust spatiotemporal and deep learning methods

Published: 04 March 2023

Volume 82, pages 34259–34286, (2023) Cite this article



Multimedia Tools and Applications

Aims and scope

Submit manuscript

Vijay A. Kotkar & V. Sucharita

Abstract

Since from emergence of deep learning techniques, automatic video surveillance has received researchers' attention. Such deep learning-based methods improve the accuracy but lead to higher computational complexities than the semi-automatic approach. A unique framework is proposed in this study to bridge the gap between automated and semi-automatic operations to save time and boost accuracy. The main advantage of the proposed model is reducing the computational complexity while improving the overall accuracy using the deep learning approach in video anomaly detection applications. The framework consists of keyframe extraction, robust features extraction, automatic features learning, and classification. Extracting keyframes from the input videos reduces the computational burden during features extraction and classification steps. The novel lightweight keyframe extraction algorithm using the histogram and dynamic thresholding technique is proposed in this paper. This research proposes a revolutionary lightweight keyframe extraction approach based on the histogram and dynamic thresholding technique. Efficient motion tracking among frames is a critical research challenge in video anomaly detection. We propose the novel Modified Spatio-Temporal (MST) approach to extract the interest points as features in this paper. Input frames are normalized and pre-processed using Gaussian filtering first in the proposed MST. Then motion tracking and cuboids are estimated from the pre-processed frames. From 3D cuboids, we applied Discrete Wavelet Transform (DWT) with Principal Component Analysis (PCA) to generate the codebook. This codebook passed as sequential input to Recurrent Neural Network (RNN) using Long Term Short Memory (LSTM) classifier called RNN-LSTM. The novel training and classification model of deep learning is designed to estimate the probability of each class (i.e., anomalous or normal) of the video sequence. The experimental results of the proposed MST-RNN-LSTM model achieved significant improvement in computational and detection efficiencies compared to state-of-art methods. The keyframe extraction algorithm discarded 50% of the frames in an input video sequence, resulting in less computing overhead. The accuracy of the proposed model is improved by 4.5% and the processing time is reduced by 21% compared to state-of-art methods.

Journal of Engineering Science and Technology Review 16 (5) (2023) 13 - 18

Research Article

JOURNAL OF Engineering Science and Technology Review

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GridBoost: A classifier with Increased Accuracy to Detect Anomaly in Social Media Networks

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Received 4 June 2023; Accepted 6 October 2023

Abstract

Social media networks are now essential and play a significant role in society. According to data, the number of active users on various social media platforms including Facebook, WhatsApp, Instagram, and many more is growing rapidly. As a result, there is an increase in risky actions, making the area more unsafe. Personal information security is now seriously threatened. The search for anomalous users is a field that is constantly being researched, but because of the threat that it poses, it is also a field that will never end and will face numerous obstacles, including accuracy. Different Machine Learning and Deep Learning models have been proposed and created by numerous researchers. But, many of these models have scope for improvements, in terms of accuracy and reducing false positives, reducing false negatives. To achieve these enhancements, we have compared different models and using our hybrid model, with attempts for increasing accuracy. In this research we have implement an accuracy-based model named GridBoost which uses hyperparameter parameter tuning fusion with XGBoost. We used a variety of popular classifier models, including Linear Regression (LR), Naive Bayes (NB), KNN (K-Nearest Neighbor), Support Vector Machine (SVM), and GridBoost, which were developed for anomaly identification using four different standard datasets. The performance study shows increased accuracy with our proposed hybrid technique up to 98% when compared to other assessment metrics like precision, recall, and F1-score.

Keywords: Machine Learning, Deep Learning, Anomaly Detection, Social Media Networks, Hybrid Model

1. Introduction

1.1 Social Media Networks: Anomaly Detection

As the internet has grown tremendously in popularity, it has become essential for businesses and individuals to communicate with one another and share information. Social networking sites like Twitter, Facebook, and many others have gained new features as a result of the need, which is growing tremendously and has become a requirement for daily life. The social networking websites are nothing more than a platform in cyberspace where individuals and organizations may connect and form networks to engage in social activities [1]. Users can create a network to share their opinions, stay connected, and experience life outside of their comfort zone while experiencing a real-life encounter. Due to this increase, a vast amount of data is collected, and one can find useful information of an individual or group based on interconnections. Massive amounts of data are gathered, which presents a variety of issues in handling and protecting this data from nefarious uses. Because of this, an attacker can access this vast quantity of data by engaging in nefarious actions including making fake profiles, installing malware, running scripts, probing URLs, using DDOS, creating fake accounts and stock market news, among other things, or by stealing users' private information. For all demographics, including kids, teens, and adults, social media has turned into a deadly environment. Due to these websites, we now face several problems with teen violence, cyberbullying, and cybercrime. Numerous hazards are becoming more prevalent every day, providing academics new ways to consider how to keep people secure. "Something that is not expected or outlier" is what the term "anomaly" refers to. The study of unanticipated structures that need to be discovered has increased due to social media networks. For the same reason, developing an intrusion detection system to find abnormalities has grown in importance and requires extensive research in machine learning or other fields [2]. Finding anomalies in the network involves spotting deviations from "normal" patterns [3]. The performance of machine learning models will be improved by separating anomalies from a large sample of typical cases. This will allow for both detection and alerts of malicious behaviors. Numerous studies on anomaly detection are being conducted to identify fake news producers, cyberbullying, fake profiles or accounts, spammers, malicious intrusions, and many other things. Finding outliers that deviate from the majority or group data's typical trend is the aim of any anomaly detection technique [4]. Due to the high dimensional data structure, detection rate, precision, and processing overhead, anomaly patterns are exceedingly challenging to find. As a result of the numerous obstacles faced by researchers, many developed models are unable to identify anomalies.

However, real users and anomalous users in the social networks are distinguished with respect to the dynamic characteristics of features. So, the classification algorithms for anomaly detection in the social media network are associated with different challenges including False alarm rates, Reliability, Accuracy, Computational Overhead, High dimensional data, Limited datasets, Agility in anomalies behavior in groups, Optimization. Below figure 1 is motivation to work in this field.

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ISSN: 1791-2377

doi:10.25103/jestr.165.02

International Journal of
INTELLIGENT SYSTEMS AND APPLICATIONS IN ENGINEERING
ISSN:2147-6799 www.ijisae.org Original Research Paper

Rubik's Cube Encryption Algorithm-Based Technique for Information Hiding During Data Transmission in Sensor-Based Networks

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Submitted: 06/06/2022 **Accepted:** 10/09/2022

Abstract-The rise of the Internet of Things has created new opportunities for individuals and businesses in various industries such as healthcare, transportation, and manufacturing. However, it is important that the security of the data collected by these devices is taken seriously. To ensure that the data is secure, various types of cryptographic primitives have been used in various security solutions. These primitives are generally not designed to preserve the privacy or support advanced functionalities. Here we used Rubik's cube encryption principle for secure data transmission. The original image is then scrambled using the algorithm of the famous cube, which is known as the XOR operator. Two secret keys are then used to encrypt the rows and columns of the image. The proposed system can be used to achieve strong encryption and flawless concealment, but can also withstand exhaustive, statistical, and differential attacks. Information security is currently the most significant concern. Whether the data is image or word, it must be protected. This study proposes a method for the secure transmission of data. The paper proposes a method that involves scrambling a three-dimensional color image matrix using a combination of operations.

Keywords- Encryption, Decryption, IoT, Rubik's cube, AES

[1]INTRODUCTION

Due to the rapid emergence and evolution of new technologies, such as Internet and artificial intelligence, information security has become a major concern for society. One of the most common sources of information that people send and receive is images. Due to the nature of images, they contain various sensitive information, such as trade secrets and personal privacy. An encryption technology is therefore needed to prevent these types of images from being stolen or leaked. The rise of the Internet of Things (IoT) has changed the way people think about the Internet. It allows devices to connect and interact with each other, which has made it more practical to use than the traditional Internet. However, it is still very vulnerable to security attacks due to its ability to communicate over a network. The various features of IoT include self-configuration, environment sensing, smart decision making, ad hoc networking, and autonomous reacting. Due to the increasing number of devices, it is estimated that the number of IoT gadgets will reach around 50 billion by 2020. When it comes to developing Internet of Things (IoT) devices, manufacturers need to consider their affordability. They should also consider having a secure model that can protect their data. This can be done through the use of codes, which are designed to only be used by those who are authorized to access the information.

The Internet of Things (IoT) is rapidly turning into an indispensable component of a wide variety of applications across a variety of domains, including consumer, industrial, and other fields. The Internet of Things makes possible in large part the realisation of concepts such as smart business, smart transportation, and smart planet. In its most fundamental form, the Internet of Things (IoT) is anchored by a collection of interconnected devices, including such sensors and actuators, that work together to offer a necessary service. Users' safety and privacy protection is one of the most critical requirements that the vast majority of Internet of Things apps are required to fulfil. The concepts of secrecy, integrity, and privacy are often attained through the application of cryptographic encryption strategies. Security is an umbrella phrase that incorporates all of these concepts and more.

Private Key management technique in Wireless and IoT Networks consists of a single key and data that is encoded as well as decrypted with the assistance of this key using Private Key Encryption/Decryption techniques (Procedures) such as Data Encryption Standards (DES), Advanced Encryption Standards (AES), etc. Private Key management technique in Wireless and IoT Networks

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International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 07 Issue: 05 | May - 2023 SJIF 2023: 8.176 ISSN: 2582-3930

Gesture Recognition Based Virtual Mouse and Keyboard

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Abstract - *Now a days computer vision has reached its pinnacle, where a computer can identify its owner using a simple program of image processing. In this stage of development, people are using this vision in many aspects of day to day life, like Face Recognition, Colour detection, Automatic car, etc. In this project, computer vision is used in creating an Optical mouse and keyboard using hand gestures. The camera of the computer will read the image of different gestures per- formed by a person's hand and according to the movement of the gestures the Mouse or the cursor of the computer will move, even perform right and left clicks using different gestures. Similarly, the keyboard functions may be used with some different gestures, like using one finger gesture for alphabet select and four-figure gesture to swipe left and right. It will act as a virtual mouse and keyboard with no wire or external devices. The only hardware aspect of the project is a web-cam and the coding is done on python using Anaconda platform. Here the Convex hull defects are first generated and then using the defect calculations an algorithm is generated and mapping the mouse and keyboard functions with the defects. Map- ping a couple of them with the mouse and keyboard, the computer will understand the gesture shown by the user and act accordingly.*

Key Words: *Virtual Keyboard, Brain Computer Interface (BCI), RGB, Touch-less Keyboard, Colour Channels.*

1.INTRODUCTION

The Gesture Recognition Based Virtual Mouse and Keyboard project is an innovative system that allows users to control their computer's mouse and keyboard functions using hand gestures. It aims to provide an alternative and more intuitive way of interacting with computers, particularly for individuals with physical disabilities or those seeking a more natural user interface.The system utilizes computer vision techniques to capture and interpret hand gestures in real-time. It involves a camera that captures the user's hand movements, which are then processed using image processing and machine learning algorithm.Through the recognition of specific hand gestures, the system can interpret various commands and translate them into corresponding mouse movements or keyboard inputs.The project often involves a combination of hardware and software components. The hardware includes the camera for capturing hand gestures, while the software entails the algorithms and models for gesture recognition and the necessary drivers for emulating mouse and keyboard inputs.Gesture Recognition Based Virtual Mouse and Keyboard projects have the potential to revolutionize human-computer interaction by providing an alternative means of input that is more intuitive, natural, and accessible. They can enhance user experience, facilitate computer accessibility for people with physical limitations, and open up new possibilities for human-computer interaction in various domains.

2. LITERATURE SURVEY

1. Research on the Hand Gesture Recognition Based on Deep Learning : With the rapid development of computer vision, the demand for interaction between human and machine is becoming more and more extensive. Since hand gestures are able to express enriched information, the hand gesture recognition is widely used in robot control, intelligent furniture and other aspects. The paper realises the segmentation of hand gestures by establishing the skin colour model and AdaBoost classifier based on haar according to the particularity of skin colour for hand gestures, as well as the denaturation of hand gestures with one frame of video being cut for analysis. In this regard, the human hand is segmented from the complicated background, the real- time hand gesture tracking is also realised by CamShift algorithm. Then, the area of hand gestures which has been detected in real time is recognised by convolutional neural network so as to realise the recognition of 10 common digits. Experiments show 98.3% accuracy.
2. Dynamic and Personalised Keyboard for Eye Tracker Typing : Patients who suffer from Amyotrophic lateral sclerosis (ALS) or stroke cannot talk and express their everyday basic needs

www.ijcrt.org © 2023 IJCRT | Volume 11, Issue 5 May 2023 | ISSN: 2320-2882

IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Automated Irrigation System using IoT

Janhavi Navale, Namrata Kamble, Vishwesh Borade, Suraj Husale, Prof. Madhavi Kapre

Student , Student, Student, Student, Professor
Computer Engineering,
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Abstract: The agriculture is one of the most fundamental resource of food production and also played a vital role in keeping the economy running of every nation, but there are several issues related to traditional methods of agriculture such as excessive wastage of water during irrigation of field, dependency on non-renewable power source, time, money, human efforts, etc. since the agriculture plays the significant role in improving the country's economy, an improvement should be applied in order to increase the productivity and expand the quality of crops.

This paper deals with innovative technology in considering the various to irrigate agricultural land using Internet of Things. So, this project signifies a smart auto irrigation system by using soil moisture sensor is connected to the Arduino-UNO which act as a controller and a global system for mobile communication which is used to transmit and receive the data between the controller and the user.

Index Terms **– Arduino UNO, Sensors, IoT, Irrigation.**

I Introduction

Irrigation is one of the most powerful sources in India but it is difficult for each individual to monitor it continuously and consistently. Smart irrigation system is integral to saving water and improving efficiency. It uses real-time sensors or historical data to inform irrigation methods and modify watering schedules to improve efficiency. This program is an IoT-based tool that can automate the irrigation process by analyzing soil moisture and climate. The main objective of this project to ease the work of farmers by introducing them with Smart Irrigation, IoT, etc.

To increase the efficiency of irrigation and preventing water wastage, a design of new system is needed, the system uses information from soil moisture sensors to irrigate the soil which helps to prevent over-irrigation or slow soil irrigation thus avoiding crop damage. The farm owner can monitor the process online. It can provide high accuracy water supply and avoid water wastage, it requires less man power. By using sensors, it can accurately determine the soil moisture level.

II Software and Hardware Requirement Specification

This section elaborates the proper methodology and the technical models that are used to build the system. The detailed technology used is as follows.

2.1 Technology

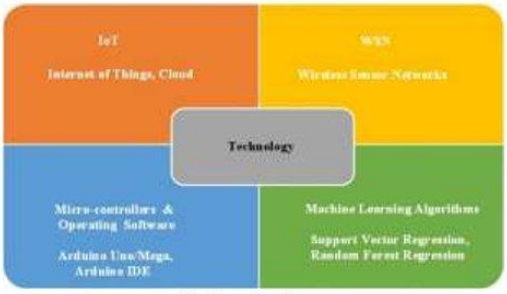

fig 1: technology

Biomedical & Pharmacology Journal, December 2023. Vol. **16**(4), p. 2443-2455

Fusion of Features: A Technique to Improve Autism Spectrum Disorder Detection Using Brain MRI Images

Triveni D. Dhamale*, Sheetal U. Bhandari and Varsha K. Harpale

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https://dx.doi.org/10.13005/bpj/2819

(Received: 14 July 2022; accepted: 15 February 2023)

Autism Spectrum Disorder (ASD) is a major incident neurological disorder. Medical practitioners use different diagnostic techniques such as Electroencephalogram (EEG) Analysis, Magnetic Resonance Imaging (MRI) analysis, and traditional Behavioral Analysis for ASD detection. However, diagnosis success largely depends on specialists' knowledge and remains seldom accessible to remote patients. To address this issue, recently, various machine learning (ML) approaches have been developed for ASD detection using brain MRI images. The performance of these approaches is often limited because of poor feature discrimination, inferior quality of features, high feature length, and poor correlation of features. Thus, there is a need for robust feature extraction and selection techniques to improve the performance of ASD detection. The proposed work demonstrates a fusion of three features, namely Gray Level Co-occurrence Matrix (GLCM) based holistic texture features, Local Binary Pattern (LBP) based local texture features, and Geometrical Features of the Corpus Callosum (GFCC) from brain MRI images. Further, a correlation-based feature selection technique is employed for the salient feature selection from the GLCM, LBP, and GFCC set to improve the feature quality. The effectiveness of the selected feature is evaluated using three ML classifiers such as K-Nearest neighbor (KNN), Support Vector Machine (SVM), and Classification Tree (CT). The proposed ASD detection scheme provides an accuracy of 95.86% with 10-fold cross-validation with a CT classifier. It is observed that the accuracy of the proposed system is improved by 11.32% over the recent GLCM-based ASD system. The correlation-based feature selection techniques minimize the recognition time by 34.95% over the ASD system without feature selection.

Keywords: Autism Spectrum Disorder; Classification Tree; Gray Level Co-occurrence Matrix; K-Nearest Neighbor; Local Binary Pattern; Machine Learning; Magnetic Resonance Imaging; Support Vector Machine.

Autism Spectrum Disorder (ASD) is a neurological disorder characterized by persistent social communication impairments like difficulties in talking and interacting, limited interests, and repetitive activities that increase with time[1]. According to the World Health Organization (WHO), Autism affects one out of every 160 children and can cause physical and psychological developmental problems. In the United States, the prevalence of ASD is estimated to be 1.47 percent, with an average lifetime cost of one million dollars per patient. The disorder is caused by various factors, including inheritance, brain structure, function, and environmental influences[2-3].

The symptoms of ASD usually appear in the first two years of life. Early diagnosis is

How to Cite:
Kumbhar, V. S., Sohi, S. S., Jayaram, V., Sreelekshmy, P. G., Shukla, S. K., & Abhilash, K. S. (2022). Hybrid artificial neural network algorithm for air pollution estimation. *International Journal of Health Sciences, 6*(S5), 2094–2106. https://doi.org/10.53730/ijhs.v6nS5.9080

Hybrid artificial neural network algorithm for air pollution estimation

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***Abstract*---**In recent years, airborne broadcasting has grown more prevalent in cities. Air quality degradation is a severe air pollution issue that exists daily. To forecast the amount of pollutants, Artificial Neural Network (ANN) and Linear Vector Quantization (LVQ) techniques were utilized. The data set dimensions are defined by the pre-processing procedure and the feature extraction mechanism. The ANN model predicts categorization concentration, allowing the LVQ model to classify direct situations with greater accuracy using explanatory factors. The ANN+LVQ model outperformed other

International Journal of Health Sciences ISSN 2550-6978 E-ISSN 2550-696X © 2022.
Manuscript submitted: 18 Feb 2022, Manuscript revised: 27 April 2022, Accepted for publication: 9 June 2022

Bulletin of Electrical Engineering and Informatics
Vol. 12, No. 4, August 2023, pp. 1947~1959
ISSN: 2302-9285, DOI: 10.11591/eei.v12i4.4564

Pulse charging based intelligent battery management system for electric vehicle

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Article Info

Article history:

Received Aug 15, 2022
Revised Nov 2, 2022
Accepted Nov 27, 2022

Keywords:

Battery management system
Electric vehicles
Neural network
PID controller

ABSTRACT

Electric vehicles (EVs) are now an important part of the automotive industry for two main reasons: decreased reliance on oil and reduced air pollution, which helps us contribute to the development of an environmentally friendly environment. EV buyers examine overall vehicle mileage, recharge time, vehicle mileage after every charge, batteries charging/discharging security, lifespan, charged rate, capability, and temperature increase. A new improved pulse charging technique is proposed, in which the battery is charged using proportional integral derivative (PID) control action and a neural network. A PID controller is used to develop the charging unit in this design. The feed forward neural network was used to determine the values of the PID control parameters. The battery management system (BMS) ensures that this designed battery charging system takes less time to charge the battery efficiently. The system is built with MATLAB/Simulink.

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1. INTRODUCTION

Li-ion batteries used to have low levels of self rate and a high energy density. For electric vehicle (EV) sectors, lithium-ion batteries must improve power management, energy density, control, security, and charger [1]. Low ambient temperatures in EV markets impede Li+ ion diffusion at electrolytes and electrodes, slowing complication kinetics. It is hard to eliminate proficiently and uniformly which leads to degradation and concerns into safety-related problems due to the heat generated while doing fast charging of the battery [2]-[4]. The improvement of batteries technology with battery-management systems, that include surveillance, security, and monitoring of battery variables that serve as the battery platform's brain, has critical to the evolution of electric vehicles. Since incorrect actions such as over-current, over-voltage, or over-charging/discharging may cause serious safety concerns to the cells, significantly accelerate the ageing process or even wildfires if left unattended [5]-[7]. As a result, battery management system (BMS) plays a vital role in guaranteeing battery reliability and safety. It also has an automatic cut-off feature, which disconnects the battery from the electrical circuit and loads the side when charging and discharging levels exceed the set limits [8]-[10].

There are many challenges to manufacturers to introduce electrified solutions with their ranges, motor configuration, and converters acceptance by the customer of EVs and battery electric vehicles that are not

Bulletin of Electrical Engineering and Informatics
Vol. 12, No. 3, June 2023, pp. 1388~1396
ISSN: 2302-9285, DOI: 10.11591/eei.v12i3.4890

A novel pulse charger with intelligent battery management system for fast charging of electric vehicle

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Article Info

Article history:

Received Sep 26, 2022
Revised Nov 16, 2022
Accepted Jan 3, 2023

Keywords:

Arduino Uno
Artificial neural network
Battery management system
Electric vehicle
PID control action
Pulse charging technique

ABSTRACT

Electric vehicles contribute a major role in building an eco-friendly environment. Li-ion batteries are most widely used in electric vehicles. It is very important to maintain the operation of Li-ion batteries within their "safety operation area (SOA)". Hence implementing a battery management system (BMS) becomes a necessity while using Li-ion batteries. This paper proposes an intelligent BMS for electric vehicles using proportional integral derivative (PID) control action along with artificial neural network (ANN). It prefers the improved pulse charging technique. The design consists of a battery pack containing four 12 V Li-ion batteries, MOSFETs, Arduino Uno, a transformer, a temperature sensor, a liquid-crystal displays (LCD), a cooling fan, and four relay circuit are used. Arduino Uno is used as a master controller for controlling the whole operation. Using this design approximately 38 minutes are required to fully charge the battery. Implementation results validate the system performance and efficiency of the design.

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1. INTRODUCTION

Industries face numerous challenges in introducing electrified approaches to their ranges, and engine configurations, as well as inverters' acquiescence by customers of electric vehicles (EVs) and electric vehicle batteries that are not hybridized with ICEs. The investigators discuss different electrical drives, such as switched reluctance motor (SRM) [1]-[4], brushless DC motor (BLDC), permanent magnet synchronous motors (PMSM), and induction motor drives, in addition to their constraints, and presented configurations for EV applications in [5], [6]. High-efficiency DC-DC converter for renewable energy applications employing a fuzzy logic controller has been presented in [7]. Contrasts the experimental applications of over-modulation schemes in modular multilevel cascaded converters for harmonic elimination for 3-phase two-level voltage source inverters are discussed [8], [9]. For voltage balancing, [10] presented a modular multilevel converter with a simplified nearest-level control (NLC) strategy. Characterizes the implementation and monitoring conceptions of a value stream mapping (VSM-based) multilevel PV-STATCOM for harmonic elimination in a distributed energy system [11]. The uses of include flexible AC transmission systems (FACTS) controllers

FEA of Bajaj Discover 100 cc Connecting Rod for Aluminum Material

Prathamesh S. Gorane, Ritesh S. Fegade, Neha Sandip Sampat, Vijay B. Roundal, Gulab Dattrao Siraskar, Pallavi Sachin Patil, Subhash Gadhave, Vijaykumar K Javanjal

PDF (https://internationalpubls.com/index.php/pmj/article/view/871/805)

DOI:
https://doi.org/10.52783/pmj.v33.i2.871 (https://doi.org/10.52783/pmj.v33.i2.871)

Keywords:
IC Engine, Connecting Rod, Material, FEA, Stress, Strain, Design.

Abstract

The connecting rod is a vital component of internal combustion engines, responsible for converting the piston's linear motion into rotational motion. Its design involves careful consideration of material selection, geometry, and load distribution to ensure it can withstand the dynamic forces and stresses encountered during engine operation. Finite element analysis plays a crucial role in evaluating the structural performance of the connecting rod, allowing engineers to optimize its design for maximum efficiency and reliability. By understanding the complexities of connecting rod design and the forces acting upon it, engineers can develop robust and high-performing engines that meet the demands of modern automotive applications.

The paper describes a case study that was crucial to the engine development program's evaluation of the connecting rod's strength and fatigue analysis for Bajaj Discover 100 cc engine. The basic model was prepared using appropriate modeling software and then it was analyzed in Ansys for strength and fatigue analysis. The compressive and tensile loading was applied on the both ends of the connecting rod and the results were found. The location of the maximum stress was found.

Issue

Announcements

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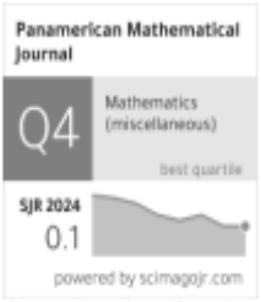
Indexing



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Scopus
ELSEVIER

(https://www.scopus.com/sourceid/11100153312)

Panamerican Mathematical Journal
ISSN: 1064-9735
Vol 33 No. 2 (2023)

Finite Element Analysis (FEA) of Swift's Connecting Rod Considering 'I' Cross Section

Dr. Prathamesh S. Gorane[1], Dr. Ritesh S. Fegade[2], Prof. Nehe Sandip Sampat[3], Dr. Vijay B. Roundal[4], Dr. Gulab Dattrao Siraskar[5], Dr. Pallavi Sachin Patil[6], Dr. Subhash Gadhave[7], Dr Vijaykumar K Javanjal[8],

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Article History:

Received: *15-03-2023*

Revised: *22-05-2023*

Accepted: *06-06-2023*

Abstract:

The analysis of a connecting rod with an 'I' cross-section is a multifaceted process that requires careful consideration of material properties, stress and strain behavior, and potential failure modes. The 'I' cross-section offers a robust design that balances strength and weight, making it ideal for high-performance engines. Through the application of advanced techniques like FEA, engineers can optimize the design to ensure the reliability and efficiency of the connecting rod, ultimately enhancing the overall performance of the engine.

In this paper model of the Swift connecting rod was being created in modelling software, the model was imported into ANSYS Workbench and saved in IGES format. By using multiple ANSYS Workbench modules and appropriate boundary conditions, the model was examined for different types of stresses. An analysis is conducted on the Von Misses stresses, shear stresses, total deformation, and several fatigue characteristics such as life, damage, safety factor, etc.

Keywords: IC Engine, Connecting Rod, Material, FEA, Stress, Strain, Design

1. Introduction

A connecting rod, often referred to simply as a "conrod," is a crucial component in internal combustion engines. It connects the piston to the crankshaft, translating the linear motion of the piston into the rotational motion required to drive the vehicle. The design and analysis of connecting rods are paramount in ensuring the efficiency and durability of the engine. Among various designs, the 'I' cross-section is particularly noteworthy for its balance between strength and weight.

Materials for connecting rods must possess high tensile strength, fatigue resistance, and lightweight properties. Common materials include forged steel, aluminum alloys, and, in high-performance applications, titanium. Each material offers a different balance of strength, weight, and cost, influencing the overall design and performance of the engine.

The 'I' cross-section is favored due to its excellent strength-to-weight ratio. This design maximizes the moment of inertia, which is crucial in resisting bending and buckling under the dynamic loads

International Journal of Ambient Energy ›

Volume 44, 2023 - Issue 1

Research Article

Diesel engine performance with nickel-oxide-doped Calophyllum oil biodiesel under varying injection timings

Rahul Krishnaji Bawane, Nilima Baliram Gadge, Dinesh Bawane & Pallavi Gadge

Pages 1284-1297 | Received 26 Sep 2022, Accepted 30 Dec 2022, Accepted author version posted online: 24 Jan 2023, Published online: 09 Feb 2023

Cite this article https://doi.org/10.1080/01430750.2023.2172608 Check for updates

Abstract

International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 09 Issue: 08 | Aug 2022 www.irjet.net p-ISSN: 2395-0072

Design and Manufacturing of Automated Card sheet Cutting Machine

Mansi Patil[1], Arpan Pakhare[2], Shreyas Wadvalekar[3], Parth Yelne[4], Sukhadip Chougule[5],

[1234]Students, Department of mechanical engineering,
[5]Asst. Professor, Department of mechanical engineering,
Pimpri Chinchwad College of Engineering and Research, Ravet, Pune, Maharashtra, India

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Abstract - *At present card sheet Cutting machines used industries are very heavy, consumes lot of power and are difficult to use. So different design which uses rotary mechanism. Due to the rotary mechanism continuous operation and also increases in the speed of operation is ensured. This project also aiming to make operation automatic by using Arduino to control feeding mechanism. Mathematical modelling has been done for checking machine for different stresses and finding out optimum dimensions. Furthermore, machine components were tested on ANSYS software to find deformation in actual workloads.*

Key Words: Roller, DNS Test, Laser Cutting

1.INTRODUCTION

The Automated card sheet cutting Machine system is a combination of electronic mechanical parts. Input Devices are devices used to gather information about the system, which consists switches (toggle switch) and sensors, in order to feed the controller (Arduino) by an information about the belts status and objects to be carried. The controller, which is the main element that operate the whole system, uses the information from the sensors which takes the counting and movement decision prior to sending the orders to the output devices by the actuators and the relays. Output Devices are the actuators that converts an electrical signal into mechanical movement

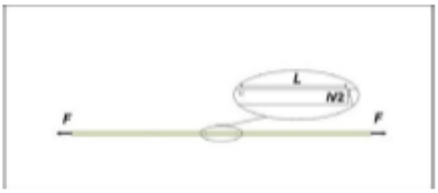
1.1 Methodology

The main purpose of this model is to reduce cost and time of cutting operation. Conveyor for transmission of sheet is used. Here the cutting assembly will cut cardboard sheet at a point and due to pressure applied by rollers the sheet will cut automatically in that direction. To transfer power gear drive with pulley is used. Our main aim while manufacturing

-Cutting two notches on a paperboard sheet, one from each side of the specimen separated by a distance L. The cut was made by a razor blade to half the paperboard thickness h/2. Prior to cutting, the paperboard was placed on a movable x–y table, and the razor blade was fastened onto a movable stage. Hence, very precise notches could be made.

-Cut 15 mm wide notched specimens from the paperboard sheet; comparable to the method for in-plane tensile testing. The maximum stress measured was used to calculate the maximum shear stress in the specimen.

The double notches generate stress concentrations that result in quite uniform strain fields. The double grooves produce a stress concentration resulting in a fairly uniform strain field. It can be concluded that, for the typical elastic properties of paper materials, the shear stress distributionis quite uniform. In addition, Whitney's analysis shows thatthe shear stress distribution is related to the length of the shear zone, L. As L decreases, the shear stress distribution becomes more uniform, for the parameters, resulting in a rather flat stress profile. Therefore, the notch effect is small.In addition, due to the structure of the fiber network, cardboard is less prone to cracking in thickness than homogeneous materials. Maximum shear stress insensitiveto cracks in the MD-CD plane.



1.2 Components

Conference Publication (A.Y. 2022-23)

CP202223_CI_1

materialstoday: PROCEEDINGS

Volume 77, Part 3, 2023, Pages 832-837

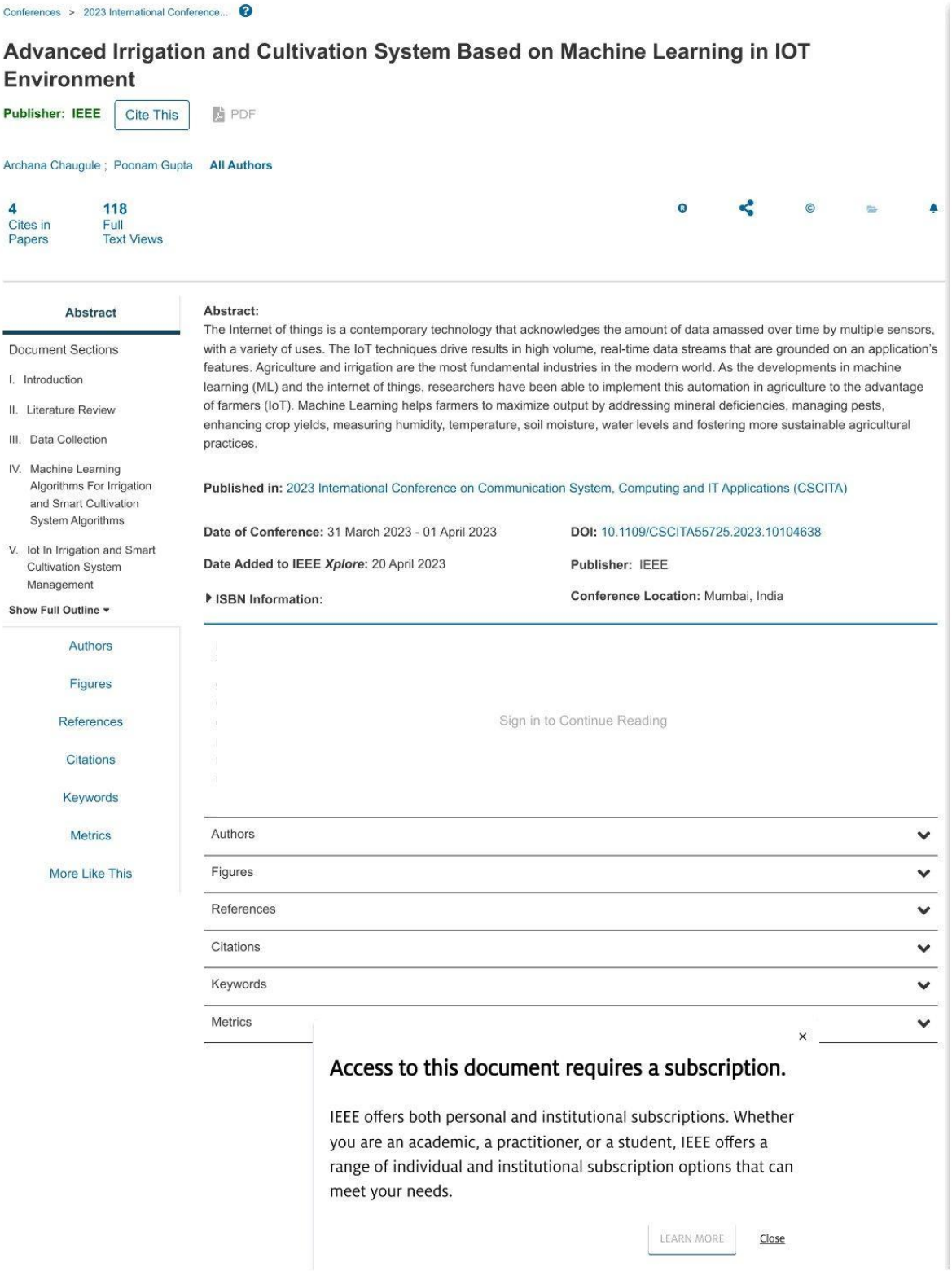
Road traffic accident prediction for mixed traffic flow using artificial neural network

Mayura Yeole [a], R.K. Jain [b], Radhika Menon [c]

https://doi.org/10.1016/j.matpr.2022.11.490 Get rights and content

Abstract

Transport scenarios in developing countries are fundamentally different from those in developed countries. The latter consists primarily of passenger cars and can be adequately described as "homogeneous" traffic, but the former consists of vehicle types with different static and dynamic characteristics that occupy the same right of way. Vehicle movement is asynchronous. Few studies have attempted to understand the characteristics of mixed traffic. This article explores the sharing attributes and influencing causes of traffic accidents in a mixed traffic area. A predictability model is employed to describe the connection between highway disasters and appropriate constraints such as traffic capacity, road provisions, and atmosphere issues. In this paper, the comparison has been done between the Multiple Linear Regression (MLR) and Artificial Neural Network (ANN) predictive models. The study has been conducted at Pimpri Chinchwad Muncipal Corporation (PCMC) region of Pune, Maharashtra, India. For this work, nine



CP202223_CO_2

Multiclass Discriminator for Blind Steganalysis Using Statistical Features of Digital Images

| Conference paper | First Online: 15 June 2023

| pp 625–637 | Cite this conference paper

Smart Trends in Computing and Communications

(SMART 2023)

Govind Suryawanshi, Suresh N. Mali & Pramod D. Patil

Part of the book series: Lecture Notes in Networks and Systems ((LNNS,volume 645))

Included in the following conference series:
International Conference on Smart Trends in Computing and Communications

Abstract

Today's world is becoming computer fanatic. Thousands of images are uploaded to World Wide Web in every second. A survey of various security and privacy threats that focus on use of social networking sites is conducted and it's ascertained that multimedia system content thread is one in all these security issues. Most of covert communication can be done through data hiding techniques like steganography in which secret data will be covered under carrier images. It can bear out by different Steganographic techniques of frequency domain or spatial domain. During data embedding process in digital images statistical properties of images get modified. By tracking

A Survey on various Machine Learning approach to predict Health Insurance Cost

Publisher: IEEE Cite This PDF

Minal Bodke ; Shweta Koparde ; Rohit Amrutkar ; Abhishek Chikurdekar ; Atharv Salunke ; Abhijeet Waghmare **All Authors**

Abstract:
Insurance is a policy that diminish or eradicate the expenditure loss appear due to various risk. Different factors may have an impact on the Insurance cost. Machine learning is a field of study that gives computers potential to adapt without human interference. Machine learning allow insurance companies to acknowledge the customers in a better way and create an insurance cover that victual to their needs and profile. In this paper, the propose system will examine the individuals health details to forecast the health insurance amount prediction and exhibit the insurance plans. Four regression models such as Linear Regression, Support Vector Regressor, Random Forest Regressor and Gradient Boosting have been implemented and their performance is measured using Mean Absolute Error, Root Mean Absolute Error and Coefficient of determination. Based on the analysis, it is found that the Gradient Boosting performs better than the other regression algorithms.

Published in: 2023 1st International Conference on Cognitive Computing and Engineering Education (ICCCEE)

Date of Conference: 27-29 April 2023
DOI: 10.1109/ICCCEE55951.2023.10424614
Date Added to IEEE *Xplore*: 12 February 2024
Publisher: IEEE
ISBN Information:
Conference Location: Pune, India

Proceedings of the Second International Conference on Edge Computing and Applications (ICECAA 2023)
DVD Part Number: CFP23BV8-DVD; ISBN: 979-8-3503-4756-2

A platform for Anonymous Tip-off and Evidence Validation

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***Abstract*— In this modern world, the crime rate is rising rapidly, however, people are reluctant to share tip-offs (Evidence) with the investigating authorities, this is mainly because their personal information and identity may get compromised, posing a threat to their own personal safety. The paper proposes to build a centralized web-based platform for anonymous tip-off reporting and validation that aims to address the challenges faced by authorities in handling such information and provide an effective solution using technologies like Web Development, Machine Learning, and Cryptography. Tip-offs can be provided in the format of images, videos, texts, and audio files. The submitted tip-offs will be validated using Machine learning algorithms like SVM (Support Vector Machine), CNN (Convolutional Neural Network), RNN (Recurrent Neural Network), and Natural Language Processing methodologies for validation and relevance to the information given by the user. Further, the whole data pipeline will be secured by AES (Advanced Encryption Standard) cryptographic algorithm. If the information is deemed to be credible and actionable, it is forwarded to the relevant authorities which will further take action towards it. The suggested approach has shown significant improvement in performance compared to existing methods and makes it accessible to the user to submit tip-offs at any given point in time**

Keywords — Machine Learning Algorithm, Cryptography, Anonymous Tip-Offs, Natural Language Processing, Centralized.

Introduction

The landscape of information sharing and evidence validation has witnessed significant advancements in recent years. Numerous studies and research papers have explored various platforms and methodologies aimed at facilitating anonymous tip-offs and ensuring the authenticity of the submitted evidence. Anonymous tip-offs can be extremely useful in exposing wrongdoing and various crimes which will further help the police authorities to action. Tip-offs will also promote accountability within organizations and society. However, processing and validating such information can be a complex and time-consuming task, especially when it comes to ensuring the authenticity and relevance of the information while maintaining the anonymity of the individuals who submit the tip-offs.

According to statistical data, since 2020, the number of anonymous tip-off submissions has climbed by 9%. Similarly, there has been a 3% increase in the use of Web-based portals compared to Hotline and Helpline numbers while reporting a tip-off. The data further reveal that sub-categories of intent to submit a tip-off are safety (11.3%), discrimination (4.39%), harassment (3.21%), bribery corruption (0.52%), data privacy and protection (5.12%), and other factors. Despite the current spike in complaints of anomalous behaviour, some statistics indicate that up to 48% of crimes such as assaults, murders, domestic violence, minor to serious sexual harassment, etc. are unreported to the appropriate authorities. This places a focus on creating tools for handling anonymous tips through web-based portals.

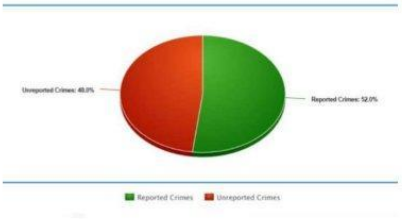

Fig .1. Crime reporting distribution

The paper presents a comprehensive review and analysis with an effective solution to tackle these current challenges. The platform will comprise a web-based portal through which individuals can anonymously submit tip-offs with supporting evidence, which will be further analysed by various machine learning models to validate the anonymous tip-off. Further, the data has been secured with the help of Cryptography. If the information is deemed credible and actionable, it is forwarded to the appropriate authorities for investigation.

The purpose of this study is to build a platform with effectiveness and utility in assisting organizations in handling anonymous tip-offs responsibly and transparently.

979-8-3503-4757-9/23/$31.00 ©2023 IEEE

CP202223_CO_5

Grenze International Journal of Engineering and Technology, June Issue

A New Approach towards Detection of Periapical Lesions using Artificial Intelligence

Vaishali Latke[1] and Vaibhav Narawade[2]
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Email: vaishali.latke@pccoer.in, vaibhav.narawade@rait.ac.in

***Abstract*—Dentists detect abnormalities in tooth with dental X-ray imaging techniques. Due to a wide variation in human tooth shapes, sizes, and abnormalities, processing a dental image is difficult and time-consuming task. Evaluation of dental anomalies using manual observation and inference remains to be a challenge till date. In order to make perfect analysis and formulate suitable treatment plan, automation in the field of dental picture segmentation and evaluation is crucially important. On reviewing a few approaches in the existing literature, a hybrid model has been proposed to detect Periapical lesions from an input X-ray image. Research has been segregated into three primary areas viz. Image Processing, Machine Learning and Deep Learning methodologies. The model has been tested on several X-ray images and accuracy of the same has been ascertained. Future research scope towards refinement of endodontic treatment has been proposed.**

***Index Terms*— Segmentation of dental X-rays, deep learning, convolutional neural networks, machine learning.**

I. INTRODUCTION

Across the globe about 36% of the population suffers from Dental caries disease in their enduring teeth. Most studies have found that people who are socially and economically disadvantaged, are illiterate or have little education are more likely to develop dental caries. In India, tooth decay is one of the most prevalent dental issues. Over 30% of male adults in India and over 34% of female adults in India have dental decay. When persons of all ages are included, including teenagers and seniors, 49 percent of Indians have dental cavities. This is far higher than in other countries, and a fundamental cause for this is a lack of oral hygiene and periodic dental examinations.

Since the 1960s, various preservation and reinstallation procedures have been successfully applied and used to improve the treatment of caries. However, diagnostic approaches for detecting caries have made little progress due to the wide range of tooth anatomy. Dental X-ray imaging (DXRI) has been adopted as the standard by dentists all over the world to identify irregularities in tooth structures. Dentists rely heavily on radiography image evaluation. Though the tooth anomalies may be identified from x-ray images, it calls for the consumption of time and judgment of experienced dentists. Quantum, photons, electronic and quantization noises degrade dental X-ray images. In uneven exposure, it is difficult to distinguish between tooth and bone areas. Hence, pre-processing of dental radiographs is essential to sharpen dental caries boundaries and increase the contrast between image background and tooth. Due to the inherent limitations of visual inspection and complexities in tooth structure, human observation may miss a sizable percentage of caries. Computer-assisted medical

Grenze ID: 01.GIJET.9.2.51

Conferences > 2023 International Conference...

A Novel Approach to Maze Solving Algorithm

Publisher: IEEE Cite This

Yash Gajanan Pame ; Vinayak G Kottawar ; Yogeshwari V Mahajan

Abstract:
This research aims to address the maze discovery issue of an autonomous micro-mouse bo this paper, An algorithm is proposed to search for unknown ... **Show More**

Metadata

Contents

CP202223_CO_7

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:05/Issue:05/May-2023 Impact Factor- 7.868 www.irjmets.com

ETHEREUM-BASED DECENTRALISED TOKEN EXCHANGE

Prof. Shweta Shah*1, Prof. Shruti Kudagi*2, Rajat Vyawahare*3, Harshal Hole*4, Mahesh Zalte*5, Shashwat Biyani*6

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Pune, India.

DOI : https://www.doi.org/10.56726/IRJMETS40082

ABSTRACT

In the world of modern technology, ensuring security is a top priority. To address this issue, blockchain technology has emerged as a promising solution by eliminating intermediaries and enhancing security. Cryptocurrencies are the first type of digital assets that have been successfully managed using blockchain technology. In recent years, financial institutions have been increasingly adding cryptocurrencies to their portfolios, leading to widespread adoption and interest among various stakeholders, including the banking sector, government, and individual investors. Cryptocurrency has the potential to become the future global currency, replacing fiat currency. This research project provides a comprehensive overview of the cryptocurrency market, including its origins, key features, price dynamics, market capitalization, and trading volumes. The project also explores important concepts such as Ethereum, smart contracts, tokens, and consensus algorithms that are critical to the functioning of the cryptocurrency market.

Keywords: Blockchain, Cryptocurrencies, Ethereum, Smart Contracts, Token, Consensus Algorithm.

I. INTRODUCTION

The advent of decentralised blockchain networks, such as Ethereum, has paved the way for innovative platforms such as decentralised exchanges (DEXs). These platforms allow users to transact in cryptocurrencies and other digital assets without relying on middlemen or centralised authorities. In contrast to centralised exchanges, where a single company controls the exchange and users must deposit their funds with them, de-centralised exchanges offer greater trade autonomy and trans- parency. The use of public blockchains to track transactions ensures that the movement of assets is easily traceable and that the exchange is fair. Decentralised exchanges represent a new era in trading, where users can engage in peer-to-peer transactions without the need for intermediaries.

II. LITERATURE REVIEW

A literature review is a comprehensive and critical evalua- tion of existing literature (academic papers, research articles, books, etc.) related to a specific topic. It involves reviewing, analyzing, and synthesizing the findings and arguments pre- sented in various sources to identify trends, gaps, and areas of consensus or controversy within the field.

In the case of decentralized token exchanges using blockchain technology, a literature review involves examining research and scholarly work that explore different aspects of this topic. Here are some key areas that would be covered in a detailed literature review:

Decentralized finance (DeFi) is a disruptive force reshaping the financial sector. This literature survey provides a compre- hensive overview of the latest research in DeFi, focusing on its impact on financial inclusion, innovation, intermediaries, and transaction immutability. The survey offers valuable insights into the current state of DeFi and its potential to transform the financial landscape [1].

This literature survey provides a thorough analysis of cryptocurrency trading, covering platforms, strategies, market dynamics, regulations, decentralized exchanges, and DeFi. It emphasizes the importance of future research to address challenges and ensure the growth of cryptocurrency trading [2].

This literature survey provides a comprehensive analysis of decentralized trustless cryptocurrency exchanges, covering blockchain technology, exchange models, smart contracts, interoperability, and security. It highlights the need for fur- ther research to address scalability, user experience, liquidity, and regulatory challenges for the success of decentralized exchanges [3].

RESEARCH-ARTICLE

Importance of Lightweight Algorithm for Embedded Security in Machine-to-Machine Communication towards Internet of Things

Authors: Mahendra Balkrishna Salunke, Parikshit N. Mahalle, Gitanjali Rahul Shinde Authors Info & Claims

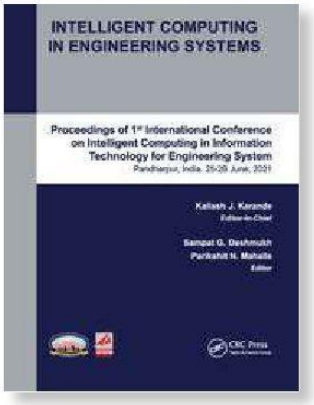
ICIMMI '22: Proceedings of the 4th International Conference on Information Management & Machine Intelligence
Article No.: 102, Pages 1 - 6 https://doi.org/10.1145/3590837.3590939

Published: 30 May 2023 Publication History Check for updates

Abstract

The Internet of Things (IoT) has been regarded as an important technological advancement that has changed how people think about and performs their activities. It is a framework that aims to create an efficient and effective method of managing various assets. The IoT also offers a paradigm shift that will enable the treatment of both physical and virtual assets uniformly. The increasing number of devices connected to the Internet will allow users to collect and exchange large amounts of data, making better decisions and enhancing their lives. One of the most important factors that the Internet is constantly working on is the development of new connectivity methods. One of these involves the Internet of Things, a framework for exchanging information among various sensors and devices. The rapid emergence and evolution of machine-to-machine communications will bring new opportunities for various applications. Unfortunately, many challenges still need to be resolved to make this technology work properly. One of the most important factors that need to be considered is the availability of secure infrastructure. One of the most important factors that need to be considered when implementing the security features of the Internet of Things is the availability of lightweight security algorithms. These are designed to help prevent unauthorized access and manipulation of the data sent and received by various devices. To function properly, the algorithms should not require a lot of resources, such as processing power. One of the advantages of implementing lightweight security algorithms is that they can help reduce the overall overhead of the security operations of the IoT. This is especially important since large-scale deployments are expected to involve thousands or millions of devices. This paper aims to comprehensively overview the various advantages of implementing these security algorithms.

CP202223_CO_9



1st Edition

Intelligent Computing in Information Technology for Engineering System

Proceedings of the International Conference on Intelligent Computing in Information Technology for Engineering System (ICICITES-2021), 25-26 June, 2021, Pandharpur, India

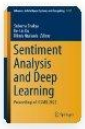
Edited By Kailash J. Karande, Sampat G. Deshmukh, Parikshit N. Mahalle

Paperback

IoT-Enabled RFID-Based Library Management and Automatic Book Recommendation System Using Collaborative Learning

| Conference paper | First Online: 01 January 2023

| pp 753–765 | Cite this conference paper



Sentiment Analysis and Deep Learning

Maithili Andhare, Kishor Bhangale, Vijayalaxmi S. Kumbhar, Arti Tekade, Suyash Choudhari, Ajinkya Deshpande & Sanket Chavan

Part of the book series: Advances in Intelligent Systems and Computing ((AISC,volume 1432))

Abstract

Libraries are a valuable resource for learning. A person must acquire and retain knowledge. However, the current library system has several disadvantages, including manual management of books by librarians, tedious tasks of book searching, and difficulty to track the unreturned books. Thus, this article presents the automatic library management system (LMS) based on radio frequency identification (RFID) and the Internet of Things (IoT). The proposed system helps to identify and track a large number of tagged books using radio waves. The proposed LMS provides an interactive portal to display the availability of books in the library, book issue facility, tracking of issued books, book return facility, etc. The LMS portal also provides book recommendations based on the K-Means clustering algorithm and collaborative learning. The IoT helps to collect the data on the cloud platform so that remote access to the library system. This action simplifies the process of borrowing, updating, and returning books using RFID tags.

Detecting Cybersecurity Attacks in Industrial Internet of Things: A Systematic Literature Review

Maithili Shailesh Andhare ; Vijayalaxmi Sandeep Kumbhar ; Arti Avinash Tekade All Authors

Abstract:
Cybercriminals and hackers are actively pursuing critical city infrastructures that rely on smart "Industrial Internet of Things (IIoT)" devices. Regardless of the fact that it has prompted a number of interests in recent decades, there isn't an accurate approach for Industrial IoT attack detection. Prior to actually developing an appropriate approach for detecting Industrial IoT attacks, it's indeed necessary to have knowledge of previous literature works. As a result, a concise and conceptual literature evaluation is conducted in this research work, including the most applicable methodologies dedicated to IIoT attack detection. All of the research papers gathered is from the years 2020 to 2022. Furthermore, each of the gathered publications is examined in terms of a variety of criteria, including the information source, attack detection methodologies, and performance metrics. Finally, current study gaps in the literature have been highlighted, and this will serve as a benchmark for future IIoT threat detection researchers.

Published in: 2023 5th Biennial International Conference on Nascent Technologies in Engineering (ICNTE)

Date of Conference: 20-21 January 2023
DOI: 10.1109/ICNTE56631.2023.10146705
Date Added to IEEE *Xplore*: 12 June 2023
Publisher: IEEE
ISBN Information:
Conference Location: Navi Mumbai, India

Abstract:
We have discussed about counter-based SAR ADC in this research paper. A significant component of the high-speed application of ADCs is the SARs critical path. ADCs needed for long term and battery-operated applications typically consume relatively less power. Applications requiring low power, moderate resolution, and medium speed is best suited for SAR ADC. Dynamic latch is employed in our ADC to boost performance and achieve low power consumption. We have demonstrated a 45nm CMOS-simulated, 4-bit low power SAR ADC. Utilizing an ADC design with the maximum amount of simplification, which consists of a dynamic latch comparator, in this paper we are primarily focusing on increasing the sampling frequency of the SAR ADC in order to get high conversion rate. The continuous time analogue low pass filter, which is typically used in front of the ADC to avoid aliasing, was also explored in this paper. Active-RC filters and operational transconductance-C filters are investigated and developed. Results from simulations and measurements are offered to illustrate the performance and functionality.

Published in: 2023 3rd International Conference on Intelligent Technologies (CONIT)

Date of Conference: 23-25 June 2023

DOI: 10.1109/CONIT59222.2023.10205732

Date Added to IEEE *Xplore*: 07 August 2023

Publisher: IEEE

ISBN Information:

Conference Location: Hubli, India

Abstract:
Over the past ten years, the field of digital electronics has experienced tremendous expansion, and technology advancement is accelerating daily. This technology needs to be implemented at a rapid pace with a powerful multiplier. This is an important consideration while developing any digital system. A circuit known as a multiplier produces the product of the inputs it receives. Any number of bits can be multiplied by a multiplier in arithmetic and logic circuits. Because the multiplier uses adders to conduct the action of summing partial products, the multiplier's delay time can be decreased by using more sophisticated adders. In order to compare different parameters and evaluate their performances, this article provides a design and implementation of various multipliers with carry look ahead adder.

Published in: 2023 4th International Conference for Emerging Technology (INCET)

Date of Conference: 26-28 May 2023

DOI: 10.1109/INCET57972.2023.10170076

Date Added to IEEE *Xplore*: 10 July 2023

Publisher: IEEE

ISBN Information:

Conference Location: Belgaum, India

Abstract:
Powder Coating is a method of applying decorative and protective finish to a wide range of materials and products that are used by both industries and consumers. Pre-Treatment is a process that manufactures need to go through to remove all grease, oils and dirt from the metal (usually conductive) surfaces. The process of pre-treatment has the following stages: Degreasing, Derusting, Phosphating, Passivation and Water Rinsing. Depending on the type of material that is to be pre-treated, the stages of the pre-treatment cycle can be varied accordingly. The existing system lacks in modes and in efficiency due to the inability for simultaneous execution. The pre-treatment process can be operated in three modes: Automatic, Manual and Maintenance. The system is a multiple batch system that allows multiple trays (batches) to be treated simultaneously with the help of electromagnetic latching mechanism. Integrating the system with IOT removes the restriction of localized operation and allows the operator to control the entire system remotely, without being present on the assembly floor. Further the quality of the proposed system is evaluated using Analytic Hierarchy Process(AHP).

Published in: 2023 5th International Conference on Energy, Power and Environment: Towards Flexible Green Energy Technologies (ICEPE)

Date of Conference: 15-17 June 2023

DOI: 10.1109/ICEPE57949.2023.10201573

Date Added to IEEE *Xplore*: 09 August 2023

Publisher: IEEE

ISBN Information:

Conference Location: Shillong, India

ISSN Information:

Analysis of Affective Computing for Marathi Corpus using Deep Learning

Publisher: IEEE

Nehul Gupta ; Vedangi Thakur ; Vaishnavi Patil ; Tamanna Vishnoi ; Kishor Bhangale All Authors

Abstract:
Speech Emotion Recognition (SER) offers a wide range of potential uses, including strengthening human-computer interaction in virtual reality and gaming settings, enhancing the detection and tracking of mental health disorders, and enhancing the precision of speech based assistants and chat bots. It faces the challenge of cross corpus SER, intonation variations, dialects variations and prosodic changes in language due to age, gender, region, and religion, etc. This paper presents deep Convolution Neural Network based SER for Marathi language Our novel Marathi data set consists of 300 recordings of 15 speakers for Anger, Happy, Sad and Neutral emotions. The performance of the proposed DCNN is evaluated on the novel data set based on accuracy, precision, recall and F1-score. The suggested scheme provides overall accuracy of raw data is 0.4750, 0.4076 and 0.3927 for 5,10 and 15 speakers respectively and the overall accuracy after feature extraction is 0.6652, 0.6361 and 0.5800 for 5, 10 and 15 speakers respectively shows improvement in existing state of arts utilized for SER for Marathi Corpus.

Published in: 2023 4th International Conference for Emerging Technology (INCET)

Date of Conference: 26-28 May 2023

DOI: 10.1109/INCET57972.2023.10170346

Date Added to IEEE *Xplore*: 10 July 2023

Publisher: IEEE

ISBN Information:

Conference Location: Belgaum, India

Deep Learning-based Analysis of Affective Computing for Marathi Corpus

Publisher: IEEE

Kishor Bhangale ; Dipali Dhake ; Rupali Kawade ; Triveni Dhamale ; Vaishnavi Patil ; Nehul Gupta All Authors

Abstract:
Speech Emotion Recognition (SER) has a broad variety of potential applications, including improving human-computer interaction in virtual reality and gaming environments, improving the identification and monitoring of mental health conditions, and improving the accuracy of chatbots and speech-based assistants. It must contend with cross-corpus SER, intonation and dialectal differences, as well as prosodic shifts brought on by factors like age, gender, locality, and religion. Deep Convolution Neural Network-based SER for Marathi is presented in this study. For the emotions of anger, happiness, sadness, and neutrality, our fresh Marathi data set includes 300 recordings of 15 speakers. On the basis of accuracy, precision, recall, and F1-score, the performance of the proposed DCNN is assessed using the new data set. The proposed scheme offers overall data accuracy of 0.4750, 0.4076, and 0.3927 for 5, 10, and 15 speakers, respectively, and overall accuracy of 0.6652, 0.6361, and 0.5800 for 5, 10, and 15 speakers, respectively, after feature extraction, which represents an improvement over the current state of the art used for SER for Marathi Corpus.

Published in: 2023 3rd International Conference on Intelligent Technologies (CONIT)

Date of Conference: 23-25 June 2023

DOI: 10.1109/CONIT59222.2023.10205770

Date Added to IEEE *Xplore*: 07 August 2023

Publisher: IEEE

ISBN Information:

Conference Location: Hubli, India

Generative Adversarial Network based Brain MRI Data Augmentation

Triveni D. Dhamale ; Sheetal U. Bhandari All Authors

Abstract:
Autism spectrum disorder (ASD) is becoming an increasingly important problem for individuals between the ages of 6 and 17. This disorder leads to a neurological condition impacting a person's ability to communicate and connect socially. The symptoms of ASD include despair, anxiety, hyperacidity, and so forth. Individuals can develop severe problems as a result of this. Therefore, a diagnosis in the early stages is reasonably necessary. The most common diagnostic method for autism spectrum disorder (ASD) is magnetic resonance imaging (MRI) of the brain. Deep Learning (DL) enables enhanced computational complexity, the capability to handle bigger data sets and high algorithmic efficiency. However, the performance of DL techniques is hugely affected by the data scarcity problem that occurs due to limited or uneven dataset size. Thus, there is a need to increase or balance the dataset size to equalize the qualitative and quantitative results of ASD detection. Therefore, this paper presents the Generative Adversarial Network (GAN) for brain MRI data augmentation. The performance of the suggested approach is evaluated on Autism Brain Imaging Exchange (ABIDE-I) dataset.

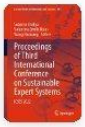
Published in: 2023 7th International Conference On Computing, Communication, Control And Automation (ICCUBEA)

Date of Conference: 18-19 August 2023
DOI: 10.1109/ICCUBEA58933.2023.10392247
Date Added to IEEE *Xplore*: 22 January 2024
Publisher: IEEE
ISBN Information:
Conference Location: Pune, India
ISSN Information:

Recent Trends in Automatic Autism Spectrum Disorder Detection Using Brain MRI

| Conference paper | First Online: 23 February 2023

| pp 375–387 | Cite this conference paper



Proceedings of Third International Conference on Sustainable Expert Systems

Triveni D. Dhamale & Sheetal U. Bhandari

Part of the book series: Lecture Notes in Networks and Systems ((LNNS,volume 587))

Abstract

Autism spectrum disorder (ASD) is a multifaceted developmental and psychological disability that consists of importunate challenges regarding non-verbal and speech communication, repetitive or restricted behavior and social interaction. Early detection of ASD can help to take proper curative and preventive measures to improve the health and lifestyle of the patients. Various machine learning-based and deep learning-based approaches have been presented in the past for the automatic detection of ASD. This paper presents the survey of a recent machine and deep learning approaches for ASD detection using brain Magnetic Resonance Images (MRI). It focuses on the methodology, feature extraction techniques, classifiers, database, and evaluation metrics of the various ASD detection approaches. The performance of several machine learning systems such as K-Nearest Neighbour (KNN), Support Vector Machine (SVM) and Classification Tree (CT) is validated for ASD detection on ABIDE-I dataset. Finally, it provides the challenges, constraints and gives the future direction to enhance the performance of the various machine and deep learning-based ASD detection approaches.

LSTM Algorithm for the Detection of Mental Stress in EEG

Publisher: IEEE Cite This PDF

Dipali Dhake ; Kunal Gaikwad ; Shreyas Gunjal ; Sanket Walunj All Authors

Abstract:
Stress is a prevalent mental health issue that can lead to severe consequences if not addressed properly. In recent years, electroencephalography (EEG) signals have gained attention for stress detection. However, most existing approaches rely on pre-processed features, which can be time-consuming and may not capture all the relevant information in the EEG signals.In this paper, we proposed a novel deep-learning approach for real-time stress detection using raw EEG signals. Our approach utilizes a long short-term memory (LSTM) network to automatically capture features and classify the stress level. Our method allows for capturing all the relevant information in the EEG signals, without the need for manual feature engineering.We evaluated our approach on the DEAP dataset, which includes EEG signals from 32 subjects under various emotional states. Experimental results demonstrate that our approach achieves state-of-the-art performance in stress detection, with an accuracy of approximately 94%. Our proposed approach has the potential for real-world applications, such as stress management in the workplace and mental health monitoring in clinical settings.

Published in: 2023 3rd International Conference on Intelligent Technologies (CONIT)

Date of Conference: 23-25 June 2023

DOI: 10.1109/CONIT59222.2023.10205636

Date Added to IEEE *Xplore*: 07 August 2023

Publisher: IEEE

ISBN Information:

Conference Location: Hubli, India

Book Chapter Publication (A.Y. 2022-23)

BC202223_CO_1

An Empirical Review on Secure Edge Computing Architecture

| Conference paper | First Online: 27 September 2023

| pp 661–668 | Cite this conference paper

Proceedings of the 2nd International Conference on Cognitive and Intelligent...

(ICCIC 2022)

Archana Kollu, Krishna Keerthi Chennam & Deepa Mahajan

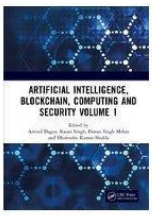
Part of the book series: Cognitive Science and Technology ((CSAT))

Included in the following conference series:
International Conference on Information and Management Engineering

Abstract

Edge computing offers some unique advantages over traditional models, where computing power is centralized at an on-premise data center. The method promotes processing of data on-site or in use while collecting Internet of Things (IoT) data at the edge rather than transmitting it back to the cloud. Endpoint data is gathered and evaluated to proceed with the subsequent actions. Edge computing provides high performance, availability, low cost, and high privacy for better security aspects in IoT. The cloud computing features extended to edge computing handle interruptions of sensitive applications. By shifting computationally intensive workloads to edge servers, the quality of computing, including energy usage and network transmission time, was improved

BC202223_CO_2



Chapter

Multi-party secure communication using blockchain over 5G

By K. Archana (/search?contributorName=K. Archana&contributorRole=author&redirectFromPDP=true&context=ubx), Z.H. Kareem (/search?contributorName=Z.H. Kareem&contributorRole=author&redirectFromPDP=true&context=ubx), Liwa H. Al-Farhani (/search?contributorName=Liwa H. Al-Farhani&contributorRole=author&redirectFromPDP=true&context=ubx), K. Bagyalakshmi (/search?contributorName=K. Bagyalakshmi&contributorRole=author&redirectFromPDP=true&context=ubx), Ignatia K. Majella Jenvi (/search?contributorName=Ignatia K. Majella Jenvi&contributorRole=author&redirectFromPDP=true&context=ubx), Ashok Kumar (/search?contributorName=Ashok Kumar&contributorRole=author&redirectFromPDP=true&context=ubx)

Book Artificial Intelligence, Blockchain, Computing and Security Volume 1 (https://www.taylorfrancis.com/books/mono/10.1201/9781003393580/artificial-intelligence-blockchain-computing-security-volume-1?refId=d6f1741f-cb0e-4235-b9c5-de5da97c2189&context=ubx)

Edition	1st Edition
First Published	2023
Imprint	CRC Press
Pages	8

ABSTRACT

< Previous Chapter (chapters/edit/10.1201/9781003393580-90/blockchain-based-ai-approach-towards-smart-home-organization-security-sarfraz-fayaz-khan-sharon-priya-mukesh-soni-ismail-keshta-ihtiram-raza-khan?context=ubx)

Next Chapter > (chapters/edit/10.1201/9781003393580-92/parallel-byzantine-fault-tolerance-method-blockchain-kumar-pradyot-dubey-gnanaprakasam-ihtiram-raza-khan-md-shibli-sadik-liwa-al-farhani-samrat-ray?context=ubx)

BC202223_ETC_1

Chapter 10

FPGA-Based Automatic Speech Emotion Recognition Using Deep Learning Algorithm

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Book Editor(s):Anuradha D. Thakare, Sheetal Umesh Bhandari

First published: 10 February 2023 | https://doi.org/10.1002/9781119857891.ch10 | Citations: 3

Artificial Intelligence Applications and Reconfigurable Architectures

Summary

There is increasing research in the field of speech emotion recognition (SER) due to its applicability in human computer interfaces (HCI). The literature reviewed in this area proposed different systems to recognize the emotional status of person through speech, and their studies focuses on use of appropriate databases, selection of suitable features and classifications techniques to improve the recognition accuracy. Researchers have been recently demonstrated deep learning techniques as an alternative to traditional SER techniques that reduces the need of identifying the handcrafted features. The high-dimensional features of proposed deep learning algorithm limit its implementations on the standalone processing boards. This article presents the implementation of deep learning–based SER on multicore programmable PYNQ-ZQ board that gives adaptability to the multidimensional deep features of speech signals. The proposed SER system is successfully implemented on the PYNQ-ZQ FPGA board and it results in an accuracy of 85.33%. It is noted that the FPGA implementation minimizes the delay for the SER compared with conventional central processing unit.

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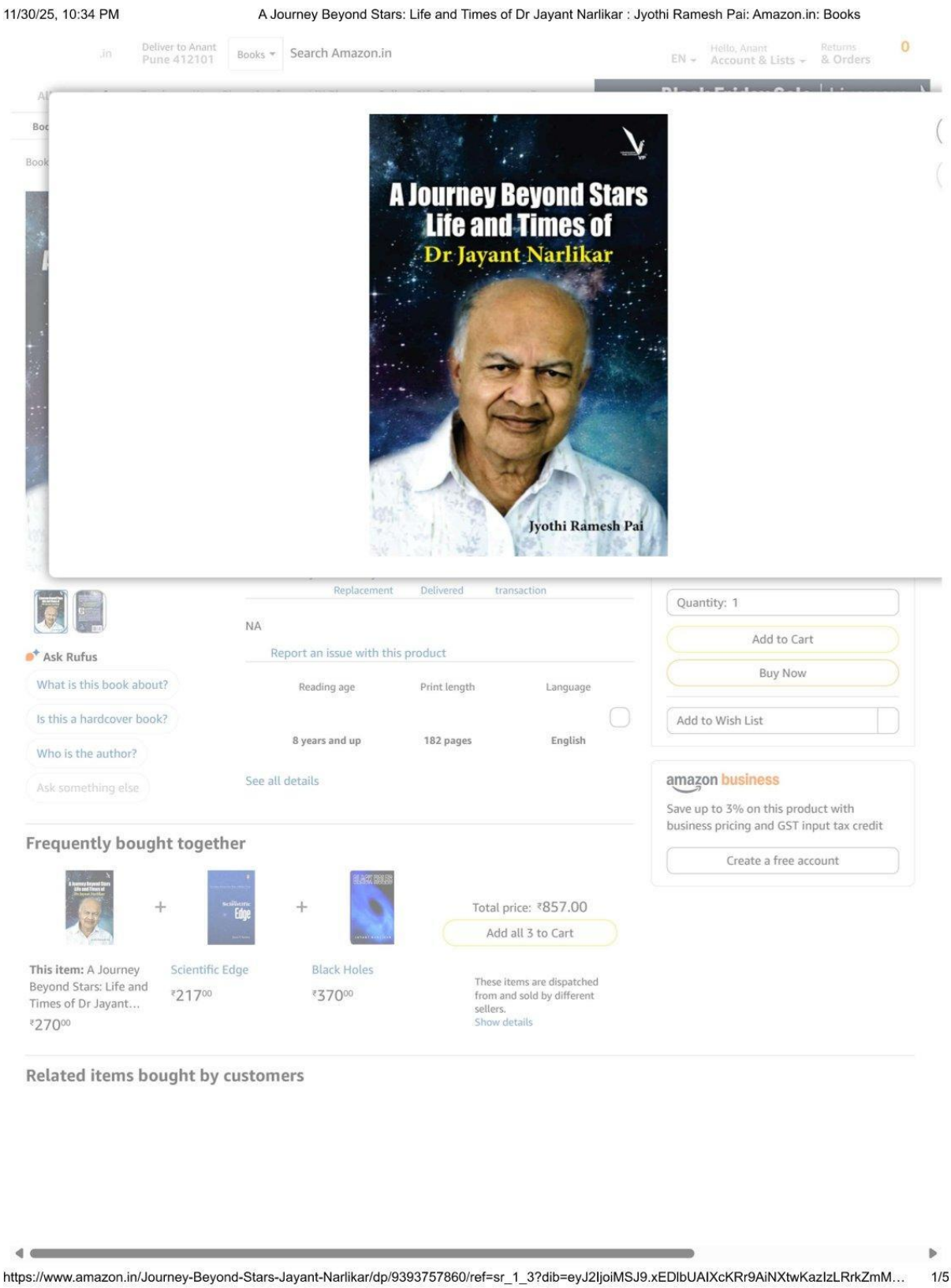
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by Tri Duc Ta (Author), Dr. Archana. K (Author), Mrs. Vaidehi shah (Author), Prof. Nita Goswami (Author)

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Artificial intelligence, often referred to as machine intelligence, is intelligence that is expressed by machines as opposed to natural intelligence, which is intelligence that is displayed by people and other animals. Machines may learn and improve their intelligence through time. Humans and other animals alike exhibit signs of having naturally-occurring intelligence. The antithesis of artificial intelligence is natural intelligence, which may be found not just in humans but also in a wide variety of other creatures. When it is completely functional, some of the numerous tasks that it is intended to do include speech recognition, learning, strategic planning, and problem solving. These are just few of the many responsibilities that it is planned to carry out. Because robotics is the field of study that concentrates on the

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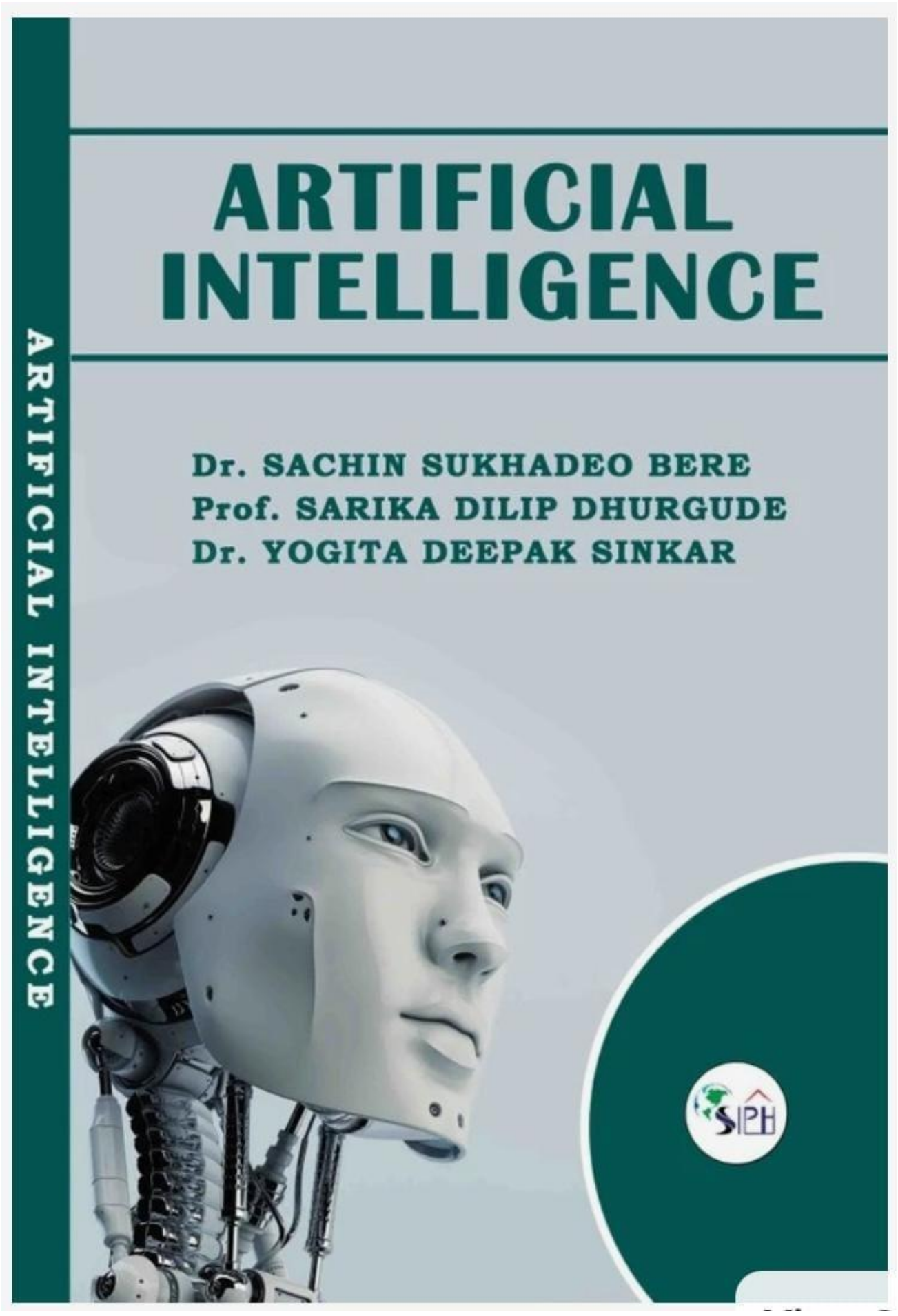
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