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3.4.4 Number of books and chapters in edited volumes/books published per teacher during the last five years (5)

Year	2021-22	2020-21	2019-20	2018-19	2017-18
Number	85	139	66	57	55

3.4.4 Number of books and chapters in edited volumes/books published per teacher during the last five years (5)								
3.4.4.1: Total number of books and chapters in edited volumes / books published, and papers in national/international conference-								
Sl. No.	**Name of the teacher**	**Title of the book/chapters published**	**Title of the paper**	**Title of the proceedings of the conference**	**Year of publication**	**ISBN/ISSN number of the proceeding**	**Whether at the time of publication**	**Name of the publisher**
1	Thanikanti Sudhakar Babu	NA	Power Generation Improvement in Partially Shaded Series-Parallel PV Arrays through Junction Wire	IEEE India Council International Subsections Conference (INDISCON	2022	978-1-6654-6601-1	Yes	IEEE
2	P.Ramalakshmi	1st online Inernational Conference on Recent Advances in Computational and Experimental Mechanics	Estimation of instantaneous shear modulus in neat resin and multi walled nanotube reinforced carbon epoxy composites by finite element analysis	1st Online International Conference on Recent Advances in Computational and Experimental Mechanics, IIT Kharagpur	2022	978-981-16-6737-4	Yes	Lecture Notes in Mechanical Engineering, Springer
3	R. Navaneetha	Research Developments in Science and Technology Vol. 5	Study on Corrosion Resistant Materials for Centrifugal Pump Impeller	NA	2022	978-93-5547-670-8	Yes	B P International
4	Dr. N Janardhan	Technological Innovation in Engineering Research	Performance of a Semi Adiabatic Diesel Engine Fuelled with Jatropha Bio-diesel	NA	2022	978-93-5547-480-3	Yes	B P International

5	Alivelu Manga Neelakantham, P Sathish	Handbook of Smart Materials, Technologies, and Devices	IoT-Based Medication Reminder Devices: Design and Implementation	NA	2022	978-3-030-58675-1	Yes	Springer
6	Dr. V. Swapna	Techno-economic and environmental impact analysis of biofuels produced from microalgal biomass	Book Chapter	Book chapter	2022	978-0-323-90040-9	Yes	Elsivier
7	Varimadugu Aruna	Theranostics and Precision Medicine for the Management of Hepatocellular Carcinoma	Hepatocellular carcinoma—An updated review	NA	2022	9.78E+12	Yes	Academic Press

8	Y. Vineetha, A. Shalini, Bishwambhar Mishra, Rajasri Yadavalli, K. Chandrasekhar & C. Nagendranatha Reddy	Bio-Clean Energy Technologies: Volume 1. Clean Energy Production Technologies.	Role of Enzymes in Biofuel Production: Recent Developments and Challenges	NA	2022	978-981-16-8089-2	Yes	Springer
9	C. Nagendranatha Reddy, Y. Vineetha, A. Priyanka, A. Shalini,Bishwambhar Mishra, Y. Rajasri	Biofuels and Bioenergy	Techno-economic and environmental impact analysis of biofuels produced from microalgal biomass	NA	2022	978-032-39-0040-9	Yes	Elsevier

10	C. Nagendranatha Reddy, B Mishra, SK Mandal,	Polysaccharides of Microbial Origin	An Insight into Pullulan and Its Potential Applications	NA	2022	978-3-030-35734-4	Yes	Springer
11	Dr.K.RAMESH	Engineering Chemistry	Engineering Chemistry	National	2022	978-93-85983-98-6	Yes	SciTech Publication, India
12	Dr.D.Saritha	Book Title: Smart Technologies for Energy, Environment and Sustainable Development, Vol 1	Chapter Title: A Brief Review of Cathode Materials for Li-ion Batteries	National	2022	2352-2542	Yes	Springer
13	Mr.M.Kalidas	For MCA Distance Education Students, Osmania university	A text book / Course material– Subject: Software Engineering and Object oriented system Development	International	2022	NA	Yes	

14	Dr. Prem Narayan Arya, Chandra Mani Sharma, Rupesh Kr. Mishra	Machine Learning Using Python	Machine Learning Using Python	National	2022	ISBN: 978-93-95468-10-7	Yes	AGPH Books
15	Dr.Raghavender Raju L, M Venkata Krishna Reddy, B Ramana Reddy	Health Monitoring Using at Mega Microcontroller and IoT	Applications of Internet of Things(IoT) in Real World, Taurean Publications	National	2022	ISBN: 978-1-956861-10-5. pp 48-59	Yes	Taurean Publication
16	Sreshta R. Putchala, Rithik koth, Vanitha Guda, Yellasiri Ramadevi	Transformer Data Analysis for Predictive Maintenance	International Conference on Advances in Computer Engineering and Communication Systems	International	2022	ISBN: 978-981-16-7389-4	Yes	Springer

17	Ramadevi Yellasiri, Sujanavan Tiruvayipati, Sridevi Tumula, Khooturu Koutilya Reddy	A Peer - to- Peer Approach for Extending Wireless Network Base for Managing IoT Edge Devices Off-Gateway Range	Smart Intelligent Computing and Applications	International	2022	ISBN: 978-981-16-9668-8	Yes	Springer
18	P.Pramod Kumar, K.Sagar,	5G Heterogeneous Network in Vertical Handoff for Making Enhanced Decision Algorithm	International Conference on Research in Sciences, Engineering & Technology	International	2022	https://doi.org/10.1063/5.0081762	Yes	AIP Conference Proceedings

19	P.Pramod Kumar, R Akshayn Nethaji Achha, K.Sagar, V. Thirupathi, G Ranadheer Reddy	An Affordable Multitasking Drone for Smart Framing with the Artificial Intelligence Feature	International Conference on Research in Sciences, Engineering & Technology	International	2022	https://doi.org/10.1063/5.0081755	Yes	AIP Conference Proceedings
20	P.Pramod Kumar, R Akshayn, K.Sagar	An Efficient VHO Algorithm to Enhance QoS in Internet of Vechiles with the Integration of 5G	International Conference on Electronics and Renewable Systems(ICEARS 2022),	International	2022	ISBN:978-5-6654-5425-1	Yes	IEEE
21	P.Pramod Kumar, R Akshayn, Nethaji Achha, K.Sagar, Thirupathi V, Srinivas M,	Futuristic IoT-Enabled Toilet Maintenance System to Avoid Disease Transmission at Public Toilets in Smart Cities	International Conference on Sustainable Computing and Data Communication Systems (ICSCDS-2022)	International	2022	ISBN:978-1-6654-7885-4	Yes	IEEE

22	P.Pramod Kumar(OU), P Pramod Kumar (SR) , K.Sagar,	A Proficient Vertical Handover Decision Making Algorithm in Internet of Vehicles with 5	International Conference on Electronics and Renewable Systems(ICEARS 2022)	International	2022	ISBN:978-1-6654-8426-8	Yes	IEEE
23	Dr.S.ChinaRamu	A Three-Level Gateway Protocol for Secure M-Commerce Transactions using Encrypted OTP	International Conference on Apllied Artificial Intelligence and Computing ICAAIC 2022	International	2022	ISBN:978-1-6654-9711-4	Yes	IEEE
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26	Sangeetha Gupta, Kavita Agarwal, M. Venu Gopalachari	Smart Home Infrastructure with Blockchain-Based Cloud IoT for Secure and Scalable User Access	International Conference on Paradigms of Communication, Computing and Data Sciences	International	2022	ISBN 978-981-16-5746-7	Yes	Springer
27	Sangeetha Gupta, Saif Ali Athyaab & J. Harsh Raj	ChefAI Text to Instructional Visualization Using Amazon Web Services	Smart Innovation, Systems and Technologies Book Series	International	2022	ISSN: 2190-3018	Yes	Springer
28	G. Kavita	Sports Results Prediction Using Supervised Learning	International Multidisciplinary E-Conference on Recent Innovations in Science and Technology(RIST-2022)	International	2022	NA	Yes	AIP
29	M Venkata Krishna Reddy, Dr. P.V.S. Srinivas, Dr. M. Chandra Mohan	Quantifying Nodes Trustworthiness using Hybrid Approach for Secure Routing in Mobile Ad hoc Networks	Springer	International	2022	ISBN 978-3-031-12637-6	Yes	Springer

30	B Ramana Reddy; M Indiramma	Virtual Machine allocation in multiple Data Centers using Throttled Load Balancing to improve the performance in Cloud	IEEE	International	2022	ISBN:978-1-6654-2522-3	Yes	IEEE
31	Dr. G. N. R. Prasad	X3DOM framework for rendering techniques	CVR CON 2022	International	2022	NA	Yes	Springer
32	Dr. R. Madana Mohana	Artificial Intelligence for Smart Cities and Villages: Advanced Technologies, Development, and Challenges	Smart Villages-Scope for IoT and Cloud Applications	International	2022	978-981-5049-26-8	Yes	Bentham Science
33	K. Ramana	Edge Computing and Applications	A Novel DDOS Attack Detection and Prevention Using DSA-DPI Method	2022 International Conference on Edge Computing and Applications (ICECAA)	2022	978-1-6654-8232-5	Yes	IEEE

34	R. Shoba Rani	Innovative Computing and Communications-2022	An Integrated Approach Towards Stock Price Prediction using LSTM Algorithm	International Conference on Innovative Computing and Communications-2022	2022	978-981-19-3679-1	Yes	Springer
35	Dr. Rajanikanth Aluvalu, Gangadhara Rao	Explainable AI: Foundations, Methodologies and Applications	Black Box Models for eXplainable Artificial Intelligence		2022	18684394	Yes	Springer
36	Dr. K. Radhika	NA	Comparison of Machine Learning Algorithms for Hate and Offensive Speech Detection	Evolutionary Computing and Mobile Sustainable Networks	2022	978-981-16-9605-3	Yes	Springer
37	Dr.Rajanikanth Aluvalu	NA	An Integrated Number Plate Recognition System through images using Threshold-based methods and KNN	2022 International Conference on Decision Aid Sciences and Applications (DASA)	2022	21709993	Yes	IEEE
38	Dr.Rajanikanth Aluvalu	Computer Vision	Computer Vision: Applications of Visual AI and Image Processing	International	2022	9.783E+12	Yes	De-Gruyters
39	Dr.Rajanikanth Aluvalu	EVOLUTION AND APPLICATIONS OF QUANTUM COMPUTING	EVOLUTION AND APPLICATIONS OF QUANTUM COMPUTING	International	2022	9.781E+12	Yes	scriviner Publishing

40	Ramalakshmi E	NA	Image Caption Generation Using Attention Model	Lecture Notes on Data Engineering and Communications Technologies	2022	978-981-16-7166-1	Yes	Springer
41	Dr.Rajanikanth Aluvalu	NA	Survey on load balancing techniques and resource scheduling in cloud computing	4th Smart Cities Symposium (SCS 2021)	2021	978-1-83953-658-8	Yes	IET
42	Dr. K. Radhika	NA	Detailed Review on Breast Cancer Diagnosis Using Different ML Algorithms	Data Engineering and Communication Technology	2021	978-981-16-0081-4	Yes	Springer
43	Mr. D.Jayaram	Intelligent Computing in Control and Communication	Intelligent Liver Disease Prediction (ILDP) System Using Machine Learning Models	Proceeding of the First International Conference on Intelligent Computing in Control and Communication (ICCC 2020	2021	978-981-15-8439-8	Yes	IEEE
44	Mr. U. Sairam and v. Santosh	NA	A Study on IoT Applications Towards Impact of Loss of Data	Proceedings of the Fifth International Conference on Trends in Electronics and Informatics (ICOEI)	2021	978-1-6654-1571-2	Yes	IEEE

45	Mr. U. Sai ram	NA	Virtual Mouse using Machine Learning and GUI Automation	International Conference on Advanced Computing and Communication Systems (ICACCS)	2021	978-1-6654-0816-5	Yes	IEEE
46	Ramalakshmi E	Smart Computing Techniques and Applications	Fake News Detection Using Text Analytics	International	2021	978-981-16-0878-0	Yes	IEEE
47	Dr. M. Venu Gopalachari	Hybrid Intelligent Syatems	Non-invertible Cancellable Template for Fingerprint Biometric	International Conference on Hybrid Intelligent Systems	2021	978-3-030-96305-7	Yes	Springer
48	Dr B.Veera Jyothi	Introduction to Operations Research	Introduction to Operations Research	National	2021	10-1639407987	Yes	Xpress Publishers
49	Gupta S., Ramadevi Y., Yadav A.K., Yadav C.S.	Secure Blockchain with the Internet of Things(S-BIoT) for Modern World Applications	Springer, Singapore	International	2021	978-981-16-0941-1	Yes	Springer
50	Kachapuram BasavaRaju, Y. RamaDevi,	Hand Written Devanagari Script Short Scale Character Recognition	, Smart Intelligent Computing and Applications	International	2021	ISBN-978-9811392818	Yes	Springer

51	Mruthyunjayam Allakonda, Dr.K.Sagar	A Survey on data security challenges in multi cloud environment	International Conference on Electronics, Computing and Communication Technologies	International	2021	ISBN:978-1-6654-2850-7	Yes	IEEE
52	Tariq Ahmed ,Aayush Shah, Dr.Kolla Morarjee, Dr. Y. Rama Dev	Reduction of Alert Fatigue using Extended Isolation Forest	2021 International Conference on Forensics,Analytics,Big Data,Securuty(FABS)	International	2021	ISBN:978-1-6654-2006-8	Yes	IEEE
53	V.Uday Kumar, A. Mohan, B.Srinivasa S P Kumar, Ramesh Ponnala, B SATEESH, P. Dundy Sai Maruthi	Analysis and Issues of Artificial Intelligence Ethics in the Process of Recruitment	Second International Conference on Smart Electronics and Communication (ICOSEC)	International	2021	ISBN: 978-1-6654-3368-6	Yes	IEEE

54	Anila M, Pradeepini G	Diagnosis of Parkinson's Disease Using Deep Neural Network Model	International Conference on Smart Generation Computing, Communication andNetworking(SMARTGENCON)	International	2021	ISBN:978-166542503-2	Yes	IEEE
55	Prameela Nagaa, Swamy DasMarri, RaizaBorreo	Facial emotion recognition methods, datasets and technologies: A literature survey	Materials Todays	International	2021	https://doi.org/10.1016/j.matpr.2021.07.046	Yes	Science Direct
56	Kusumalatha Karre, Dr. RamaDevi. Y	Recommended System for wellness of Autistic Children Using Data Analytics and Machine Learning	IOP Conference Series: Materials Science and Engineering	International	2021	ISSN: 1757-8981	Yes	IOP
57	H. Dammalapati and M. Swamy Das	An Applied Modular Approach to Build Scalable Mobile Robots	International Conference on Computing, Communication, and Intelligent Systems (ICCCIS)	International	2021	ISBN:978-1-7281-8530-9	Yes	IEEE

58	H. Dammalapati and M. Swamy Das	An Efficient Criminal Segregation Technique Using Computer Vision	International Conference on Computing, Communication, and Intelligent Systems (ICCCIS)	International	2021	978-1-7281-8530-9	Yes	IEEE
59	Ch. Sujan, Dr. R Ravinder Reddy and P. Charithesh	Review on Neuralink: A Fully Implanted Wireless Invasive Brain Machine Interface	2nd National Conference on Computational Methods, Data Science and Applications	National	2021	ISBN: 978-81-953418-4-9	Yes	Maulana Azad National Urdu University(Central University)
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61	Dr. S ChinnaRamu	Adaptive Spatial Temporal Filter and Enhanced Recurrent Neural Network for Video Summarization	Perspectives of IoT & its Applications	International	2021	ISBN: 978-81-948984-4-3	Yes	Archers & Elevators Publishing House

62	B.Poonguzharselvi	Analysis of Low Power VLSI Design of Static Recovery Full Adder Cells	Research Trends in Applied Research		2021	ISBN: 978-3-96492-218-2	Yes	Weser Books
63	B.Deepthi, G.Ramani, R.Deepika	Hybrid Secure Cloud Storage data based on improved Encryption Scheme	Conference Proceedings	International	2021	ISBN:978-1-7281-8519-4	Yes	IEEE
64	Dr.T.Ratna Reddy	3rd International Conference on Advancements InAeromechanica materials for Manufacturing	Design and Analysis of Impeller using Corrosion Resistant Materials	AIP Conference Proceedings	2021	1551-7616	Yes	AIP Conference Proceedings
65	Ramnarayan Sankrithi, Aswari Sultana Begum	NA	Evaluation of water quality index at Gandipet lake surroundings	1st International Conference on Sustainable Approach for Resilient Infrastructure 2021 (IC SAFRI), CBIT, Hyd	2021	E-ISBN: 978-1-956102-94-9	Yes	CBIT

66	Dr. P Yugendar	NA	Experimental assessment of coir geotextile to improve the strength of weak subgrade at different load conditions	1st International Conference on Sustainable Approach for Resilient Infrastructure 2021 (IC SAFRI), CBIT, Hyd	2021	E-ISBN: 978-1-956102-94-9	Yes	CBIT
67	Sri R Swamiranga Reddy	NA	Experimental study on mechanical and durability properties of recycled aggregate based geopolymer concrete	1st International Conference on Sustainable Approach for Resilient Infrastructure 2021 (IC SAFRI), CBIT, Hyd	2021	E-ISBN: 978-1-956102-94-9	Yes	CBIT
68	Dr. M.V. Krishna Rao	NA	Crushed Stone Dust as a Replacement for River Sand in Self Compacting Repair Mortars - A Sustainable Solution	1st International Conference on Sustainable Approach for Resilient Infrastructure 2021 (IC SAFRI), CBIT, Hyd	2021	E-ISBN: 978-1-956102-94-9	Yes	CBIT
69	Sri A. Balaji Rao, Sri P Srinivas Reddy	NA	Mode Shape Modification of Irregular Buildings	1st International Conference on Sustainable Approach for Resilient Infrastructure 2021 (IC SAFRI), CBIT, Hyd	2021	E-ISBN: 978-1-956102-94-9	Yes	CBIT

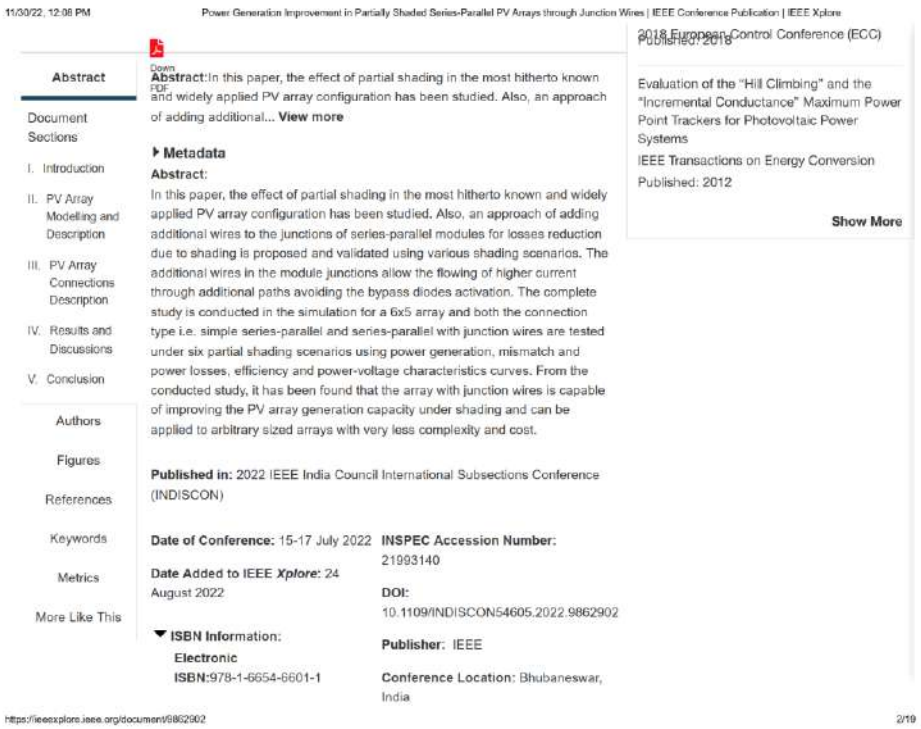
70	Dr. K Jagannadha Rao	NA	Towards sustainable construction through the application of low carbon footprint products and demonstration projects	1st International Conference on Sustainable Approach for Resilient Infrastructure 2021 (IC SAFRI), CBIT, Hyd	2021	E-ISBN: 978-1-956102-94-9	Yes	CBIT
71	Dr. K Jagannadha Rao, Dr. NR Dakshina Murthy	NA	A study on mechanical properties of high strength concrete with partially replacement of cement	1st International Conference on Sustainable Approach for Resilient Infrastructure 2021 (IC SAFRI), CBIT, Hyd	2021	E-ISBN: 978-1-956102-94-9	Yes	CBIT
72	Dr A Vimala	NA	Dynamic performance of soft storey structures with gap elements at beam-column joints	1st International Conference on Sustainable Approach for Resilient Infrastructure 2021 (IC SAFRI), CBIT, Hyd	2021	E-ISBN: 978-1-956102-94-9	Yes	CBIT
73	Dr A Vimala	NA	Optimization of location of outrigger system in tall buildings of different aspect ratios	1st International Conference on Sustainable Approach for Resilient Infrastructure 2021 (IC SAFRI), CBIT, Hyd	2021	E-ISBN: 978-1-956102-94-9	Yes	CBIT

74	N. R. Dakshina Murthy	Recent Advances in Structural Engineering	Studies on Infiltration Rate of Pervious Concrete	International	2021	ISBN: 978-981-33-6388-5	Yes	Springer
75	N. R. Dakshina Murthy	Recent Advances in Structural Engineering	Stress–Strain Behaviour of Self-consolidated Processed Recycled Aggregate Concrete	International	2021	ISBN: 978-981-13-0362-3	Yes	Springer
76	Dr. M.V. Krishna Rao	NA	Identification of Critical Construction Delay Factors: An Indian Perception (Paper ID:53)	3rd International Conference on Advances in Civil Engineering (ICACE 2021)	2021	ISSN 1757-899X (Online)	Yes	Springer
77	Dr. P Yugendar	NA	Macroscopic analysis of traffic flow behavior on multi-lane highways under heterogeneous traffic conditions	International Conference on Advances in Civil Engineering, VNIT Nagpur	2021	ISBN: 978-981-16-4395-8	Yes	Springer
78	Sri R Swamiranga Reddy	NA	An Experimental study on durabilty of pervious concrete	3rd International Conference on “Advances in Civil Engineering(ICACE-2021) KLUniversity Guntur. A.P	2021	ISBN: 978-981-16-8666-5	Yes	Springer

79	Dr. NR Dakshina Murthy	NA	Studies on Impact resistance of SECC with mechanically treated recycled coarse aggregate	3rd International Conference on Advances in Civil Engineering (IC ACE), KL University, Vijayawada.	2021	ISSN 1757-899X (Online)	Yes	Springer
80	Dr. M.V. Krishna Rao	NA	Time Impact Analysis (TIA) and the Window Analysis (WA) Techniques in Construction Delay Assessment (Paper ID: 55)	1st International Conference on Sustainable Approach for Resilient Infrastructure 2021 (IC SAFRI), CBIT, Hyd	2021	E-ISBN: 978-1-956102-94-9	Yes	CBIT
81	Dr. K. Jagannadha Rao	Recycled Aggregates: Materials and Uses	Performance of different grades of Self Compacting Concrete (SCC) with Recycled Concrete Aggregates (RCA)	-	2021	-	Yes	Nova Science Publishers Inc, New York.
82	Thanikanti Sudhakar Babu	Bypass Diodes Configurations for Mismatch Losses Mitigation in Solar PV Modules	In *Innovation in Electrical Power Engineering, Communication, and Computing Technology*	Satpathy, Priya Ranjan, Pritam Bhowmik, Thanikanti Sudhakar Babu, Renu Sharma, and Chiranjit Sain	2021	978-981-16-7076-3	Yes	Springer

83	Thanikanti Sudhakar Babu	Different Control Mechanisms of a PMSM Drive for Electrified Transportation—A Survey	Smart Innovation, Systems and Technologies book series (SIST,volume 229)	Sain, Chiranjit, Atanu Banerjee, Pabitra Kumar Biswas, Sudhakar Babu Thanikanti, and Karthik Balasubramanian	2021	978-981-16-1777-5	Yes	Springer
84	Thanikanti Sudhakar Babu	NA	Thermal Comfort for a Green Office Building: Current Status and Future Direction	Advances in Power, Signal, and Information Technology (APSIT)	2021	978-1-6654-2506-3	Yes	IEEE
85	Thanikanti Sudhakar Babu	NA	Visual Comfort for a Green Office Building: An Overview	Advances in Power, Signal, and Information Technology (APSIT)	2021	978-1-6654-2506-3	Yes	IEEE

Power Generation Improvement in Partially Shaded Series-Parallel PV Arrays through Junction Wire



Estimation of instantaneous shear modulus in neat resin and multi walled nanotube reinforced carbon epoxy composites by finite element analysis

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Recent Advances in Computational and Experimental Mechanics, Vol—I

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Edition Number	**Number of Pages**	**Number of Illustrations**
1	XIII, 669	124 b/w illustrations, 275 illustrations in colour

Estimation of instantaneous shear modulus in neat resin and multi walled nanotube reinforced carbon epoxy composites by finite element analysis

Ramalakshmi Pullela [1a] and Rushyanth Tirunagari [1b]

[a] Assistant Professor , [b] Graduate Student
MED, Chaitanya Bharathi Institute of Technology (Autonomous), Hyderabad, Telangana State, India

ABSTRACT

In literature review, interlaminar shear strength in neat resin and MWNT reinforced composite is estimated by ASTM 1425 and finite element analysis by solid 46 available in ANSYS element library. In the present work, SHELL 281 is selected from ANSYS library to predict interlaminar shear strength and instantaneous shear modulus . SHELL element showed very good convergence over solid element.

Keywords: carbon; epoxy; multi walled nanotube; shear modulus; shear strength

1. INTRODUCTION & OBJECTIVE

Aircraft structures, automotives and marine structures find application of carbon epoxy composite due to high specific strength, low specific weight and high specific gravity. By adding MWNTs, it is observed that the brittle nature of epoxy is reduced and it increases the interlaminar shear strength of the composite. Yi Lei Wang [1], improved the interlaminar shear strength (ILSS) of carbon epoxy composite by growing the networks of multi walled carbon nanotubes by short beam shear test and its ILSS was observed to be 47.59 ± 2.26 MPa. ChandanKumar et al [2], examined the combined effect of loading rate and percentage by weight of MWNT on ILSS and flexural strength of CFRP by ASTM 2344.

Ramalakshmi et al [3] estimated ILSS by ASTM C 1425 and finite element analysis by ANSYS software. The deviation from both the methods was noticed to be 9.21 % by employing SOLID 46 element [4]. In the present work, SHELL 281 is used to predict the distribution of ILSS and instantaneous shear modulus. To accommodate the inclusion of the notch in the specimen while generating the finite element (FE) model, section properties along the thickness direction are varied.

2. RESULTS & HIGHLIGHTS OF IMPORTANT POINTS

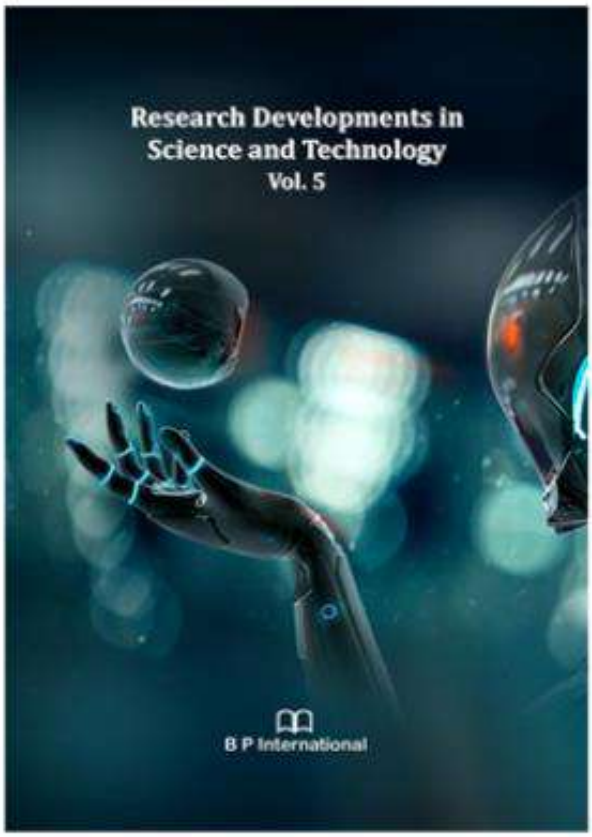
Table 1: ILSS in carbon epoxy composite at an average load of 2824 N

Sl.No	P_{max} in N	ILSS in MPa			Co-ordinates		Deviation	
		ASTM 1425	FEA solution		Case 1	Case 2	Case 1	Case2
			Case 1	Case 2				
Avg	2824	31.99	31.95	31.97	(18.87,0,0)	(10.53,15,0)	0.11	0.08

Table 2: ILSS in MWNT reinforced composite at an average load of 6218 N

Sl.No	P_{max} in N	ILSS in MPa			Co-ordinates		Deviation	
		ASTM 1425	FEA solution		Case 1	Case 2	Case 1	Case2
			Case 1	Case 2				
Avg	6218	60.03	59.81	59.98	(18.48,0,0)	(10.42,15,0)	0.37	0.09
Reference [2]		47.59 ± 2.26 MPa						

Further author information: Email: pramalakshmi_mech@cbit.ac.in



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Research Developments in Science and Technology Vol. 5

Dr. SungCheal Moon

Department of Polymer Engineering, Industrial Technology Support Division, Korea Institute of Materials Science (KIMS), Republic of Korea.

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Department of Polymer Engineering, Industrial Technology Support Division, Korea Institute of Materials Science (KIMS), Republic of Korea.

Description Reviews (0)

Study on Corrosion Resistant Materials for Centrifugal Pump Impeller

R. Navaneetha ; Ch. Indira Priyadarsini ; T. Ratna Reddy

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Abstract

An impeller is a revolving component that increases or lowers fluid flow and pressure and has a wide range of applications in the aircraft, automobile, medical, and power plant industries. When exposed to damaging mediums such as waste water, seawater, sewage, chlorine, bromine, and a variety of chemicals in real-time applications, bronze and hardened steel impellers swiftly degrade. They are reliant on cavitations and electrolysis (galvanic erosion), which rapidly degrade the impeller. Corrosion is a key issue with impellers, which drives up pump operating and maintenance costs, forcing industry to look for alternate materials. The major objectives of this work is to choose the best material for the impeller that will resist corrosion. Materials such as Caprolone (Nylon) and ABS (Acrylonitrile Butadiene Styrene) have been consider for the study than conventional materials like stainless steel and bronze. The simulation results have shown that the ABS material performed well in terms of corrosion resistance as it has chemical, thermal stability along with toughness and strength.

Keywords: Centrifugal; corrosion; pump; impeller

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Technological Innovation in Engineering Research Vol. 4

Dr. Rajkumar Venkatesh Raikar
Department of Civil Engineering, KLE Dr. M. S. Sheshgiri College of Engineering and Technology, Karnataka, India.

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Description Reviews (0)

Performance of a Semi Adiabatic Diesel Engine Fuelled with Jatropha Bio-diesel

N. Janardhan ; M. V. S. Murali Krishna

Technological Innovation in Engineering Research Vol. 4, 21 June 2022, Page 134-149
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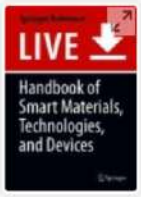
Abstract

Background of the Problem: In the scenario of fast impoverish of conventional fuels, ever hike of pollution levels with conventional fuels, increase of financial bundle on emerging countries due to import of crude petroleum with foreign currency exchange rate, the investigation for alternative fuels has become relevant and important. Oils extracted from the seeds of the plant, and alcohols, manufactured from biomass are important replacements for conventional diesel, as they are reclaimable. Oils from the seeds of the plants have energy fuels per unit mass and cetane number (a measure of ignition quality in diesel engine) are on par with diesel fuel. But they have high viscidity and low fugitive. On the other hand, biofuels have high transient. But they have low cetane number and low energy content per unit mass. Hence oils from the seeds of the plants are chemically converted into biodiesel to reduce viscidity and raised ignition quality. The problems of biodiesel are solved with engine, semi adiabatic diesel engine, which mitigate the heat flow to the coolant.

Aim: Trials were performed on a low heat rejection (LHR) diesel engine or semi adiabatic diesel engine employing an air gap insulated piston with 3-mm air gap, with stainless steel crown and air gap insulated liner with stainless steel insert with various functions of conditions of jatropha bio-diesel with varied injection timing and injector opening pressure.



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Establishes routes to real time utilization of Industry 4.0 at commercial scale manufacturing

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IoT-Based Medication Reminder Devices: Design and Implementation

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First Online: 11 January 2023

Abstract

IoT (Internet of Things) refers to a system of Internet-connected devices which are capable of sending and receiving the data without human intervention. This technology enabled the remote monitoring in healthcare sector which leads to keep the patients safe and healthy, and ensuring to deliver superlative care. Some people apparently should be taken care by the caretakers and other family members. This is not provided by everyone in today's life. So, they may forget to take medicines at the right time and may also forget what medicine has to be taken. This project aims to develop a device which alerts the patients to take medicine at right

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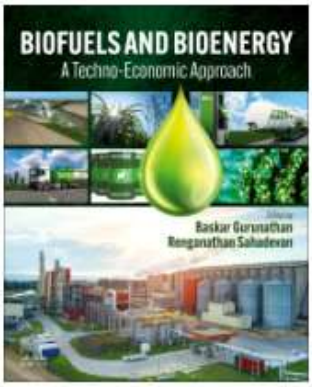

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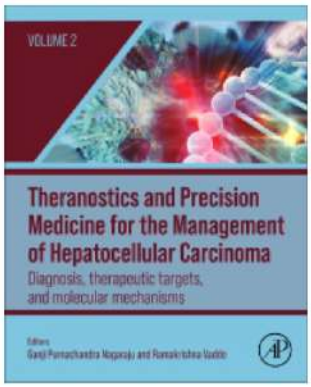
Chapter 29 - Techno-economic and environmental impact analysis of biofuels produced from microalgal biomass

C. Nagendranatha Reddy [1], V. Vineetha [1], A. Priyanka [1], A. Shalini [1], Bishwambhar Mishra [1], V. Rajani [1], V. Swapna [2]

https://doi.org/10.1016/B978-0-323-90940-9.00006-8

Abstract

An initiative has been taken globally to develop different biofuels as alternative energy sources. Recent findings and advanced developments in algal biomass for



Theranostics and Precision Medicine for the Management of Hepatocellular Carcinoma, Volume 2

Diagnosis, Therapeutic Targets, and Molecular Mechanisms

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Hardcover ISBN: 9780323988070

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CHAPTER

2

Hepatocellular carcinoma—An updated review

Varimadugu Aruna, A. Sneha and D. Sai Harshitha

Chaitanya Bharathi Institute of Technology, Hyderabad, India

Abstract

Cancer is referred to as the abnormal proliferation of cells. This occurs due to combined genetic and nongenetic alterations that are usually induced by environmental factors, which trigger inappropriate expression of specific genes leading to neoplastic transformations. There are many types of cancer among which the sixth most frequently detected is the liver cancer. The occurrence of hepatocellular carcinoma (HCC) has been steadily rising year by year all over the world. This review deals with various reasons for HCC stating from lifestyle to mutations. The literature suggested that the cause for the occurrence of this cancer is due to aflatoxin, alcohol, and hepatitis virus. Though the detailed mechanism of progression of HCC is not exactly clear, some experimental evidence that provides partial information about the mechanism of HCC are discussed here. In this chapter various methods that are available for the diagnosis of HCC and its further treatment are discussed. With technological advancements in the recent years, many new methods are designed for the detection of HCC as well as to treat it. This can further increase the life span of a person to some more extent.

Keywords: Aflatoxin; cancer diagnosis; cancer treatment; chemotherapy; cholangiocarcinoma; hepatectomy; hepatocellular carcinoma; hepatitis; liver cancer; liver transplantation; oncogenic drivers; radiation therapy; surgical resection; tumor suppressor

Abbreviations

AFP	Alpha-fetoprotein
CT	Computed tomography
GPI	Glycosylphosphatidylinositol
HBV	Hepatitis B virus
HCC	Hepatocellular carcinoma
HCV	Hepatitis C virus
HSPGs	Heparan sulfate proteoglycans
MRI	Magnetic resonance Imaging
NAFLD	Nonalcoholic fatty liver disease
ROS	Reactive oxygen species

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Role of Enzymes in Biofuel Production: Recent Developments and Challenges

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Chapter 4
Role of Enzymes in Biofuel Production: Recent Developments and Challenges

Arvind Bangaru, Kamasani Aarya Sree, Chandana Kruthiventi, Meenakshi Banala, Vadapalli Shreya, Y. Vineetha, A. Shalini, Bishwambhar Mishra, Rajasri Yadavalli, K. Chandrasekhar, and C. Nagendranatha Reddy

Abstract The increasing interest in the production of renewable and clean fuel has led to various cost-effective and efficient strategies with minimal impact on the environment. One such strategy of producing biofuels using enzyme-mediated catalysis has gained much attention globally. This chapter aims at improving the overall yield in a less energy-intensive and more environmentally friendly way compared to its production by conventional processes. The production of various clean fuels, various enzymes used so far for biohydrogen and biodiesel production, the significance of immobilization and improving the biofuel efficiency by identifying novel enzymes through metagenomic approach and enhancing the enzyme/metabolite production, and various obstacles faced and future perspectives have been elaborated in this chapter.

Keywords Enzymes · Biofuel · Novel enzymes · Biohydrogen · Biodiesel · Immobilization

Arvind Bangaru, Kamasani Aarya Sree and Chandana Kruthiventi contributed equally with all other contributors.

A. Bangaru · K. A. Sree · C. Kruthiventi · M. Banala · V. Shreya · Y. Vineetha · A. Shalini · B. Mishra · R. Yadavalli · C. N. Reddy (✉)
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About the book

Description

Biofuels and Bioenergy: A Techno-Economic Approach provides an in-depth analysis of the economic aspects of biofuels production from renewable feedstock. Taking a biorefinery approach, the book analyzes a wide range of feedstocks, processes and products, including common biofuels such as bioethanol, biobutanol, biooil and biodiesel, feedstocks

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Includes environmental impacts and lifecycle assessments of biofuels production alongside techno-economic

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CHAPTER 29

Techno-economic and environmental impact analysis of biofuels produced from microalgal biomass

C. Nagendranatha Reddy[1], Y. Vineetha[1], A. Priyanka[1], A. Shalini[1], Bishwambhar Mishra[1], Y. Rajasri[1] and V. Swapna[2]
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29.1 Introduction

Biofuel can technically be defined as any type of fuel which is derived from biomass (any plant material, animal-derived wastes or algal source). As per the literature, it is clear that algae contribute to a higher ratio of biomass when compared to other sources as the productivity is higher (Venkata Mohan et al., 2016; Nagendranatha Reddy et al., 2019b). Hence, the chapter is completely focused on the micro or macroalgal biomass for biofuel production. Macroalgae can be used to produce biofuels through different processing techniques which include fermentation processes or different thermal processes. Microalgae's biomass along with greenhouse gases (GHG) can be used as a potential substrate for biodiesel production thereby reducing the utilization of conventional fuels and environmental pollution and as well (Montingelli et al., 2015). Microalgae has diverse properties which make that feasible to use them as an energy source directly as biomass for various reactions or they are known to be used for high oil content, and both heterotrophic and autotrophic algal forms could be used in biofuel production. Inorganic carbon (CO_2) will be used as a carbon source if they are autotrophic, and sugars from biomass will be used as a carbon source if they are heterotrophic in origin (Davis et al., 2011). In the process of producing biofuels from autotrophic algal forms, they covert the solar energy into biomass utilizing CO_2 and it is highly feasible as they can be grown in the open ponds and photobioreactors (PBRs). Because of the above-mentioned advantages, most of the commercial biofuel plants are inclined toward setting up autotrophic biofuel fields compared to that of the heterotrophic ones (DOE, 2010; Rohit et al., 2016). And, also based on the substrates used, the biofuels can be divided into three different generations. Out of which, the first-generation biofuels are made from plant-based materials viz., sugarcane, corn, etc. The second-generation biofuels used lignocellulosic biomass as feedstock, whereas the

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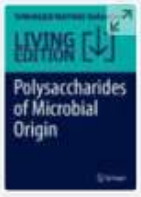

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Biomedical Applications

Editors: Joaquim Miguel Oliveira, Hajer Radhouani, Rui L. Reis

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Describes the biological activities, structural and physicochemical properties of these polysaccharides;

Surveys advanced processing methodologies underlying tissue-engineered scaffolding and drug delivery systems

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of Minho, Braga & Guimarães, Portugal. He is also the Director of the 3B's Research Group, part of the I3Bs – Research Institute on Biomaterials, Biodegradables and Biomimetics of the UMinho in Portugal (www.i3bs.uminho.pt), and the Director of the PT Government Associate Laboratory ICVS/3B´s.

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An Insight into Pullulan and Its Potential Applications

C. Nagendranatha Reddy, Bishwambhar Mishra, Sanjeeb Kumar Mandal, Dinesh Chand Agrawal, and Chandana Kruthiventi

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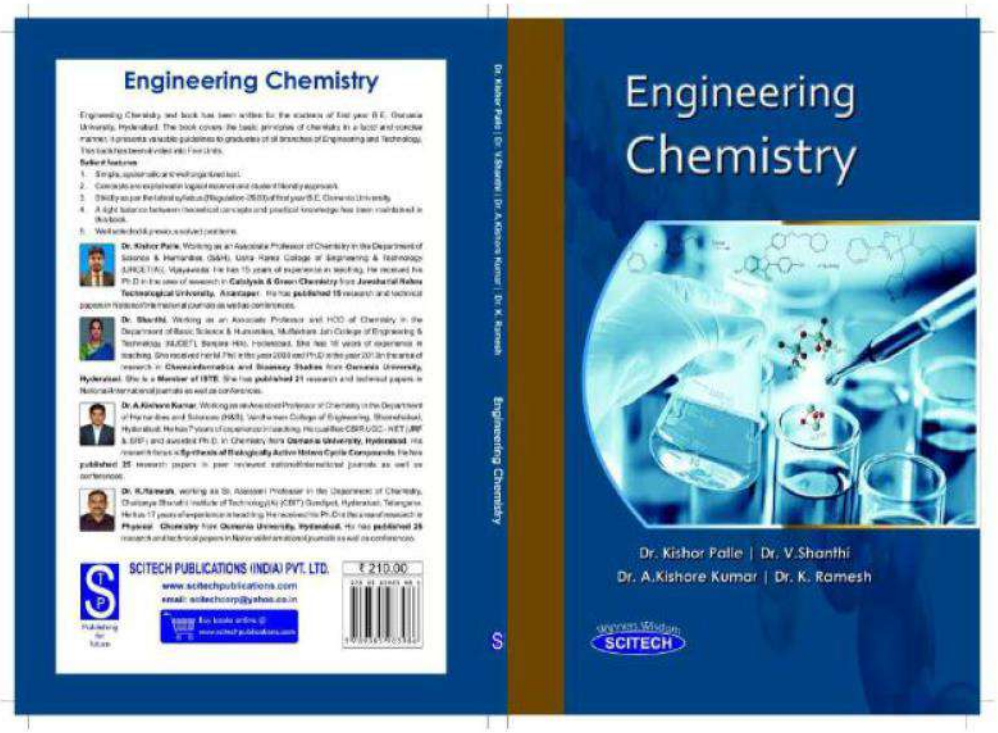

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Smart Technologies for Energy, Environment and Sustainable Development, Vol 1 pp 521–529

A Brief Review of Cathode Materials for Li-ion Batteries

D. Saritha

Conference paper | First Online: 25 February 2022

Part of the Springer Proceedings in Energy book series (SPE)

Abstract

A crucial quantity of battery research is happening to realize the idea of electric vehicle applications. Incredible advancement has accomplished in the improvement of Li-ion batteries in modern eras. Nanostructured materials are attention presently for Li-ion batteries owing to their huge surface area, porosity, and little diffusion length.

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Health Monitoring Using at Mega Microcontroller and IoT

Health Monitoring Using at Mega Microcontroller and IoT

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bramanareddy_cse@cbit.ac.in

ABSTRACT

Our Invention "Health Monitoring using at Mega Microcontroller and IOT" The wellbeing observing framework has become famous these days because of uniqueness and expanded utilization in the clinical field. Ordinary many lives are impacted on the grounds that the illnesses are not ideal and appropriately analyzed so we didn't get an opportunity to give clinical assistance. To manage these sorts of circumstances, this framework will assist with observing a patient's sure boundaries and anticipate the patient's condition from time to time. This framework is easy to understand and lessens the human endeavors. This invention provides us with the improvement of a microcontroller based framework for

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Transformer Data Analysis for Predictive Maintenance

Proceedings of Second International Conference on Advances in Computer Engineering and

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Sreshta R. Putchala, Rithik Kotha, Vanitha Guda & Yellasiri Ramadevi

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Abstract

The loads on the power lines in transmission and distribution electrical power grids change continuously. The load depends on various factors such as the season, time of the day, and consumer behavior. Natural anomalies like storms and earthquakes could also change the amount of power consumption in the grid. Varying loads can stress the grid and lead to failures. In this paper, we aim at investigating techniques that can predict the behavior of loads and characteristics with fine-grained precision at transformer level. Transformers can indicate the microelements of the power grids. We have studied the various components and utilization characteristics intending to predict failures or predict performance degradation. They could use multiple features over time to monitor and dynamically adapt the grid at run time. Predicting transformer characteristics can also help prevent failures (help with maintenance), utilization characteristics, and load balancing (to reduce the stress). We have investigated time series forecasting and evaluated and compared different techniques using an actual data set of the power grid load recorded at regular intervals obtained from the transformers. We have compared the traditional AR, MA, and ARIMA models and neural network-based methods such as LSTM and RNNs to see which of these techniques had the lowest forecasting error. Besides the forecasting, we studied the reliability of various transformer components, the dynamics, and the relationship between them using multiple correlation studies. Extensive statistical hypothesis testing techniques also learn the causal relationships between different indicators. Some patterns in the measurements of various metrics are identified using machine learning techniques—both supervised and unsupervised.

Cite this paper

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Ramadevi Yellasiri, Sujanavan Tiruvayipati, Sridevi Tumula & Khooturu Koutilya Reddy

Conference paper | First Online: 19 April 2022

106 Accesses

Part of the Smart Innovation, Systems and Technologies book series (SIST,volume 282)

Abstract

Internet of Things (IoT) is a feature of the future Internet that has been portrayed as a worldview which principally coordinates and empowers advancements and correspondence arrangements with an outstanding interest to characterize how current standard conventions could uphold the acknowledgment of the far technological vision. Inside this specific situation, remote sensor organizations close to handle radio correspondences directing conventions as an intent to their appropriateness toward IoT. Apart from the standard infrastructure components especially power and network which are absolutely necessary for IoT gadgets, there is also a need to eliminate such dependencies to make the IoT future ready. One such move in building wireless-fidelity (Wi-Fi) peer-to-peer (P2P) communication strategy for IoT gadgets is portrayed in the research work. An uncomplicated approach is proposed through this research in order to establish a network backbone among IoT gadgets and also make them self-powered without the need to rely on an external infrastructure. The proposed methodology would minimize the overall capital investment in IoT network and power infrastructure including their maintenance but with the trade-off for lower data rates on further expansion.

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Cite this paper

Yellasiri, R., Tiruvayipati, S., Tumula, S., Reddy, K.K. (2022). A Peer-to-Peer Approach for Extending Wireless Network Base for Managing IoT Edge Devices Off-Gateway Range. In: Bhateja, V., Satapathy, S.C., Travieso-Gonzalez, C.M., Adilakshmi, T. (eds) Smart Intelligent Computing and Applications, Volume 1. Smart Innovation, Systems and Technologies, vol 282. Springer, Singapore. https://doi.org/10.1007/978-981-16-9669-5_50

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5G Heterogeneous Network in Vertical Handoff for Making Enhanched Decision Algorithm

5G heterogeneous network in vertical handoff for making enhanced decision algorithm

Show affiliations

Kumar, P. Pramod ; Sagar, K.

In modern days, wireless networks have played an important role, as many smart phone users continue to grow daily. As the wireless network progresses to 5G networks using Cloud-RAN technology, which offers high efficiency mobile-based broadband wireless networks. The 5G is evolving as it offers a seamless communication for video over IP, Voice over IP, etc. Cloud-based mobile networks are served and used by various network operators for the existing networking services. We have considered vehicle networks here as they access information on the internet and they have many applications such as email, surfing, GPS, and so on. Helps the wireless vehicle network act in such a way. In order to handle and provide large quantities of data with the efficient use of reliable means between the reliable Communication we suggest an enhanced transfer-based decision-making strategy. This approach suggests the initiation of the transition and handover decision algorithms, which supports and tracks movement changes in mobile nodes in the specific infrastructure by different times. In these two algorithms, the transfer decision is taken on the basis of the travelled complex route and started. Using the access router, the user is set to a saturation level that decreases resource utilization to perform the transfer operation. The place co-ordinates with three co-ordinates along with a certain mobility model are considered here on the basis of performance analyses. When a continuous connectivity flow occurs in the vehicle's wireless networks the time delay analysis is measured, which helps boost QOS.

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An Affordable Multitasking Drone for Smart Framing with the Artificial Intelligence Feature

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An affordable multitasking drone for smart farming with the artificial intelligence feature

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TOPICS

- Careers and professions
- Pesticides
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- Fungi
- Artificial intelligence

ABSTRACT

Agriculture is one of the essential aspects in any country's development, as it provides the major source of food, employment, for its importance in nation's revenue and international Trades. India is one such country which depends on agriculture for its economic growth. Indian agriculture sector accounts for 18% of the country's GDP and it provides employment for more than 50% of rural population. As many of the Indian farmers are still using the traditional technologies in farming which are integrated more with hard work than smart

An Efficient VHO Algorithm to Enhance QoS in Internet of Vechiles with the Integration of 5G

Proceedings of the International Conference on Electronics and Renewable Systems (ICEARS 2022)
IEEE Xplore Part Number: CFP22AV9-ART; ISBN: 978-1-6654-8425-1

An Efficient VHO Algorithm to Enhance QoS in Internet of Vehicles with the Integration of 5G

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***Abstract*— In a developing country such as India, the intellection of smart city and the boom for a wide range of vehicles, Internet of Vehicles (IoV) has gained a lot of consideration by furnishing numerous benefits, including traffic congestion control, smart parking, vehicle emergency and monitoring levels of pollution. Furthermore, IoV provides support for vehicles over internet aid communication. In order to have a better communication between Vehicle-to-Everything (V2X), an advanced network infrastructure is required. The currently available networks like 3rd generation (3G), 4th generation (4G) or long term evolution (LTE) are not adequate for these kinds of communications; There comes the 5th Generation (5G) cellular network into the picture. The 5G offers real-time crowd sourcing, higher data rates, low latency for transmission and sensing as a complementary base for information. In addition to the leading edge network infrastructure, the mobility of vehicles urges to have a perfect handover (HO) mechanism among heterogeneous networks. This paper discuss about the integration IoV with 5G and the importance of vertical handover (VHO) mechanism using an Artificial Intelligent algorithm and analyze its performance based on few of the parameters such as data transfer rate, transmission delay, mean throughput, packet delivery ratio (PDR) and Quality of Service (QoS).**

Keywords*— *IoV, V2X, Smart City, 4G, 5G, LTE, Heterogeneous Network, Handover, VHO, PDR, QoS.

I. INTRODUCTION

A heterogeneous network is the one that applys a various kinds of access technologies. It is also used in wireless networks, such as a wireless network that provides service over a wireless Local Area Network (LAN) on the other hand, being able to preserve service while shifting to a cellular network [2]

A handover is a telecommunication & mobile communications course of action during which a associated cellular call or data session is switched from one person to another. Horizontal Handover: When a user switches between two individual network access points of the same type, then it is known as horizontal handover. When a user switches between two different network access points of distinct kinds, then it is known as vertical handover. Handover is also known as handoff. The process of handover is illustrated in Fig. 1.

Fig. 1. Handover process

A. Horizontal Handover: When a user switches between two individual network access points of the same type, then it is known as horizontal handover.

B. Vertical Handover: When a user switches between two different network access points of distinct kinds, then it is known as vertical handover.

Fig. 2 depicts the different types of handover mechanism.

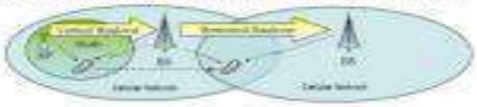

Fig. 2. Handover Types

Fig. 3 a), b) shows the present and future handover scenarios.

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Futuristic IoT- Enabled Toilet Maintenance System to Avoid Disease Transmission at Public Toilets in Smart Cities

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Futuristic IoT-Enabled Toilet Maintenance System to Avoid Disease Transmission at Public Toilets in Smart Cities

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***Abstract*— In the present ingenious world, every country is accelerating in the process of developing smart cities. As a part of developing smart cities, public toilets have been entrenched at every nook and corner of the country. Yet, the hygiene and cleanliness in our country are at gunpoint due to the improper maintenance of public toilets. Because of this reason, though there are many public toilets available, people are not ready to use them with the fear of getting infected or falling sick after using the public toilet that is not properly maintained. This paper proposes a**

than curing the people after they get infected [10], [12]. Based on the same principle, this paper proposes an idea to prevent the spread of diseases caused by using poorly maintained public toilets. This paper presents the scheme for smart toilets by integrating public toilets with IoT devices such as sensors, liquid crystal display (LCD), light-emitting diode (LED), and a smart testing toolkit.

A. Arduino UNO

Arduino Uno (Fig 1) is a microcontroller board developed by Arduino.cc, which is an open-source

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A Proficient Vertical Handover Decision Making Algorithm in Internet of Vehicles with 5G

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***Abstract*—As known, usage of mobile devices are enormously increasing day by day and these devices are being used in different applications where the user satisfaction, seamless connectivity, Quality of Service(QoS) and service among heterogeneous networks are very important features. These mobile devices have been introduced to include features such as advanced wireless technology support, seamless mobile networking, increased processing speed and improved multimedia services in recent days. These services allow the service provider to satisfy customers with enhanced service quality. Recently, the vehicle ecosystem emerged in the Internet of Vehicles (IoV); it involves the computational processing of moving vehicles to perform dynamic operations with wireless feature. To offer reliable services, Heterogeneous Wireless Networks**

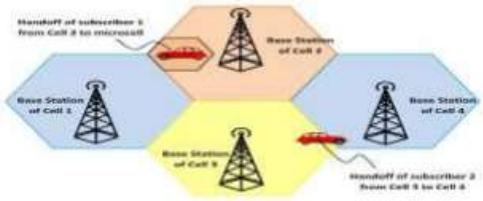

Fig. 1. Handover process

1.1. **Horizontal Handover:** When a user transitions between two separate network access points of

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A Three-Level Gateway protocol for secure M-Commerce Transactions using Encrypted OTP

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***Abstract*— Mobile commerce, which began in ancient times as the trade system, has grown in the ultramodern age due to improvements in technology, the Internet, the use of Financial Coffers, and the lives of mortal humans. There was a significant extemporization in the tackle industry and concurrent software development that led to a wide range of uses for computers and mobile phones. Ninety percent of people who take prescription drugs do so on handhelds, laptops, or cellphones, and the lives of mortals have been profoundly altered as a result of the smart operations available on mobile systems, which may be utilized at any time and from** the usage, operation, and integration of wireless telephony technologies and wireless bias, such as Internet-enabled mobile phones, specific digital sidekicks (PDA), palmtops, and laptops. Standard structures and electronic technologies necessary for wireless mobile data and knowledge transmission in textbook, plate, audio, and videotape formats are included in the M-Commerce Operations Factors. From e-commerce, which was formerly known as M-Commerce, comes the idea of 'position-independent connection' in a wireless networking environment that includes PDAs,

Association and Correlation Analysis for Predicting the Anomaly in the Stock Market

Association and Correlation Analysis for Predicting the Anomaly in the Stock Market

R. Ravinder Reddy ✉, M. Venkata Krishna Reddy & L. Raghavender Raju

Conference paper | First Online: 28 October 2022

Part of the Lecture Notes in Networks and Systems book series (LNNS,volume 494)

Abstract

The stock market is more volatile and fluctuate along with the time, the rapid change of the price value; it is very difficult to predict the price of the stock. Stock market price is mostly determined by the demand of the stock, which is determined by the gross purchase and sales. In the stock market, these are mostly done by the domestic intuitional investors (DII) and foreign intuitional investors (FII). Their percentage of investment is very huge compared to the retail investors in the market. The price change is mostly determined by the activity done by the FII and DII. The market price is dominated by the FII and DII; in this work, we identified the association and correlation between the FII and DII activities. The results show the suspicious anomaly between the FII and DII. In the Indian stock market, every day an average of 6.43 billion shares was traded depending on total composite volume. But surprisingly in the last one decade, the DII and FII are negatively correlated.

Cite this paper

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Fake Account Detection in Social Media Using Big Data Analytics

Fake Account Detection in Social Media Using Big Data Analytics

Shaik Mujeeb & Sangeeta Gupta

Conference paper | First Online: 22 February 2022
248 Accesses | 1 Citations
Part of the Algorithms for Intelligent Systems book series (AIS)

Abstract

Social media has changed the environment by increasing the number of social media users; the advantage of online social media is that it is an easy way of communication between individuals in an efficient manner. This ends up in potential attacks, like fake identity or pretend and larva accounts, unfolding of info etc. In step with the knowledge shared during a survey, the amount of actual accounts in social media is far lesser than the present users, what is more is that this means the increasing quantity of pretended or fake accounts in recent years. The detection of pretended accounts in social media platforms, like Twitter, has been an important task in huge amounts of information. Online social media owners or suppliers face issues in pretend accounts detections. Old strategies cannot distinguish between real and pretended accounts expeditiously. To overcome the problem, new strategies were created that used completely different approaches like bots or automatic comments and posts, rotating false data or info unfold and spreading spam messages within the type of advertisements. These strategies are a unit accustomed to observe pretend accounts in online social media. The large increase within the pretend accounts has reduced the potency of classification algorithms such as support vector machines, naive Bayes and random forest. In this work, an innovative methodology to observe pretend accounts needs to be developed by employing a variation of gradient boosting algorithmic program with a call tree consisting of a group of attributes. This may lead to rising overall potency and subsume scalability because of the increasing range of users using social media. So, there is a necessity for a tool which can identify and detect the fake or pretend account and accurately make the difference between pretend and genuine accounts.

Cite this paper

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Smart Home Infrastructure with Blockchain-Based Cloud IoT for Secure and Scalable User Access

Smart Home Infrastructure with Blockchain-Based Cloud IoT for Secure and Scalable User Access

Sangeeta Gupta, Kavita Agarwal & M. Venu Gopalachari

Conference paper | First Online: 01 January 2022

Part of the Algorithms for Intelligent Systems book series (AIS)

Abstract

Human beings in the modern world are greatly attracted towards using the smart gadgets that simplifies their daily routine-based activities, which is very essential after a tiresome day at work. Various devices including electronic and non-electronics like lockers are all controlled through a remote system that can be analysed in future iterations to trace the log of all operations. However, if this data is accessed by unauthorized users, then there is a great loss to be incurred by the house owners. On the other side, integration of IoT with blockchain will cater the need to overcome centralized behaviour in a distributed fashion. Also, security aspects need to be strengthened to overcome unprecedented loss of confidential information. Towards this end, the proposed work focuses on integration of the decentralized property of blockchain with data capturing aspects of IoT across multi-tenant environment in a secure way. In the proposed framework, multiple user access to multiple keys stored in secure private

Cite this paper

Gupta, S., Agarwal, K., Venu Gopalachari, M. (2022). Smart Home Infrastructure with Blockchain-Based Cloud IoT for Secure and Scalable User Access. In: Dua, M., Jain, A.K., Yadav, A., Kumar, N., Siarry, P. (eds) Proceedings of the International Conference on Paradigms of Communication, Computing and Data Sciences. Algorithms for Intelligent Systems. Springer, Singapore. https://doi.org/10.1007/978-981-16-5747-4_24

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ChefAI Text to Instructional Visualization Using Amazon Web Services

ChefAI Text to Instructional Visualization Using Amazon Web Services

Sangeeta Gupta, Saif Ali Athyaab & J. Harsh Raj

Conference paper | First Online: 19 April 2022

Part of the Smart Innovation, Systems and Technologies book series (SIST,volume 282)

Abstract

Food industry is one of the most widespread and rapidly growing one with scope for video content generation and analysis via social media. There is an immense rise in the popularity of videos based on food items preparation, as people watching these videos feel attached and involved in the process. Watching someone cook in person as a third person viewer is not as intuitive as watching a pair of hands cooking from the viewer's perspective. Therefore, in this work, we capitalize on Tasty Video datasets, a collection of 2511 recipes, in order to train a model on temporal dynamics for video-captioning and video-generation tasks. It is proposed to have a system to take in the recipe text and pass it through a transformer-based network to produce the cooking video. It is intended to qualitatively demonstrate the capability to generate plausible videos conditioning on the text as input. Moreover, quantitative experiments will be performed to validate the models using various metrics and human

Cite this paper

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Sports Results Prediction Using Supervised Learning

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April 2022

Sports Results Prediction Using Supervised Learning

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Abstract-

Different Machine Learning techniques are used to predict the score and outcome of various sports. We have analyzed different model design hypotheses to assess our model's performance which helped us choose the best algorithm to predict the winner of the match. The main algorithm used is logistic regression however, for collating, Support VectorMachine (SVM) and Naive Bayes has been used.

Predictive analysis has enforced the prediction of success rate of each team depending on the statistics of previous matches or tournaments which would help others to see where they stand andwho their competitors are. Sports managers are striving to model appropriate strategies that can work well for assessing the opponent's potential in a match. The challenge of predicting sports results is based on several parameters and it differs from sport to sport. So, it is important to consider all the essential ones in order to increase the accuracy rather than just focusing on the score to predict the outcome. Also, this area has always been something interesting for sports fanatics, magazine makers and others who are interested in approximating the odds of a game in advance. This system would aid in easy generation of results, display of ranking and regulating the selection of the tournament dates.

Keywords- Logistic regression, Support Vector Machine (SVM), Predictive Analysis

I. Introduction

A system for predicting the results of various sports matches that are based on previous results ofthe team's performance and conduct. We also strive to find accurate probabilities for a home win,a draw, or an away win for each match.

A particularly important element of Data Science in sports like football and cricket is the ability to evaluate a team's performance in games and use that information to attempt to predict the resultof future games based on this data. Outcomes from sports matches can be difficult to predict, withsurpeises often popping up. Football is an interesting example as matches have fixed length. It alsopossesses a single type of scoring event: goals that can happen an infinite amount of times duringa match, and which are all worth 1 point. The possible outcomes for a team taking part in a footballmatch are win, lose or draw. Similarly, in cricket, the possible outcomes are same as football. Butthere are many parameters for consideration like teams, runs per over, overall runs, run rate etc. Normally, predictions are done based on goals or runs for respective sport and it can therefore seem quite straightforward to predict the outcome of a game. Traditional predictive methods haveamply used match results to evaluate team performance and build statistical models to predict theresults of future games. For instance, a team with many scoring opportunities could be unlucky and convert none of their opportunities into goals or runs, whereas a team with a single scoring opportunity could score a point. This makes match results an imperfect measure of a team's performance and therefore an incomplete metric on which to predict future results.

Our primary goal is to create a model that predicts outcome of a sports match with sufficient accuracy. This accuracy can be determined by attaining 70% precision when predicting results of the match. More specifically, every match consists of characteristics of the players and thematch and based on these features our algorithms predict the outcome. The outcome is, for example in tennis where zero bit (0) corresponds to a win for Player 1 and one bit (1) a win for Player 2. No draw is possible here. In sports where a draw is possible, other representationsare necessary. In contrast to tennis, a draw is possible in football and cricket, and we have shroud both the scenarios.

Proposed System:

Deliberating the existing system, we have come up with the idea of using multiple classification and regression techniques namely Logistic Regression, SVM, Naïve Bayes, etc and with the helpof few technologies like Weka to anticipate the results. We have considered the factors like scores,home and away team (for any sport), strategies used, time, location (city and country) etc. Using such methods, we have compared as to which

Quantifying Nodes Trustworthiness using Hybrid Approach for Secure Routing in Mobile Ad hoc Networks

Quantifying Nodes Trustworthiness Using Hybrid Approach for Secure Routing in Mobile Ad Hoc Networks

M. Venkata Krishna Reddy ✉, P. V. S. Srinivas & M. Chandra Mohan

Conference paper | First Online: 28 July 2022

114 Accesses

Part of the Communications in Computer and Information Science book series (CCIS,volume 1613)

Abstract

Mobile Adhoc Networks (MANET) is a group of moving nodes where these nodes communicate each other through wireless links thus forming adhoc network. Each node works as router and forward packets from source to destination. Multiple wireless devices that connects on the fly in any situation are being gained importance today. These devices are flexible in nature, ad hoc and they can be temporarily setup at any point of time, in any place. These networks have lesser infrastructure costs due to decentralized administration. Message routing in those networks has become more difficult because of their innate dynamic character combined with restrictions like limited energy power, less bandwidth, wireless communication transmit nature and intervention of signals. Due to infrastructure less dynamic topology, distribution of bandwidth and limitations on resource usage among mobile nodes, the secure data transmission between source and destination is always a challenge. Security is always a critical concern in providing quality of service (QoS) and secure routing in MANET's since the presence of malicious nodes in the network pose all possible threats to MANETs. Many mechanisms exist and proposed to solve security issues in routing. But all those are complex and not properly addressing the elimination of malicious/selfish nodes. In this article, a new approach collaborative Trust Based Approach (CTBA) is proposed to provide node authentication using trust factor by combining direct and neighbor observations to form resultant collaborative trust before initiating route discovery process for performing data transmission in MANET's. Simulation results has proved that proposed CTBA approach performs well and fine compared to the routing without nodes trust calculation.

Cite this paper

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Virtual Machine allocation in multiple Data Centers using Throttled Load Balancing to improve the performance in Cloud

Virtual Machine allocation in multiple Data Centers using Throttled Load Balancing to improve the performance in Cloud

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***Abstract*—Today, Cloud Computing is a distributed system environment. These days the services are available pay as you go model. Cloud users are paying as per their services in the cloud environment. The services available to the Cloud users are Infrastructure as a service, platform as a service, software as a service and security as a service. Nowadays, most users are migrating to cloud platforms. In Covid - 19 pandemic situation, most large and small scale organizations operating their business using cloud platforms. On the other end due to industrial automation, the companies switched their operations to a cloud environments. Due to the rapid business migration, the demand for cloud computing increased. With the increase of demand in the cloud, the service providers are satisfied. On the other end, a challenging issue is resource allocation. The best resource allocation strategy will provide quick services to the cloud users and minimum cost to the cloud providers. In this paper, we will discuss , resource allocation procedure, the throttled load balancing algorithm and the results are compared with other resource optimization techniques.**

***Index Terms*—Cloud Computing, Cloud Analyst, Virtual Machines, Data Center, Load Balancing**

I. Introduction

Nowadays, Cloud computing is one of the most recent moving advances. It has a property simple to utilize and cost improvement administrations. It has such countless qualities out of which dependability, virtualization, performing multiple tasks, framework cost enhancement and the assistance of referenced highlights. Cloud computing is the stepping innovation. Today Cloud computing is utilized by many numerous startups. Business visionaries are saving their expense, time and working space by utilizing PCs to associate the cloud benefits as opposed to buying the Foundation. Cloud computing in short, the services are available pay as you go model. Due to this, so many short-time requirement users are using Cloud computing services.

There are many MNC's providing cloud services such as Amazon web services, Microsoft etc. [1]. The Cloud services are Infrastructure as a service(Iaas), platform as a service(Paas), Software as a service(Saas). Here, AWS EC2 instances are an example of Infrastructure as a service. Microsoft Azure is an example of a platform as a service; Google apps are examples of Software as a service.

Because of user-friendly, quickly to up the services and ease of doing business model, cloud services are used by many users. This increased their dynamic demand in cloud computing. Due to this, Load balancing came into the picture in Data centres. Before applying any algorithm in Data centre, for resource allocation, we need to know about the performance of the algorithm. For this reason, we are working on different algorithms. In this paper, we compare the results using Cloud Analyst Simulator.

II. Load Balancing Algorithms

A. Round Robin Load Balancing Algorithm

Round Robin is the most straight forward algorithm that uses the concept of quantum time. In Round Robin, each virtual machine will get quantum time. Once quantum time completes, the turn will get another virtual machine. If the quantum time is very large, then the round-robin algorithm acts as an First come First serve.

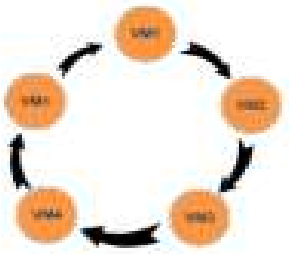

Fig. 1. RoundRobin Load balancing

X3DOM framework for rendering techniques

Certificate No:
CVRU-CON 2022/CivilMech/PR/19

CVRU-CON 2022

INTERNATIONAL CONFERENCE ON THE ANCIENT INDIAN KNOWLEDGE SYSTEM FOR HOLISTIC DEVELOPMENT

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On

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Smart Villages-Scope for IoT and Cloud Applications

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Artificial Intelligence for Smart Cities and Villages: Advanced Technologies, Development, and Challenges

Back Book Details

Smart Villages-Scope for IoT and Cloud Applications

Author(s): P Lalitha S. Kumari*, Pasupuleti Sailaja, Kommera K. Keerthana and Rasineni M. Mohana

Pp: 216-246 (31)

Doi: 10.2174/9789815049251122010015

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Abstract

This chapter gives information on how the Internet of Things (IoT) can be utilized for the benefit of the population in rural areas. The IoT has many applications such as those for household, vigilance, sensor monitoring, actuators, intelligent displays, and vehicles. Thus, the IoT will bring unimaginable benefits and help humans lead a smart life. Smart rural development allows high yield agriculture, efficient health care, optimization of energy management, good sanitation, reduction in water wastage, and enhancement of the irrigation system using new technologies. Initially, this chapter describes technologies of IoT such as IoT Architecture, Sensors/Devices details, the configuration of Data, and coding possibilities with their Examples. This chapter also discusses how the cloud is integrated with IoT, Web Services and IoT Services on the cloud, cloud Interfaces and tools for IoT, and storage of IoT data on the cloud. This chapter also discusses different case studies that can be applied for different applications in rural areas. The IoT technology thus used in various spheres of village life will enhance the development of rural areas making them financially strong, improving the quality of village life, and helping them to become smart villages.

Keywords: Arduino nano senseboard, Cloud architecture, Internet of Things, IoT app development platforms, Raspberry PI, Sensors, Smart rural development.

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A Novel DDOS Attack Detection and Prevention Using DSA-DPI Method

International Conference on Innovative Computing and Communications pp 733–743

A Novel DDOS Attack Detection and Prevention Using DSA-DPI Method

V. Deeban Chakravarthy, K. L. N. C. Prakash, Kadiyala Ramana & Thippa Reddy Gadekallu

Conference paper | First Online: 08 November 2022

Part of the Lecture Notes in Networks and Systems book series (LNNS,volume 492)

Abstract

In the current Internet world, connection of computers, IoT devices, and mobile devices together becomes common activity. Because of the enormous advantages available with the Internet, many applications are

Proceedings of the International Conference on Edge Computing and Applications (ICECAA 2022)
IEEE Xplore Part Number: CFP22BV8-ART; ISBN: 978-1-6654-8232-5

An Integrated Approach Towards Stock Price Prediction using LSTM Algorithm

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2022 International Conference on Edge Computing and Applications (ICECAA) | 978-1-6654-8232-5/22/$31.00 ©2022 IEEE | DOI: 10.1109/ICECAA55415.2022.9936082

***Abstract*— Investing in stock markets is always a bit complex and unpredictable for numerous reasons. This study is made by an extensive study of various machine learning and deep learning algorithms which would help reducing the risk in predicting the stock prices. As part of the study, Tehran Stock Exchange is considered in the sectors of non-metallic minerals, basic metals, and finance for testing new ideas. Various algorithms such as extreme Gradient Boost (XGBoost), Support Vector Machine, Random Forest, Decision Tree, K-Nearest Neighbors, Naive Bayes, Logistic Regression and Artificial Neural Network (ANN) are explored, compared, and analyzed in this work. Apart from the above-mentioned algorithms, this research study has used two powerful deep learning techniques, they are Recurrent Neural Network (RNN) and Long Short-Term Memory (LSTM). This research study will implement around ten technical indicators that have been gathered over a decade. Stock trading values are utilized to calculate the indicators whereas, binary data is used to convert the indicators. Each prediction model is evaluated by three metrics based on the input way. For continuous data, the evaluation results depict that RNN, and LSTM overcome other prediction models to a greater extent. These deep learning are equally good at evaluating binary data, but this difference hinders due to a considerable enhancement in the model's performance.**

Keywords—Recurrent Neural Network, Long Short-Term Memory, Artificial Neural Network, Stock Price.

I. Introduction

Forecasting the stock prices accurately has always been a critical issue for a majority of economic and financial experts. The fluctuating and unpredictable nature of this field made the study even harder [1]. The companies which purchase stocks that are expected to rise and sell them whose stock price is going to fall is the key takeaway in this study. There are two basic steps involved in predicting stock market, first being the fundamental information based on the position of company in market and second, the expenses, annual increase rates which are used for crucial analysis.

Past years analysis such as charts and patterns of how the stock price is varying, it makes the future prediction easier and more accurate [2]. As everyone else, even data scientists face similar difficulties while making predictions of stock market. Due to the riskiness and uncertainty in stock market field, investors face two major problems: one being the political climate in a particular country and second being the interest, opinion of public over stocks in that nation [3].

With careful management, the data regarding stock prices can be used in prediction of future stock values and indexes. The prediction of share market can highly get influenced by the deep learning models and social media sentimental analysis [4] [5].

These techniques are created to automatically learn and analyse from large piles of data. There is no hard and fast rule that can predict the future of a stock because it depends not only on the past analysis but also the pulse of public's view over it. [6] RNN and LSTM are the two deep learning methods applied in this work to predict the nature of stock prices [7]. To feed the models, ten technical indicators are used and further to evaluate the impact of pre-processing, two different ways are used: one being continuous data and second being binary data.

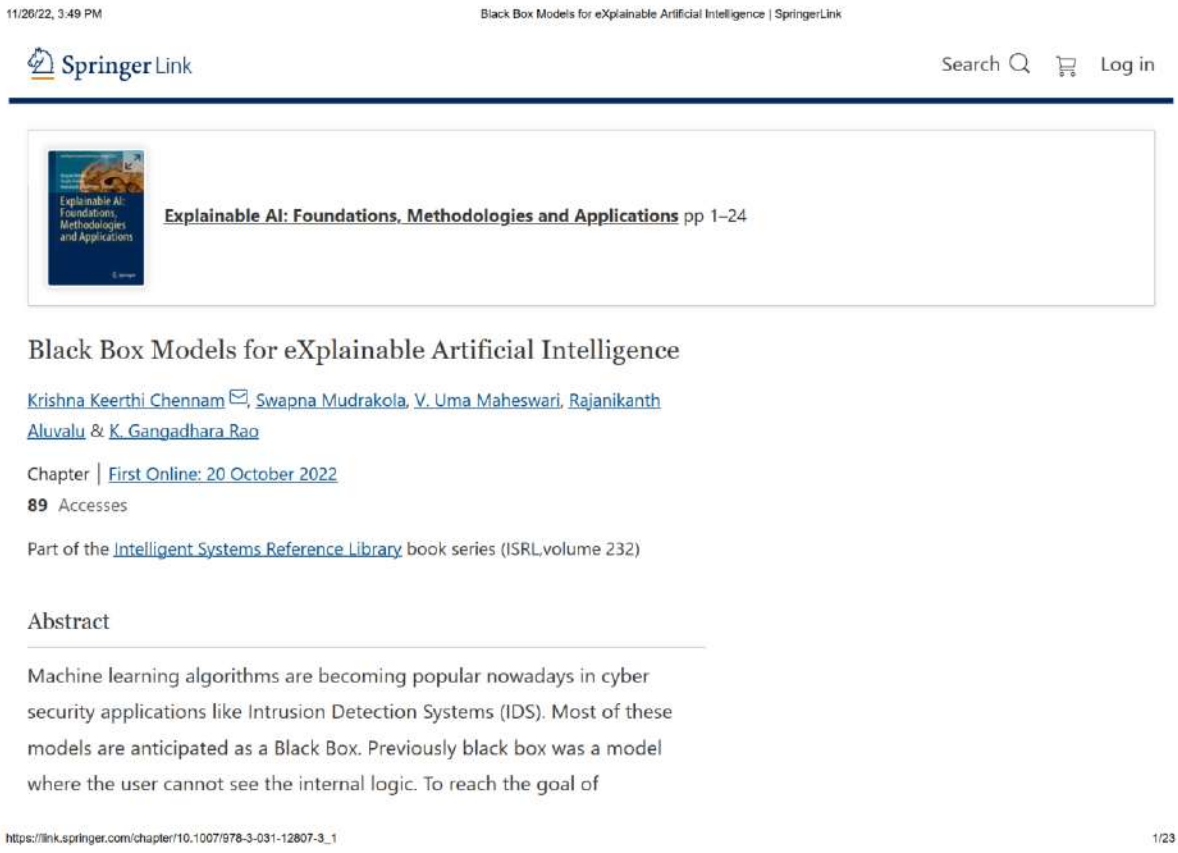
The format of the paper is as follows: The introduction is discussed in Section I. The summary of prior initiatives and associated work on stock prediction, existing system and flowchart is presented in Section II. Section III discusses the proposed approach. Section IV details the implementation of the project which includes the pre-processing and front-end server. section V briefs about the experimental results of the work and finally the conclusion and future scope are covered as part of Section VI.

II. Literature Survey

A. Stock Market

Over a period, there has been a sharp increase in the number of people doing communications, trading, and transactions of assets in stock market. This became

Black Box Models for eXplainable Artificial Intelligence



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Explainable AI: Foundations, Methodologies and Applications pp 1–24

Black Box Models for eXplainable Artificial Intelligence

Krishna Keerthi Chennam, Swapna Mudrakola, V. Uma Maheswari, Rajanikanth Aluvalu & K. Gangadhara Rao

Chapter | First Online: 20 October 2022

89 Accesses

Part of the Intelligent Systems Reference Library book series (ISRL,volume 232)

Abstract

Machine learning algorithms are becoming popular nowadays in cyber security applications like Intrusion Detection Systems (IDS). Most of these models are anticipated as a Black Box. Previously black box was a model where the user cannot see the internal logic. To reach the goal of

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Comparison of Machine Learning Algorithms for Hate and Offensive Speech Detection

Evolutionary Computing and Mobile Sustainable Networks pp 873–881

Comparison of Machine Learning Algorithms for Hate and Offensive Speech Detection

Mehant Kammakomati, P. V. Tarun Kumar & K. Radhika

Conference paper | First Online: 22 March 2022

329 Accesses

Part of the Lecture Notes on Data Engineering and Communications Technologies book series (LNDECT,volume 116)

Abstract

Hate speech is not uncommon and is likely practiced almost on every networking platform. In recent times, due to exponential increase in Internet users and events such as the unprecedented pandemic and lockdown, it

An Integrated Number Plate Recognition System through images using Threshold-based methods and KNN

2022 International Conference on Decision Aid Sciences and Applications (DASA)

An Integrated Number Plate Recognition System through images using Threshold-based methods and KNN

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2022 International Conference on Decision Aid Sciences and Applications (DASA) | 978-1-6654-9501-1/22/$31.00 ©2022 IEEE | DOI: 10.1109/DASA54658.2022.9765218

***Abstract*— In the last few decades, the use of vehicles in our daily life has become mandatory and increased drastically. Sometimes, controlling traffic and identifying vehicle owners manually becomes tedious due to crowd signals, which disobey the traffic rules and drive fast and abnormal. This demands an efficient and automatic system to solve the problem these days. Still, it is challenging in such cases as moving vehicles fast, font on number plate, illumination, etc. This led to developing efficient and automatic number plate detection as the solution. This paper presents automatic number plate detection with number diagnosis and tracking by applying various methods such as thresholding, morphological methods, contour detection, etc. Later, KNN is used for classification to improve accuracy. The proposed method tested on datasets DB1 and DB2 proves better in terms of accuracy, recognition rate, and retrieval rate.**

Keywords— *Image feature extraction, Morphological operations. Thresholding, Contour detection, KNN.*

1. Introduction

The exponential rise of traffic on road makes the people sometimes violating the traffic rules in rush or it may lead to unexpected incidents. The officials are responsible for finding the vehicle that has violated the traffic rules. It is even used in toll collection and identifying theft vehicles. This approach plays an important role in national security. In some countries, cross-border checking has to be done if any vehicle wants to cross from one country to the other. Identification of vehicle number can be used in a parking allotment system, and Number Plate detection system is useful in rigorous domains such as toll collection, border control,parking,finding the persons who violated the traffic rules, crime resolutions to help to find the vehicle of the offender, etc. [1][2].Its importance and significance have been increased in recent years, with many new technologies and applications that have been developed with high-level prediction and accuracy; further complex recognition tasks can be solved by improved machine learning with high accuracy, which makes this system vital.

Automatic number plate recognition helps identify the vehicle number plate efficiently without any human intervention. The government uses it to find the vehicles involved in the crime and look up a person who needs to pay the annual fees of the vehicle. It has become very important due to the increase in the number of vehicles on the road. The drastic improvement of image processing methods with machine learning helps to solve this problem. The main motive of the system is to identify the number plate in any condition. Still, the automatic number plate recognition implementation is not an easy task since it has enormous challenges of number plate variations and environment. As for the former, the style of text, location, the colour of text, tilted or bent number plate, and the varying lateral lighting, fog, dust, and background patterns significantly affect the number plate, and all these constitute challenges within the study. The automatic number plate recognition system is not a simple task since it faces various challenges due to the environment and variation in number plates [9][21]. As for the former, variation in background patterns or illumination significantly influences number plates. In effect, if variations in brightness can decrease the quality of the image and, for the latter, the location, textual style, colour, or slants of number plates constitute exceptionally challenging factors in advancing a steady, automatic number Plate Recognition system. Apart from this, it even faces various challenges like License plate will have some standard format in various developed countries. The attributes in the format include several lines to be included on the plate, license plate colour, size and shape of the plate, the colour of font, size of the font, and colour of every character or number on the plate [21][22][25][27].

Whereas in developing countries, the standard format for the license plate is not yet being initiated among various states, which makes the localization and recognition of license plates a complicated and tedious task, and even script used to write the license plate is not universal throughout the country, multiple scripts are used in the fig describes the overview of the license plates in variations insize, shape, script, and font, etc as shown in Fig.3.

2. Literature Survey

MdYeasir Arafat et al. (2020) proposed Automatic vehicle license plate recognition (AVLPR), initially preprocessing has done using a combination of grey scaling with arithmetic-based dilation, and features were extracted based on horizontal and vertical densities then applied Gaussian smoothing to reduce noise and improve the efficiency [2]. Yun Yang et al. (2018) proposed Chinese license plate recognition (CLPR); CNN has been used to extract the image features and classify but yields suboptimal results.

Computer Vision

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Computer Vision

Applications of Visual AI and Image Processing

Edited by: Pancham Shukla, Rajanikanth Aluvalu, Shilpa Gite and Uma Maheswari

Volume 15 in the series De Gruyter Frontiers in Computational Intelligence

OVERVIEW

About this book

This book focuses on the latest developments in the fields of visual AI, image processing and computer vision. It shows research in basic techniques like image pre-processing, feature extraction, and enhancement, along with applications in biometrics, healthcare, neuroscience and forensics. The book highlights algorithms, processes, novel architectures and results underlying machine intelligence with detailed execution flow of models.

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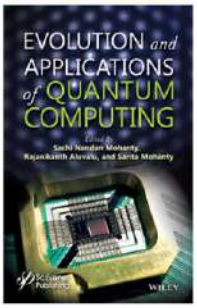

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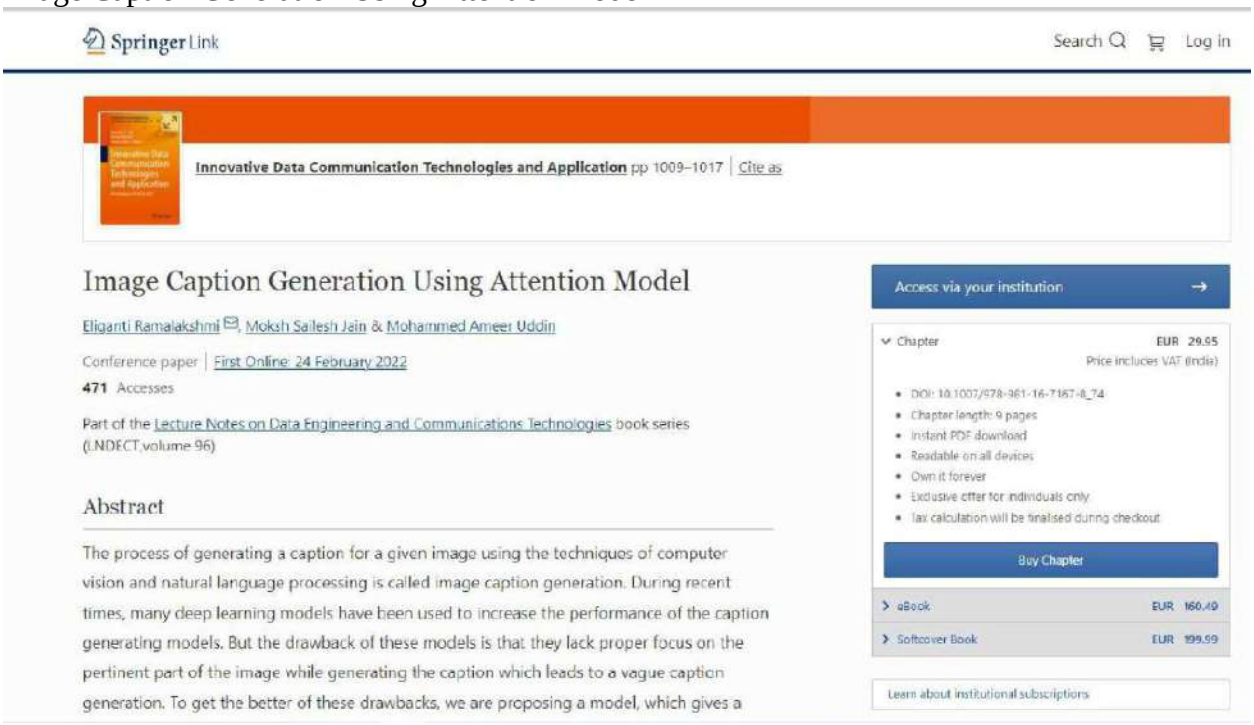
Image Caption Generation Using Attention Model



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Innovative Data Communication Technologies and Application pp 1009–1017 | Cite as

Image Caption Generation Using Attention Model

Eliganti Ramalakshmi, Moksh Sailesh Jain & Mohammed Ameer Uddin

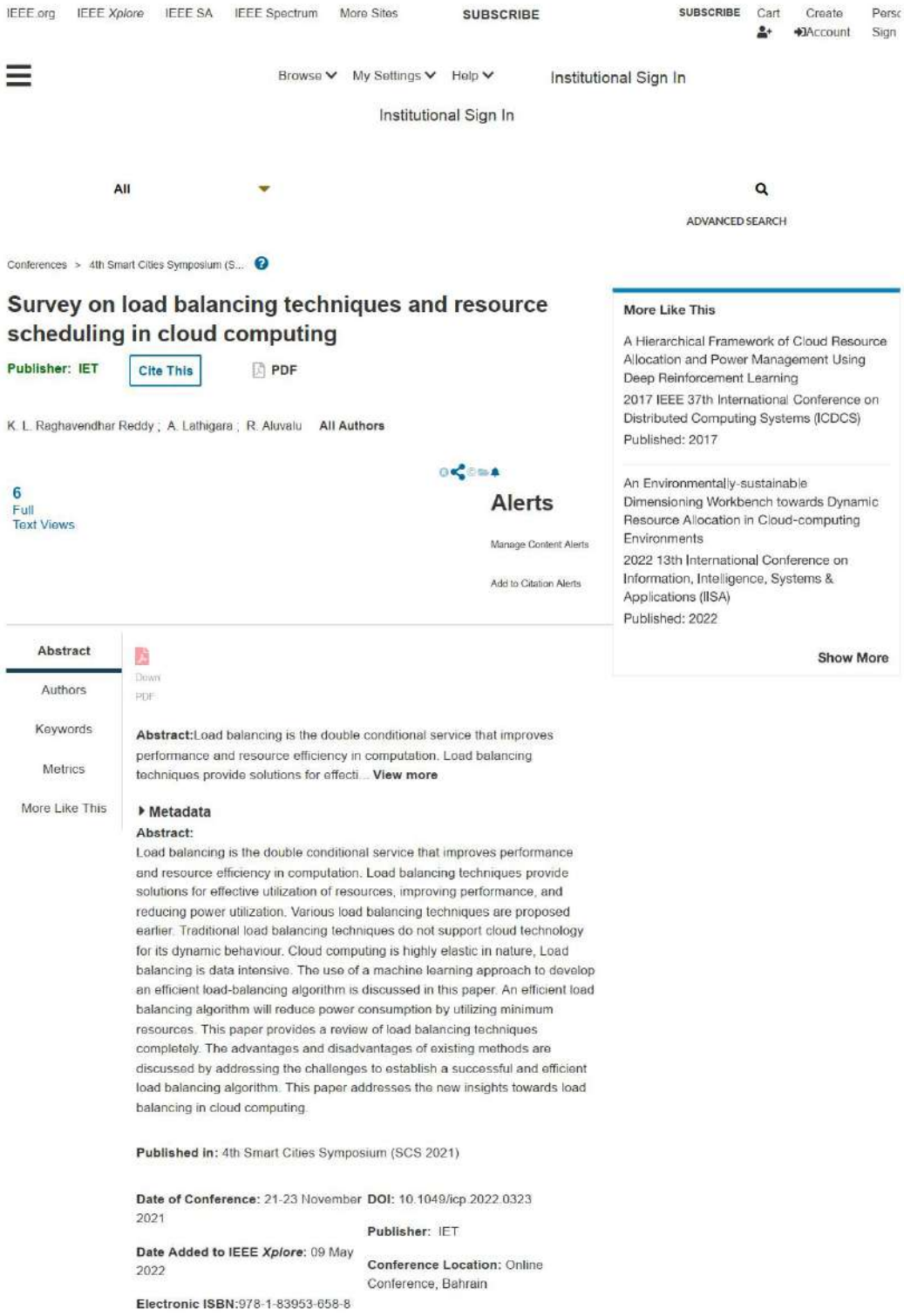
Conference paper | First Online: 24 February 2022

Part of the Lecture Notes on Data Engineering and Communications Technologies book series (LNDECT,volume 96)

Abstract

The process of generating a caption for a given image using the techniques of computer vision and natural language processing is called image caption generation. During recent times, many deep learning models have been used to increase the performance of the caption generating models. But the drawback of these models is that they lack proper focus on the pertinent part of the image while generating the caption which leads to a vague caption generation. To get the better of these drawbacks, we are proposing a model, which gives a

Survey on load balancing techniques and resource scheduling in cloud computing



Detailed Review on Breast Cancer Diagnosis Using Different ML Algorithms

Data Engineering and Communication Technology pp 503–522

Detailed Review on Breast Cancer Diagnosis Using Different ML Algorithms

L. Vandana & K. Radhika

Conference paper | First Online: 24 May 2021

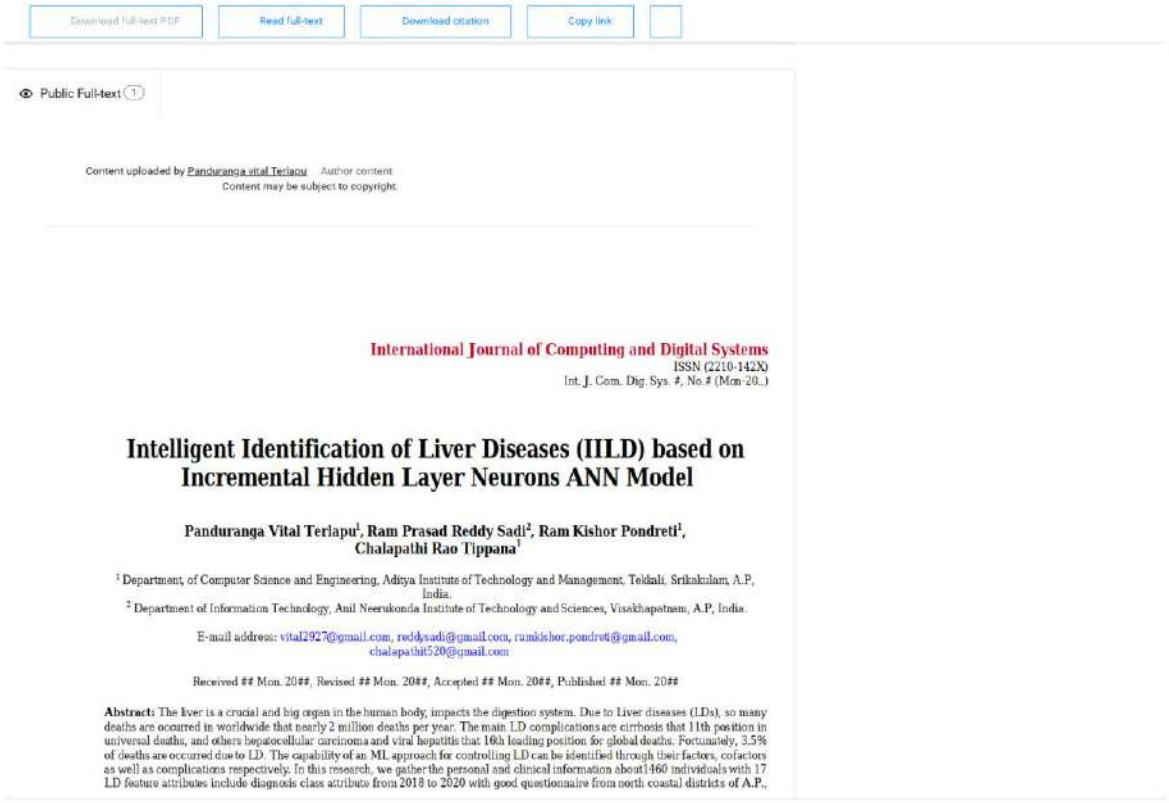
483 Accesses

Part of the Lecture Notes on Data Engineering and Communications Technologies book series (LNDECT,volume 63)

Abstract

Breast cancer is the most prevalent cancer among Indian females with high mortality rate. It is reported that the incidence of breast cancer in India would reach upto 2 lakh per year by 2030. If breast cancer detected in early stages, it could be treated effectively resulting in decreased mortality. Machine learning

Intelligent Liver Disease Prediction (ILDP) System Using Machine Learning Models



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International Journal of Computing and Digital Systems
ISSN (2210-142X)
Int. J. Com. Dig. Sys. #, No.# (Mon-20..)

Intelligent Identification of Liver Diseases (IILD) based on Incremental Hidden Layer Neurons ANN Model

Panduranga Vital Terlapu[1], Ram Prasad Reddy Sadi[2], Ram Kishor Pondreti[1], Chalapathi Rao Tippana[1]

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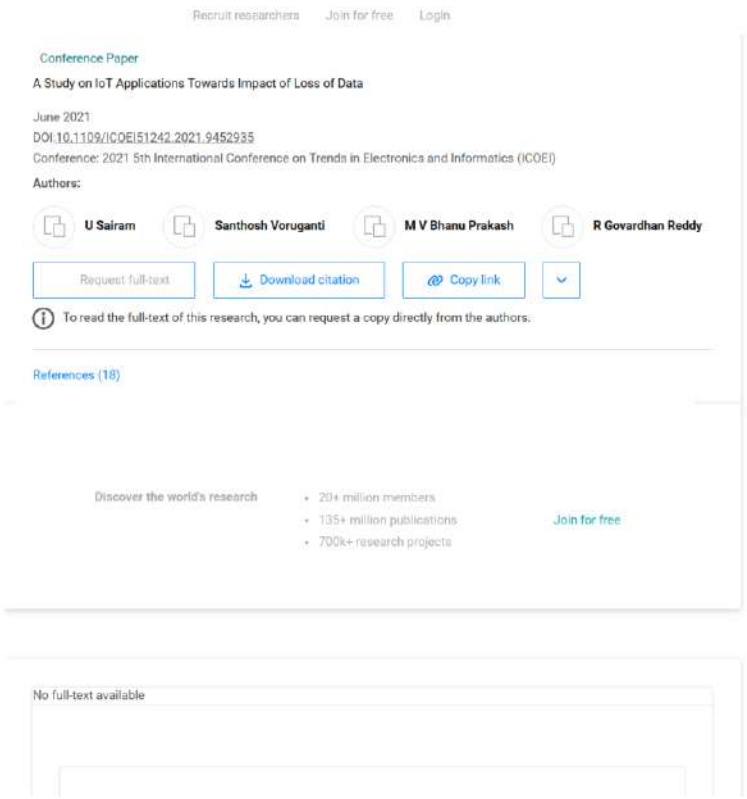
Abstract: The liver is a crucial and big organ in the human body, impacts the digestion system. Due to Liver diseases (LDs), so many deaths are occurred in worldwide that nearly 2 million deaths per year. The main LD complications are cirrhosis that 11th position in universal deaths, and others hepatocellular carcinoma and viral hepatitis that 16th leading position for global deaths. Fortunately, 3.5% of deaths are occurred due to LD. The capability of an ML approach for controlling LD can be identified through their factors, cofactors as well as complications respectively. In this research, we gather the personal and clinical information about1460 individuals with 17 LD feature attributes include diagnosis class attribute from 2018 to 2020 with good questionnaire from north coastal districts of A.P.,

A Study on IoT Applications Towards Impact of Loss of Data



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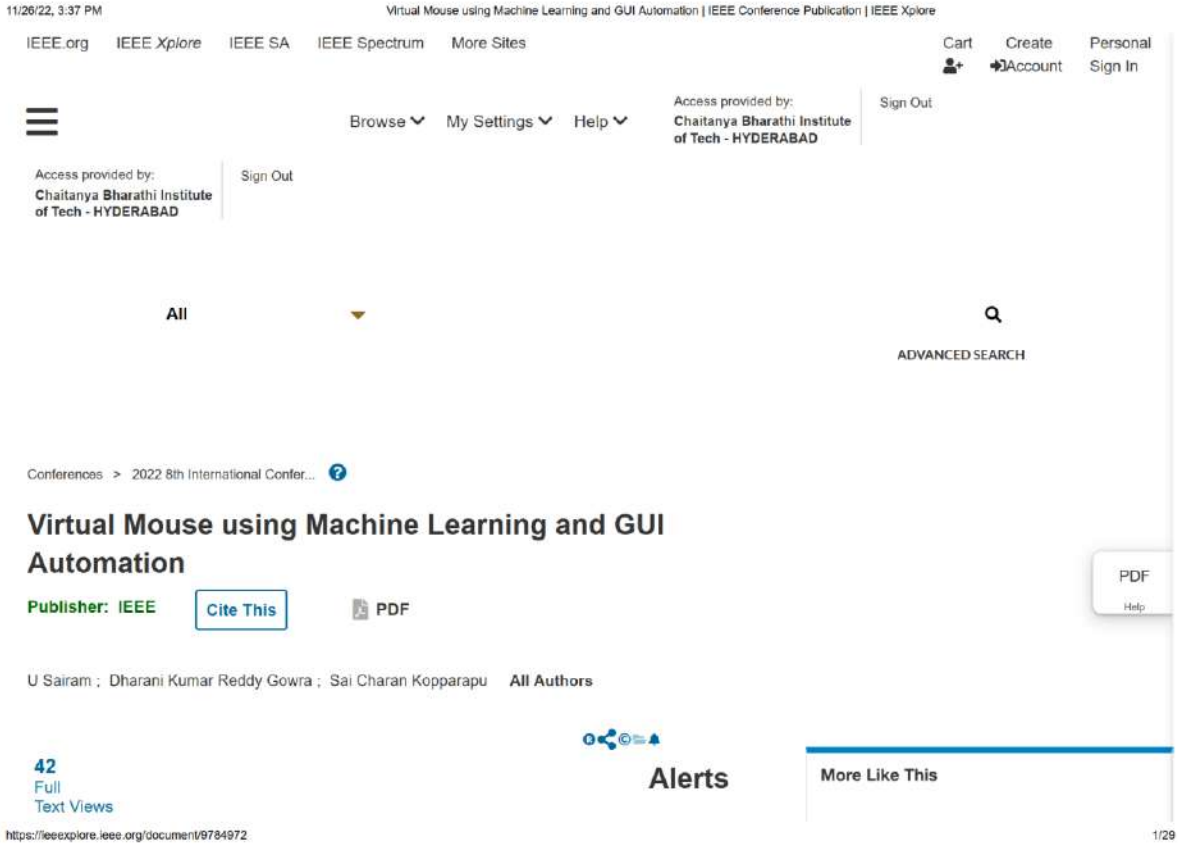


Smart Computing Techniques and Applications pp 117–125

Fake News Detection Using Text Analytics

Uma Maheshwar Amanchi, Nithesh Badam & Rama Lakshmi Elaganti

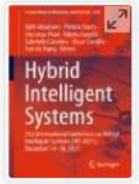
Conference paper | First Online: 08 July 2021

364 Accesses

Part of the Smart Innovation, Systems and Technologies book series (SIST,volume 225)

Abstract

Fake news is a form of news consisting of false statements from the real ones spread via news media or online social media. In this paper, we aim for the fake news detection model which is capable of detecting the fake news from large amounts of data that are daily produced on online platforms. The approach for our model is a machine learning technique which is text analysis and for classifying fake news we have used k means clustering. Using the data preprocessing, classification, and topic modeling we get topics from the article, and they are compared with legitimate news. We modeled a framework named Fake News Detection (FND) which



International Conference on Hybrid Intelligent Systems
HIS 2021: **Hybrid Intelligent Systems** pp 615–624

Non-invertible Cancellable Template for Fingerprint Biometric

Ilaiah Kavati, G Kiran Kumar, M Venu Gopalachari, E Suresh Babu, Ramalingaswamy Cheruku & V Dinesh Reddy

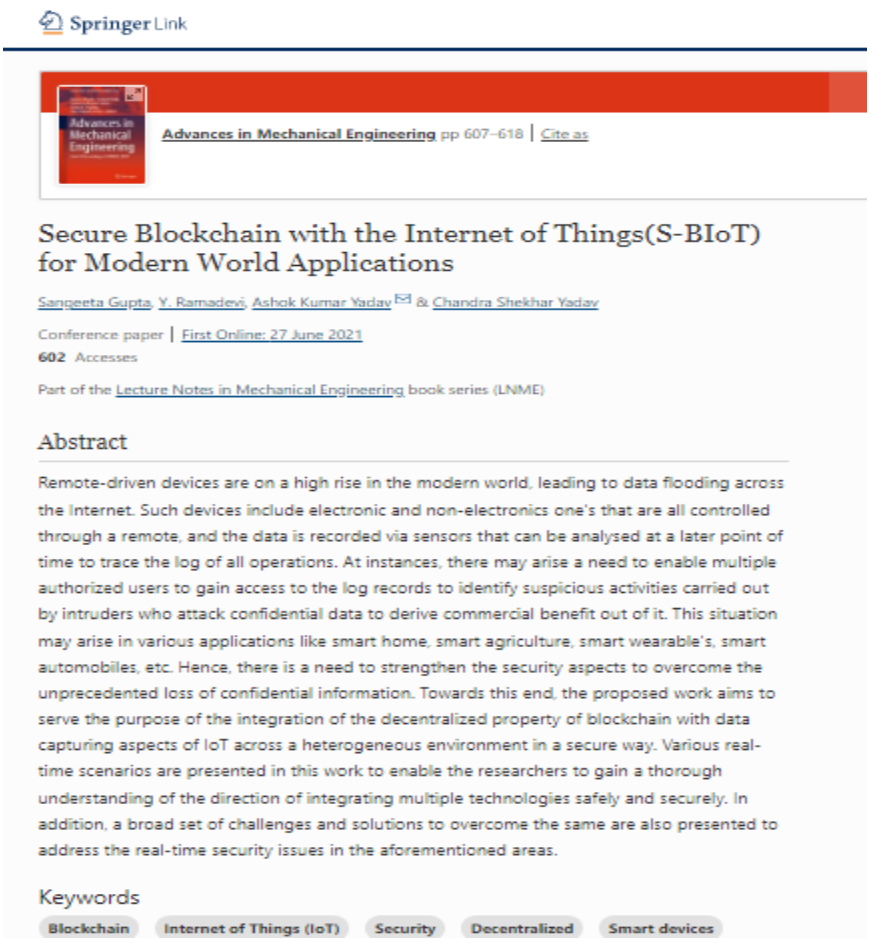
Conference paper | First Online: 04 March 2022
251 Accesses

Part of the Lecture Notes in Networks and Systems book series (LNNS,volume 420)

Abstract

In this work we propose an approach for generation of secure and non-invertible fingerprint templates. Firstly, we have to find the points around the reference point and select the n points sorted in ascending order. Then we have to construct a n sided polygon from the n selected points. The polygon created will have all its points connected to the reference minutia which will in turn divide the polygon into n triangles. The area and semi perimeter of the triangle, the angle between the two lines joining the reference minutiae from the two points is calculated and the orientation of the points in the triangle is taken. These all features together

Secure Blockchain with the Internet of Things(S-BIoT) for Modern World Applications



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Advances in Mechanical Engineering pp 607–618 | Cite as

Secure Blockchain with the Internet of Things(S-BIoT) for Modern World Applications

Sangeeta Gupta, Y. Ramadevi, Ashok Kumar Yadav ✉ & Chandra Shekhar Yadav

Conference paper | First Online: 27 June 2021
602 Accesses

Part of the Lecture Notes in Mechanical Engineering book series (LNME)

Abstract

Remote-driven devices are on a high rise in the modern world, leading to data flooding across the Internet. Such devices include electronic and non-electronics one's that are all controlled through a remote, and the data is recorded via sensors that can be analysed at a later point of time to trace the log of all operations. At instances, there may arise a need to enable multiple authorized users to gain access to the log records to identify suspicious activities carried out by intruders who attack confidential data to derive commercial benefit out of it. This situation may arise in various applications like smart home, smart agriculture, smart wearable's, smart automobiles, etc. Hence, there is a need to strengthen the security aspects to overcome the unprecedented loss of confidential information. Towards this end, the proposed work aims to serve the purpose of the integration of the decentralized property of blockchain with data capturing aspects of IoT across a heterogeneous environment in a secure way. Various real-time scenarios are presented in this work to enable the researchers to gain a thorough understanding of the direction of integrating multiple technologies safely and securely. In addition, a broad set of challenges and solutions to overcome the same are also presented to address the real-time security issues in the aforementioned areas.

Keywords

Blockchain | Internet of Things (IoT) | Security | Decentralized | Smart devices

About this paper

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Gupta, S., Ramadevi, Y., Yadav, A.K., Yadav, C.S. (2021). Secure Blockchain with the Internet of Things(S-BIoT) for Modern World Applications. In: Manik, G., Kalia, S., Sahoo, S.K., Sharma, T.K., Verma, O.P. (eds) Advances in Mechanical Engineering. Lecture Notes in Mechanical Engineering. Springer, Singapore. https://doi.org/10.1007/978-981-16-0942-8_57

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Hand Written Devanagari Script Short Scale Character Recognition

Hand Written Devanagari Script Short Scale Character Recognition

Kachapuram BasavaRaju ✉ & Y. RamaDevi

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Abstract

India is a country of various languages right from Kashmir to Kanyakumari. The national language of India is Hindi which is also the third most popular language in the world. The script in which the Hindi language is written is known as Devanagari script which in fact is used to write many other languages such as Sanskrit, Marathi, Nepali, and Konkani languages. Neural networks are recently being used in several different ways of pattern identification. It is common knowledge that every person's handwriting is dissimilar. Therefore, it is challenging to recognize those handwritten monograms. The sector of pattern recognition that has become a hot topic for research purposes is handwritten character recognition. This is where neural networks play an important role. The competence of a computer to take in and decipher comprehensible transcribed input whose origin is paper documents, touch screens, photographs, and alternative gadgets are termed as handwriting recognition. Handwritten recognition of words is a model which is used to convert the written text into words that are crucial in the human computer interface. The handwriting recognition area is an extensively experimented branch till date and the Devanagari script recognition is progressing area of research. The above application is used in mail sorting, office automation, cheque verification, and human computer communication, i.e. the growing age of artificial intelligence. A sample of the dataset of images which are centralized and grayscale are considered and analysed using the K-nearest neighbour classification, extremely randomized decision forest classification and random forest classification are considered.

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A Survey on data security challenges in multi cloud environment

A Survey on data security challenges in multi cloud environment

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***Abstract*—Ensuring the security and privacy of data stored in cloud is one of critical requirement for enterprises. Recently multi cloud is proposed as a solution for ensuring security, privacy and high availability of data for enterprises. Multi cloud is an integration of public, private and managed clouds with a single interface to the users. Data to be stored in the cloud is partitioned across different clouds in multi cloud based on the reliability of the cloud and degree of sensitivity of the data. This survey studies the existing multi cloud based security solutions to identify the open issues and scope for further improvement.**

Keywords –Cloud Computing, Public Cloud, Private Cloud, Multi Clouds.

I. INTRODUCTION

NIST (National Institute of Standards and Technology) describes cloud computing as —a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources such as networks, servers, storage, applications, and services, that can be rapidly provisioned and released with minimal management effort or service provider interaction over the internet on pay per use basis.

Cloud computing offers three delivery models such as Infrastructure as a Service (IaaS) where the Cloud Service Provider (CSP) delivers computer hardware such as servers, storage, and networking technologies as a services. Platform as a Service (PaaS) where software tools that are needed to develop, run the applications as a service and the last one is Software as a Service (SaaS) in which the CSP host the application on cloud infrastructure.

Fig 1. Service models and computing resources delivered

The stated services can be delivered by using any of the deployment models: public cloud, private cloud or hybrid cloud.

Public cloud

Public clouds are the most common type of cloud computing deployment. The cloud resources are owned and operated by a third-party cloud service provider. Microsoft Azure is an example of a public cloud. In a public cloud, we share the computing resources with other organizations or cloud "tenants," and you access services and manage your account using a web browser.

Private cloud

In private cloud requested computing resources used exclusively by one business or organization. The private cloud can be physically located at your organizations on-site or it can be hosted by a third-party service provider. Private clouds are regularly utilized by government agencies, financial institutions, any other mid- to large-size organizations with business-critical operations seeking enhanced control over their environment.

Hybrid cloud

Hybrid cloud computing is a combination of public and private clouds. This is a more complex cloud solution in that the organization must manage multiple platforms and determine where data is stored. An example of a hybrid cloud solution is an organization that wants to keep confidential information secured on their private cloud, but make more general, customer-facing content on a public cloud.

Cloud computing is being rapidly adopted in enterprises due to their scalable on demand availability of the resources and pay as you go manner[14]. Among the different services like platform as service, infrastructure as service, software as service etc storage service is most used by both enterprises and individuals. Extensive use of Google drive, Amazon S3, Dropbox etc proves the popularity and demand for cloud storage services. There is also increasing trend of leakage of data stored in cloud. Ensuring the security, privacy and

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Reduction of Alert Fatigue using Extended Isolation Forest

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Reduction of Alert Fatigue using Extended Isolation Forest

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***Abstract*— Alerts are tasks that continually monitor active queries to look for and report on specific events or conditions like system performance, security incidents, and threats for a system or network. Companies with an extensive IT infrastructure often deal with many alerts per day, varying from a routine host or network performance notifications to security incidents raised by Network Security Devices. With an increase in cyberattacks, Network Security Devices play a vital role in detecting critical incidents and threats. However, more often than not, these security incidents are frequently occurring low threat alerts. As the number of alerts skyrockets, it becomes increasingly tedious to sift through all the alerts generated and identify critical one. This may result in longer response time or overlooking important alerts, which is referred to as alert fatigue. Aiming to tackle this problem, our paper proposes a solution to reduce alert fatigue by identifying and highlighting anomalous alerts using Extended Isolation Forest, an isolation-based anomaly detection technique. Our model reduces the number of alerts received at the Security Operations Center (SOC) by 82.15%. The security analyst needs to monitor only 17.85% of the 50,000 total alerts received from the IDS.**

Keywords*— *Alert Fatigue, Anomaly Detection, Extended Isolation Forest, Isolation Forest, Security Operations Center

I. Introduction

The advent of the internet has changed the dynamics of business, education, healthcare, and government work. It has become almost indispensable and crucial for the functioning of most organizations. Consequently, it has also given rise to up-and-coming threats over the internet known as cyber threats. Large companies and organizations, the main targets of these threats, are left with no choice but to secure their network and IT infrastructure. Network and system monitoring lookout for faults, performance issues, cyberattacks, and malicious behaviour in the company's internal network using devices such as Firewalls, Intrusion Detection Systems (IDS), Intrusion Prevention Systems (IPS), and Web Traffic Monitoring Tools. The SOC receives daily alerts from these network monitoring tools with the purpose to handle these incidents [1].

As the company's IT infrastructure increases, they face an overwhelming number of daily alerts. Most of these alerts are just routine host and network performance notifications or frequently occurring low threat security alerts. It becomes increasingly tedious for the SOC or security analysts to sift through all the alerts generated and identify critical one. This may result in longer response time or overlooking important alerts, which is referred to as alert fatigue. Research shows that anywhere from 72-99% of all clinical alarms are false [2]. Similarly, a survey in security firms found that 52% of alerts were false and 64% were redundant, robbing the critical alerts of the importance they deserve [3]. Desensitization to the increasing number of alerts has also become a common problem where the analyst just stops monitoring the massive amount of alerts received. According to a study done by Cisco, analysts overlooked around 44% of alerts received at the SOC while 56% of the legitimate alerts could not be resolved [4]. The 2013 data breach at Target is an example of a disastrous consequence of desensitization to threat alerts [5]. Despite repeated threat alerts by the system, the operators didn't react to these alerts as they had seen such alerts frequently. The alerts were classified and treated as false positives. This led to the details of 40 million credit card users being exposed.

Increasing person-hours or hiring more analysts will surely help, but it is not an efficient solution in the long run and is just a workaround to the actual problem. Instead of looking at ways requiring manual intervention, using a smart automation system to identify anomalous alerts is more time and cost-effective. The SOC is notified only when an unusual or aberrant alert is identified, reducing the workload of the analysts. This paper proposes an unsupervised machine learning approach for anomaly detection. Isolation Forest (iForest), an algorithm widely used for anomaly detection, has a few drawbacks due to the bias introduced in the splitting process of generating its trees (iTrees). Due to these limitations, we use its improved version known as Extended Isolation Forest (EIF).

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Analysis and Issues of Artificial Intelligence Ethics in the Process of Recruitment

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Abstract— Artificial intelligence has evolved into a virtual human. Similar to the standards and ethics of humans, Artificial intelligence also has standards and ethics. On the other hand, Artificial Intelligence [AI] technologies should also incorporate moral values. Today, the amount of work done at the university has increased. The amount of time spent for the recruitment of the required faculty has become important for the functions of universities. Artificial Intelligence [AI] can be used for the process of recruitment, it will save a lot of time for recruitment board. The primary motivation of this research work is to explore all the AI tools used for recruiting and the challenges of incorporating AI tools in the process of recruitment.

Keywords: Artificial Intelligence, Ethics, genetics, screening, interview, KNearestneighbour, SVC, Decisiontree

I. INTRODUCTION

Artificial Intelligence [AI] is generally known as the study of intelligent agents. It combines both the human intelligence and machine intelligence with the help robot datasets. By using AI, the machines are trained in such a way that they can mimic the human actions.

Artificial intelligence has become an alternate to human intelligence. It imitates the human actions. It impersonates humans by its problem solving capabilities.AI contains a subsection called machine learning which produces output without explicit programming. Machine learning contains a subsection called Deep Learning which enables unmanned learning. The goals of AI are Studying, Thinking and understanding. Artificial intelligence tries to impersonate the human intelligence and completes the tasks. It tries to develop the human cognitive abilities. At some point it is believed that, the AI will exceed the position of humans. Today AI is being used in various industries like developing self-car driving in automobile industry and detecting a fraudulent transaction in debit card in financial industry.

There are two types of AI. One is delicate AI, it comprises PC games and unique assistants such as Alexa and Apple's Siri. Second is Powerful AI, it comprises of delivering the problem-solving capabilities without human intervention.

Machine learning delivers the output without explicit programming. It learns by training set and tries to predict the output. We can use the test set to check the accuracy of the algorithm used for prediction. The input can be a dataset which can contain a variety of data set. There are various types of algorithms like linear regression, logistic regression, decision tree etc.

Deep learning contains various algorithms, which contains different layers of neural networks. It is a deep level machine learning algorithm. An example of neural network is Back propagation algorithm, where we give the network with a data and upon generating the output, if the output is not a desired output, and then we change the weights of the input to network and again generate the output. We keep on changing the weights of the input until we get the desired output. In Deep learning, CNN algorithm has achieved a stupendous success in Image processing.

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Diagnosis of Parkinson's Disease Using Deep Neural Network Model

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Diagnosis of Parkinson's Disease Using Deep Neural Network Model

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Abstract— Parkinson's disease is a neuro-degenerative disorder that effects central nervous system and is observed in many people worldwide. PD diagnosis is complex for the clinicians as it requires meticulous analysis of the patient. Though there are many characteristics and symptoms that indicate the disease, voice characteristics play a major role among the predictive characteristics. Person with PD experiences several vocal degradations like shaky and low speech. Voice analysis offers the additional benefit of being non-invasive, low cost and simple to diagnose. Many enthusiastic and great researchers have created new models and improved existing models in this area, and there is a vast amount of research in this field all over the world. We created an optimized Deep neural network (which is referred as Opt-DNN in rest of the paper) model and compared it to various algorithms such as random forests, SVM, XG Boost, and KNN in this paper. Among all the algorithms used, the proposed model turned up to be the best algorithm with accuracy 95.14.

Keywords— Parkinson's Disease, Neural Network, K-Nearest Neighbor Principal Component Analysis, Random Forest.

I. INTRODUCTION

Parkinson's disease is a progressive neurodegenerative condition that affects mostly senior citizens. The cause of Parkinson's disease is unclear, but if the disease is diagnosed at early stage, the symptoms can be alleviated. Majority of the studies revealed that people with Parkinson's disease had voice problems. As a result, voice data can be used to diagnose Parkinson's disease.

PD affects millions of people, according to the American Parkinson Disease Association, and causes severe health problems. Even though people with Parkinson's disease show a wide range of symptoms, determining the root cause remains difficult. People over the age of 50 are more likely to develop this disease early because their bodies are more susceptible to degenerative diseases. PD is caused by a lack of dopamine or a decrease in dopamine levels, which makes motor movements difficult. PD symptoms are divided into two categories: motor symptoms and non-motor symptoms. clinical tests of motor symptoms are used to diagnose the disorder. Most patients with Parkinson's disease have vocal impairments, which are referred to as dysphonia. The key characteristic used to diagnose the presence of PD is dysphonia.

The diagnosis of Parkinson's disease at an early stage is a difficult challenge for doctors because the symptoms intensify and affect the individual day by day. Many researchers in this area have conducted comprehensive surveys and developed numerous models for detecting Parkinson's disease. [7]created a model that used a combination of SVM and a gaussian Radial basis kernel function to predict PD with a 91.4 percent accuracy. [8]have done a comparison of regression tree, decision tree, and ANN and found that ANN produces better results. [9] proposed a multi-class classifier with an accuracy of 89.47 percent, as well as a new collection of measures and a different strategy for selecting features. [10] introduced a fuzzy-based transformation approach that was combined with an SVM classifier to achieve a 93.47 percent accuracy. For successful classification, it is critical to practise feature selection to select the most important attributes[11].

Aim of this paper is to develop an optimised Deep Neural Network Model for classification of PD. We proposed , an optimal DNN-model including PCA for attribute selection. Rest of the paper is organised as follows: various aspects and results achieved by other authors is discussed in Section 2. Then we presented our Proposed methodology in Section 3 along with metrics and Section 4 deals with experimental set-up , results, and discussions . The next section includes future scope and conclusions.

II. LITERATURE SURVEY

The analysis for Parkinson's disease diagnosis using voice dataset is discussed in [1]. The speech dataset is analysed using a variety of machine learning algorithms. The speech dataset includes the voice frequencies of 31 Parkinson's disease patients. NN shows highest accuracy of all algorithms, while random forest has a decent accuracy and Naive Bayes has the lowest accuracy for disease detection.

The author proposed a hybrid intelligent framework for predicting disease progression in the paper [2], which used unique methods to eliminate noise, a clustering method to define class labels, and prediction methods to predict disease progression. PCA is used to determine which dimensions are the most important. Later on, support vector regression approaches and neuro fuzzy interface systems are used. This hybrid intelligent system significantly improved the accuracy of Parkinson's disease prediction. Using deep neural networks on speech datasets, the severity of the disease can be predicted [3]. Tensor flow is a deep learning library that is used to implement artificial neural networks to predict the state of Parkinson's disease.

The experiment was evaluated using standard methods for separating a healthy person from a person with Parkinson's disease by detecting dysphonia in this paper[4]. PPE (Pitch Period Entropy), a new measure of dysphonia, is added. This procedure has been found to be reliable and has

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Facial emotion recognition methods, datasets and technologies: A literature survey

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Recommended System for wellness of Autistic Children Using Data Analytics and Machine Learning

Recommended System For Wellness Of Autistic Children Using Data Analytics and Machine Learning

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Abstract: Autism is a mental condition which hinders social and communication skills. It's a lifelong disability which makes the child's day to day life very difficult. But in most of the cases early intervention has helped the children to develop the skills which are needed to the fullest to overcome autism. As early the intervention, better the development of the child. Most of the research has been carried out to detect the autism using various machine learning algorithms which consider autistic diagnostic tools such as ADI-R, ADOS or CARS. Once autism is detected, different areas which need to be developed are considered and recommendations are given to the child. In this paper, a system is proposed which uses multi dimensional data collected from facp, DST and Diet to perform analytics using machine learning and provide recommendations to the child.

Keywords: Autism, Functional Assessment Checklist for Programming (facp), Developmental Screening Test (DST), Diet.

1. Introduction

Autism is a spectrum condition which hinders with the daily activities. The child will not be able to communicate properly, lack of fine motor skills and poor eye contact. They will be more interested in rotating objects such as fans, wheels etc. It's a lifelong disability but the early intervention plays a major role. If the disease is detected early, the child can develop the skills required and overcome the symptoms of autism. Most of the research has been carried out to detect autism is in the direction of developing machine learning algorithms which uses autistic diagnostic tools such as ADI-R,ADOS and CARS to check the accuracy of the machine. But there can be other factors which can be the cause for the existing condition. So, In this paper we are considering multi-dimensional data collected from facp, DST and Diet to do the analysis. The rest of the paper is organized as follows: Autism, Machine learning in autism, facp, DST, Diet, Recommended system, Conclusion and Future scope.

2. Autism

Autism is a spectrum condition which causes different disabilities such as lack of communication skills, social skills and fine motor skills. The symptoms include unable to utter a word by the age of 2, not responding to name calling, strict compulsion of daily routine, repetitive movements like head banging, spinning, and hand flapping, no sitting tolerance, not aware of danger, and echolia. The child will be assessed by the pediatrician during their regular visit and if any of the symptoms are found will be referred to the experts. The psychologists will examine the child behavior and use various screening tools like Ages and Stages Questionnaires (ASQ)(1 month to5.6 years),Communication and Symbolic Behavior Scales (CSBS)(6 months and 24 months),Parents' Evaluation of Developmental Status (PEDS)(birth to 8 years),Modified Checklist for Autism in Toddlers (MCHAT)(16 to 30 months of age),Screening Tool for Autism in Toddlers and Young Children (STAT) (24 and 36 months of age) to initially check for the

An Applied Modular Approach to Build Scalable Mobile Robots

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AN APPLIED MODULAR APPROACH TO BUILD SCALABLE MOBILE ROBOTS

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***Abstract*—This application-oriented paper presents vital components that are essential for building a scalable mobile robot. With a plethora of resources available at hand and on the internet, it is very important to choose the right materials, design, and build procedures so that there is no wastage of resources during the build process and that the mobile robot works efficiently. Moreover, this task becomes more complicated when we are dealing with large scale human-sized mobile robots. This is because all the electronic components that we use for building small hobby robots are unfit because of their low current and voltage handling capacity, thus enabling us to adopt more power-hungry electronics capable of handling large voltage and current. As a result, the risk posed by these electronic components also increases since we are now dealing with large current and power devices, sometimes taking power directly from the sockets. At the same time, design constraints placed by their large size along with which the right motors and motor-drivers are to be chosen, their autonomy, the processing power of the boards, their inter-process communication, and computer intelligence are to be taken into consideration, involving various sub-fields of computer, electrical and mechanical engineering, etc. This paper, therefore, addresses all these concerns and provides a viable solution that involves minimalistic use of components.**

***Index Terms*—autonomous robot, planetary geared motors, angle grinding, CNC machine, wheel encoders, speech synthesis, lidar, data-logging.**

I. Introduction

Robot building incorporates knowledge from different fields of engineering. Therefore, in a realistic scenario, it might be tricky and difficult to build these types of robots. One can get lost in loads of information available to them which will be complete chaos. Thus to simplify the decision making process, and to build large intelligent and autonomous mobile robots from scratch, the following are the things one has to consider, and which will also be discussed in this paper with an experimental and statistical study: i) viability of materials with regard to the cost, weight, and hardness ii) locomotion in various conditions iii) on-board or off-board power supply iv) performance of a development board in terms of space and speed v) degree of interaction with the user vi) the control mechanism, etc.

Although a large amount of research has been put into building mobile robots [1-16], the novice roboticist is always left in a state of dilemma over the selection of components and best practices to choose from. Therefore, this paper provides a unified solution once for all.

II. Mechanical Design

A. Choice of materials

During the selection of the robot's build material, the density of the material, its associated costs, its strength, and the intended utility of the robot, play a prominent role. This is because the density of the material will contribute to the robot's overall weight, which will decide the motor's torque and RPM. The next factor is the cost associated with the material. Besides being less dense, it must be affordable enough to build a large robot. For example, carbon fiber with a density of 1.93 g/cm^3 costs about Rs.800-1000/kg, whereas aluminium with a density of 2.7 g/cm^3 costs about Rs.150-250/kg. Furthermore, aramid fiber like Kevlar with a density of 1.4 g/cm^3 costs anywhere from Rs.1200-2200/kg and can be used as a covering material if the robot has to sustain very high temperatures.

TABLE I
Materials used for the construction of mobile-robots with their density and cost

Material	Density (g/cm^3)	Cost (in rupees per kg)
Steel	8.05	100-200
Aluminium	2.7	150-250
Carbon Fiber	1.93	800-1000
ABS Filament (Plastic)	1.05	1000
PLA Filament (Plastic)	1.24	1000
Bronze	8.73	500-700
Brass	8.4-8.73	150-450

Thus, we can say that aluminium is typically the best choice for the construction of mobile-robots given its density and cost per kilogram. In addition to that, aluminium does not rust like some metals do. However, it corrodes in wet or damp conditions, which can be prevented by adding a protective coating. If the weight of the robot does not matter, steel is a good alternative. Whereas for much lighter robots, carbon fiber can be used, though it is expensive. Plastics like ABS and PLA generally cost about Rs.100/kg. But their filaments for 3D printing cost Rs.1000/kg. This is due to the complexity involved in their manufacturing.

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An Efficient Criminal Segregation Technique Using Computer Vision

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AN EFFICIENT CRIMINAL SEGREGATION TECHNIQUE USING COMPUTER VISION

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***Abstract*—In the contemporary world, where the population has been growing rapidly, it has become difficult to identify suspicious persons. Given the abundance of population in public places, it is difficult to identify a culprit post-crime activity because one (in general, the investigator) has to go through the entire CCTV footage to track and pin down people who seem suspicious for further investigation. These traditional methods are very time-consuming and laborious since such footage can be at least hours long. This proposed method takes advantage of the fact that the culprit tries to hide their identity by either evading the camera or by masking themselves. In places like shopping malls, movie theaters, restaurants, etc. these cameras are placed at the entrance and at security checks. Hence, it is not plausible for them to completely evade the cameras. This shifts our concentration to the latter idea that they hide their identity by masking themselves. We build our model on this flaw and combine video surveillance with machine intelligence to provide an efficient interface than unprocessed video feed. Furthermore, this system is not only useful for post-crime scenarios but can also be deployed for real-time analysis.**

***Index Terms*—Optical flow, Modified YOLO, Haar-cascade, Transfer learning, Security and Monitoring, AdaBoost, Real-time, Semi-automatic.**

I. Introduction

Many security systems that exploit video feed from CCTV cameras have come into existence recently with the growth in computer vision. The diversity of criminal activities that can be performed in an ATM and the difficulties involved in surveillance [1] are well known. Also, a study highlighting various crime scenes and instances where computer vision fails [2] to classify a crime scene correctly is shown, which calls for a human operator to take over. Some techniques also took advantage of person localization and tracking [3] to produce a more robust system for abnormal situation detection but failed to address criminal identification. Finally, a novel approach using optical flow [4-5] for motion detection is used, which can be put into use for developing a more intelligent way of criminal segregation (in cases where only flow of objects is detected). Therefore, the accuracy of such systems, which entirely depend on computer vision is not quite guaranteed. And given a place like shopping malls or movie theaters, many scenes from the camera are recorded, which might turn into false-positive suspicious activities when predicted. Thus, human intervention is definitely required for identifying such activities. This proposed system simplifies human effort rather than completely avoiding it by providing a way to segregate these suspicious video snippets into a separate database that could be used later for analysis.

II. Methodology

In this, we use a combination of optical flow, modified YOLO, and Haar-cascades to separate suspicious people from normal ones. The modified YOLO is based on transfer learning and is person-specific.

First, the optical flow is detected in the video stream. Then the region in which the flow has occurred will be captured. In the capture, the image in the bounding box of people in the scope of the camera is extracted. Then pre-processing is done to the image so that all the unwanted noise is removed as well as flattened vertically and horizontally, if necessary. This image is now passed onto the next stage where facial specific Haar-cascade tries to extract the face of the person. This allows the system to find if a person has their face covered or not. Now there will be 3 cases arising from this holistic system's prediction. They are as follows:

1) Person detected, face detected
2) Person detected, face not detected
3) Flow detected, person not detected

Now a "database of these video stream snippets," which belong to the second and third category is created along with the "timestamp of their occurrence in the original video feed". These video feed snippets then can be made a priority to point out suspicious people, which saves a lot of time and resources by not watching the entire video footage. This technique is computationally light and can also provide live feed analytics.

III. Pose of the Camera

The pose of the camera for surveillance plays a very prominent role. This is because, instead of relying on heavy and sophisticated image processing software to remove any distortion from the image due to an improper position or orientation of the camera, it is best that we decide an optimal pose for camera placement. We have worked out where to place the camera to get a quality video with less distortion. The camera has to be placed on the side walls rather than the ceiling of the walkway. This is because when the camera is

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Review on Neuralink: A Fully Implanted Wireless Invasive Brain Machine Interface

CMDSA-004

A Review on Neuralink: A Fully Implanted Wireless Invasive Brain Machine Interface

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Abstract: Advancements in artificial intelligence, Neurosciences affects every aspect of society. Brain Machine Interfaces (BMIs) are rapidly growing with the increasing pace of advancements in Neurosciences, Neurotechnology, and Artificial Intelligence. BMIs have the potential to restore the sensory and motor functions in various clinical disorders. For an instance, BMI can help a paralyzedindividual in controlling the artificial limb in contrast with their natural activity. With the advancements in microfabrication, machine learning approaches there is rapid neuraldevelopments in invasive BMIs. We candesignthe chips and electrodes at submicronresolution and predict the neural activity with enhanced adaptive decoding algorithms. Combination of neuroscience with modern engineering has risen unprecedented developments in the BMI field.

Keywords: *BMI, Neuroscience, Electrodes, Neural Decoding, Neurosurgical Robot*

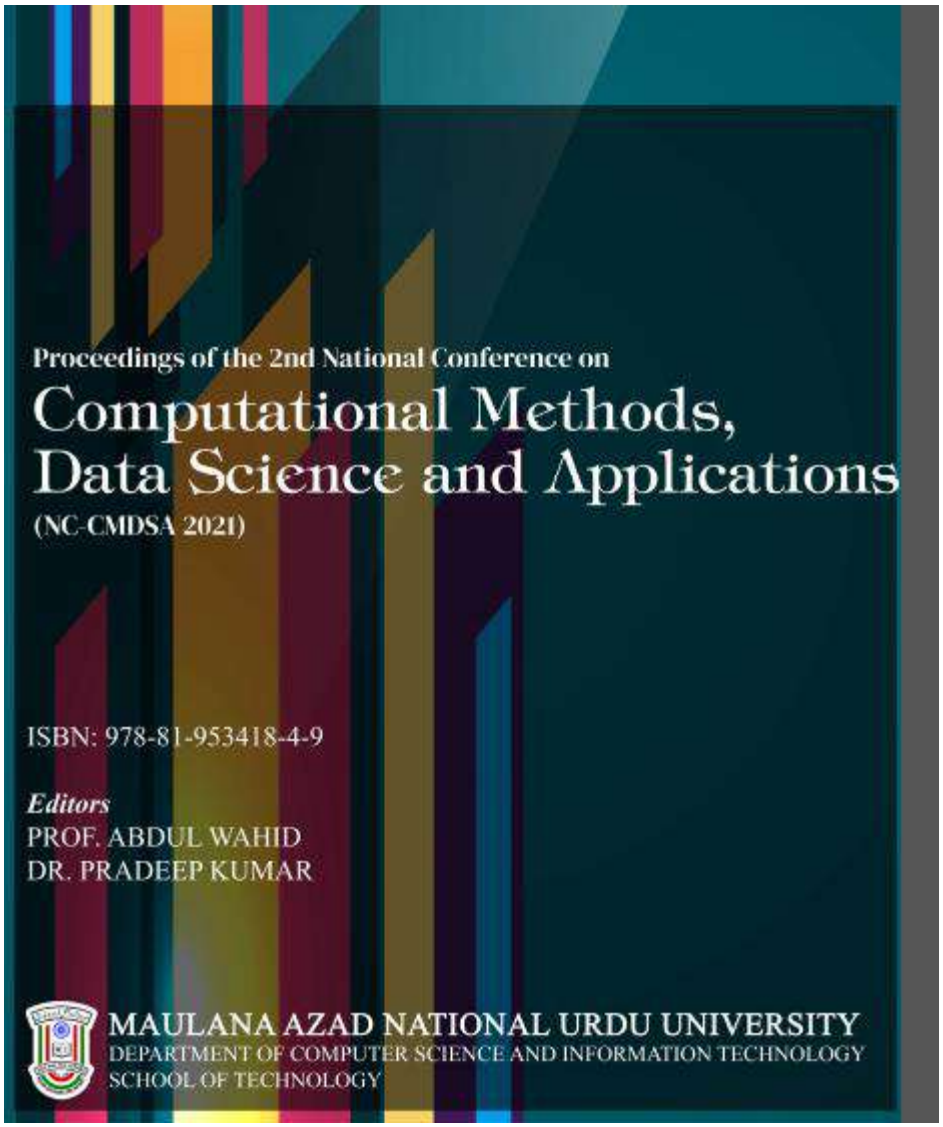
1. Introduction

Individuals with severe spinal cord injuries andparalysis require continuous care to performs daily routines, some have lost the ability to communicate. Discoveries in Neuroscience, advancements in AI and evolution of hardwareopened the bounds for restoring the motor [1] and speech abilities in people with above nervous disorders. Neuroscience proposed the use of Brain Machine Interfaces (BMIs) for disabled persons to interact with the external environment by translating the brain signals into commands to control the machines [2].

2. Related Work

Decades of research paved the path for buildinga Brain Machine Interface. Hans Berger is the first man to detect the Neuroelectrical Activity.To record the electrical activity in the brain he invented electroencephalography (EEG) in 1924. In 1970 USA's Defense Advanced Research Projects Agency started a program toexplore the brain signals and communications inside brain using EEG.

In 1976 UCLA's Laboratory for Brain Computer Interface outlined the systematic attempt to control a cursor with brain decisionsand reactions. UCLA's Professor Jacques J. Vidal coined the term BCI.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Network Flow Analysis Using Machine Learning

CMDSA-003

Network Flow Analysis using Machine Learning

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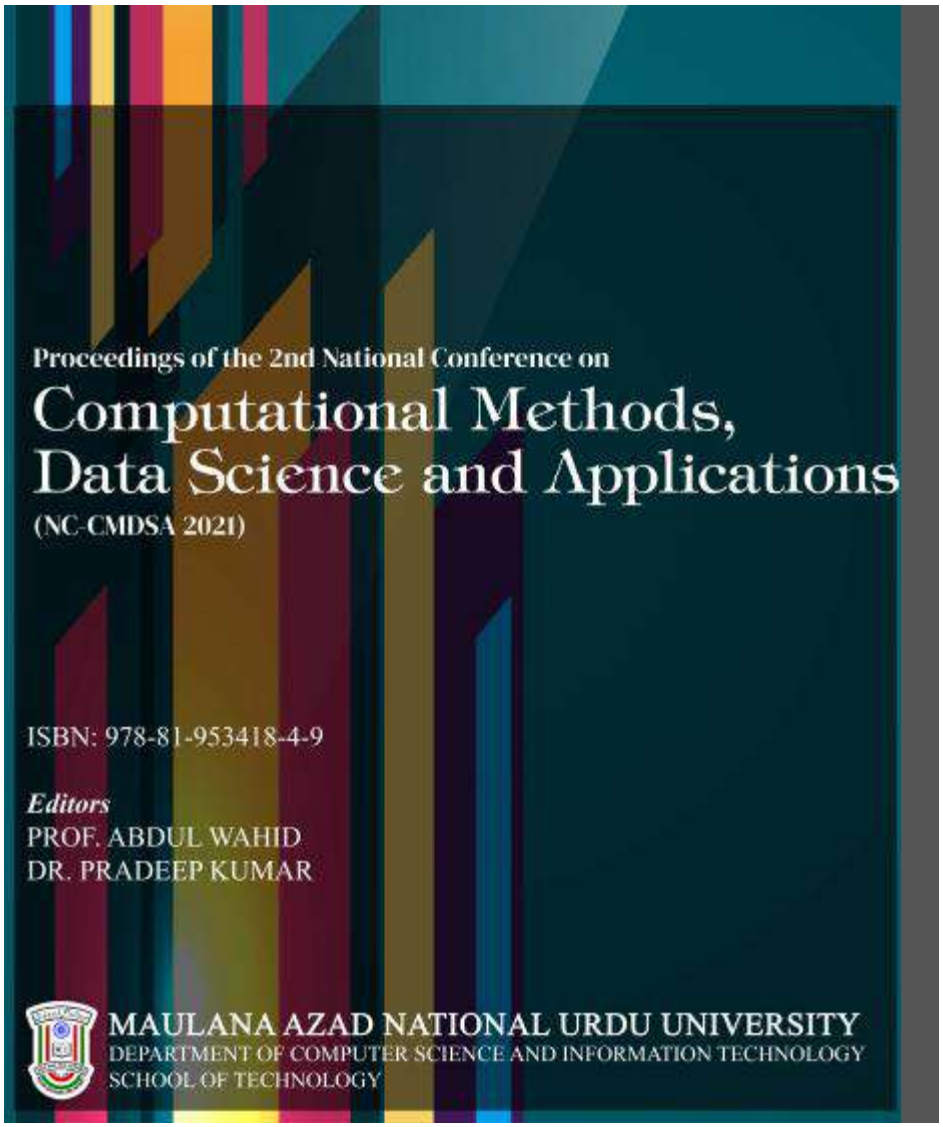
Abstract: *During the past few years, network analysis and anomaly detection have become a critical process in cyber security. The tremendous growth in the networks, the analysis of the traffic is become a crucial problem. The analysis of the network traffic requires intelligent methods like machine learning approaches. Many organizations are using advanced modern methodologies to detect anomalies and preventing cyber-attacks. The aim of this work is to identify the destructive behavior in the data congestion. To identify the pattern/characteristic in malicious flow in the network need a dataset for training of our model. The result of the analysis can help and tune the rules to detect the network anomaly.*

Keywords: *machine learning, linear regression, network flow, anomaly detection.*

1. Introduction

There has been an incredible rise in Cyberspace congestion in the recent past. A study finds the growth of 35% is observed in network traffic per annum. The enormous growth is leading to a constant bandwidth encounter between various web applications and instantaneously contributing to an increase in the number of refugee attacks. Thus, efficient web congestion management and analysis is required for the various security applications and its operations. It helps in finding the sudden traffic rises and shows any anomaly or malicious performance over the Internet by categorizing information from patterns obtained during the analysis. To identify the difference from malicious traffic to normal congestion, first we have to identify the difference between the flow and strange congestion. The differentiation helps to make the decision among the normal and anomaly of the traffic.

The data streams transferred in between a specified source and destination is called the flow, it is crucial for the identification of abnormal flow in the network in the analysis of anomaly detection. Generally, a flow includes complete data regarding the n number of packet and n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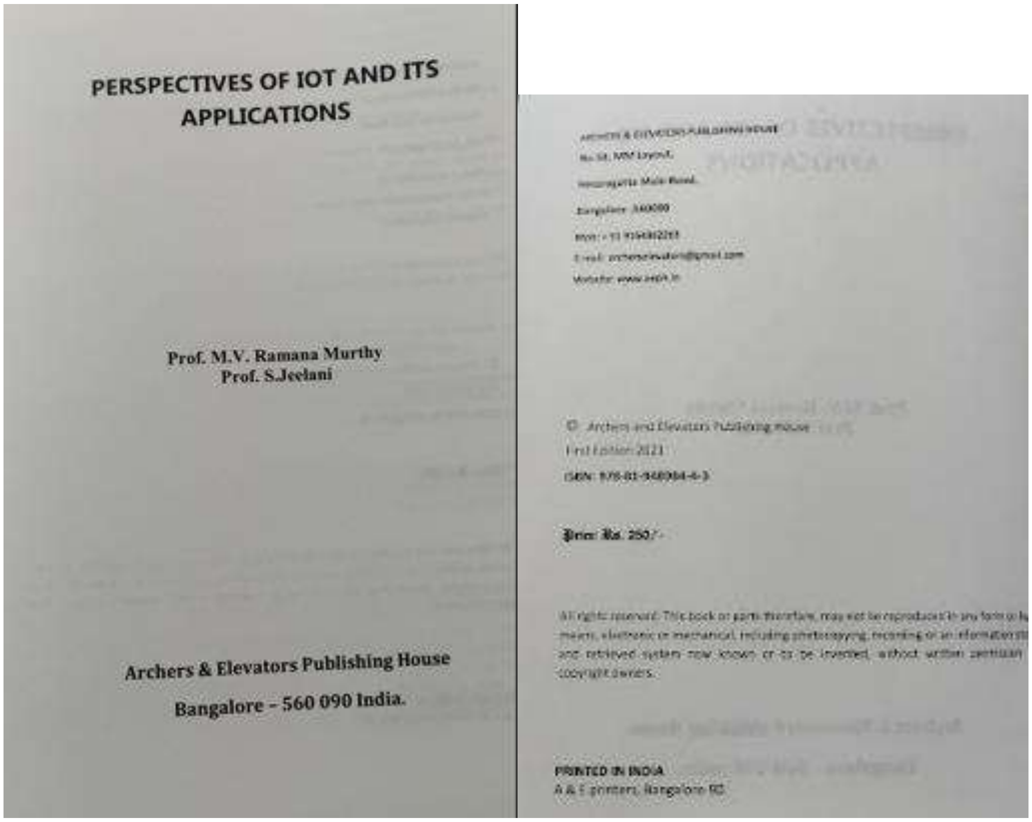

PERSPECTIVES OF IOT AND ITS APPLICATIONS

Prof. M.V. Ramana Murthy
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Chapter - 2
Analysis of Low Power VLSI Design of Static Recovery Full Adder Cells

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Hybrid Secure Cloud Storage data based on improved Encryption Scheme

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Hybrid Secure Cloud Storage data based on improved Encryption Scheme

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***Abstract* – Cloud computing is a utility for data storage. Data storage security has become a primary challenge. The users can access, share &transacts the data as the cloud offers services based on the user demand. The Cloud data is originated from various sources, how secure the data is? Data security issues are increasing rapidly as data is flowing across the internet. To protect sensitive information there are many encryption techniques to hide the data from unauthenticated users. To secure the data encryption and decryption methods are used by which only authorized users can only retrieve the data. But sometimes Brute force method can recognize the hidden data. To enrich data confidentiality and authentication problems, a proposed method is used in which combination of AES and proxy re-encryption with Honey encryption is used. The system improves the data security for outsourced data. Honey encryption with hybrid cryptography can make unauthorized users to access only plausible looking messages.**

Keywords* – *Cryptography, Honey Encryption, AES, Proxy Re-encryption.

I. INTRODUCTION

Cloud computing proved to storage information with many users like organizations, government bodies and enterprises. As data consists of sensitive data security and privacy acts as a crucial role for hiding sensitive data with unauthorized parties. Many existing methods adopted for securing data in cloud but still there are many limitations. Researchers had developed algorithms to protect sensitive data such as posing with Access control and fine-grained like attribute-based encryption, identity-based encryption, homomorphic encryption, role-based encryption, proxy re-encryption, searchable encryption algorithms.[1-6]

As data is growing every user is storing the data in cloud storage. In which data consists of all personal sensitive data. Cloud providers should secure the sensitive data. For securing the data from unauthorized user's data should be encrypted before uploading into the cloud the data and the secret key will be only given to an authorized user.[6] Encryption methods are used to hide sensitive information from unauthorized users. Protecting private data by encrypting them and retrieve them only when a user has its key to decrypt it.[2]

In this paper, Honey Encryption is combined with AES and proxy Re-Encryption algorithm by which more security is provided to the sensitive data and improves data confidentiality and integrity. Combining two algorithms which give better security.

Honey Encryption is a way in which encrypted data is stored under a password using DTE. When an attacker tries to open with a wrong password doesn't allow him to open the correct data. It gives fake Honey terms looks like a real data. Thus, users who tries for guessing password to open the file will not be able to recognize whether given output data is correct or wrong data.[3]

II. RELATED WORK

To protect data from unauthorized users the common method used to hide data is used to encrypt the data before uploading into the cloud storage.[6] Many symmetric and asymmetric encryption algorithms are used for encryption. In which symmetric encryption is used with only on key at senders and receiver's side. Asymmetric keys are used with two keys one for encrypting with public key and another secret key I used for decrypting it.

For cloud storage proposed a combination of ABE and secret key with fine grained access control [15]ABE and proxy re-encryption provide more security to cloud data. PRE is a third-party server to re-encrypt the file again when the files are uploaded in encrypted format.[6]

To overcome the brute force attack from protecting sensitive information used Honey encryption. With the other encryption techniques, it has limitation with brute force method. Thanda. W et.al [4]. To find unauthorized users in online banking applications used Honey encryption SooF. T, et.al [3]. The proposed system explained about the hybrid encryption with fully homomorphic with additive RSA encryption. Zainab. H. M et.al [6]

According to symmetric encryption cloud storage is used by adopting multiple keys and file partition techniques Li et al. [16]. Proposed a method of "combined encryption with ABE and fine-grained access control in cloud storage data" [4]. In health applications ABE and PRE is used for securing sensitive information of a patient. In this method all health-related data is encrypted and re-encrypted using PRE [9]

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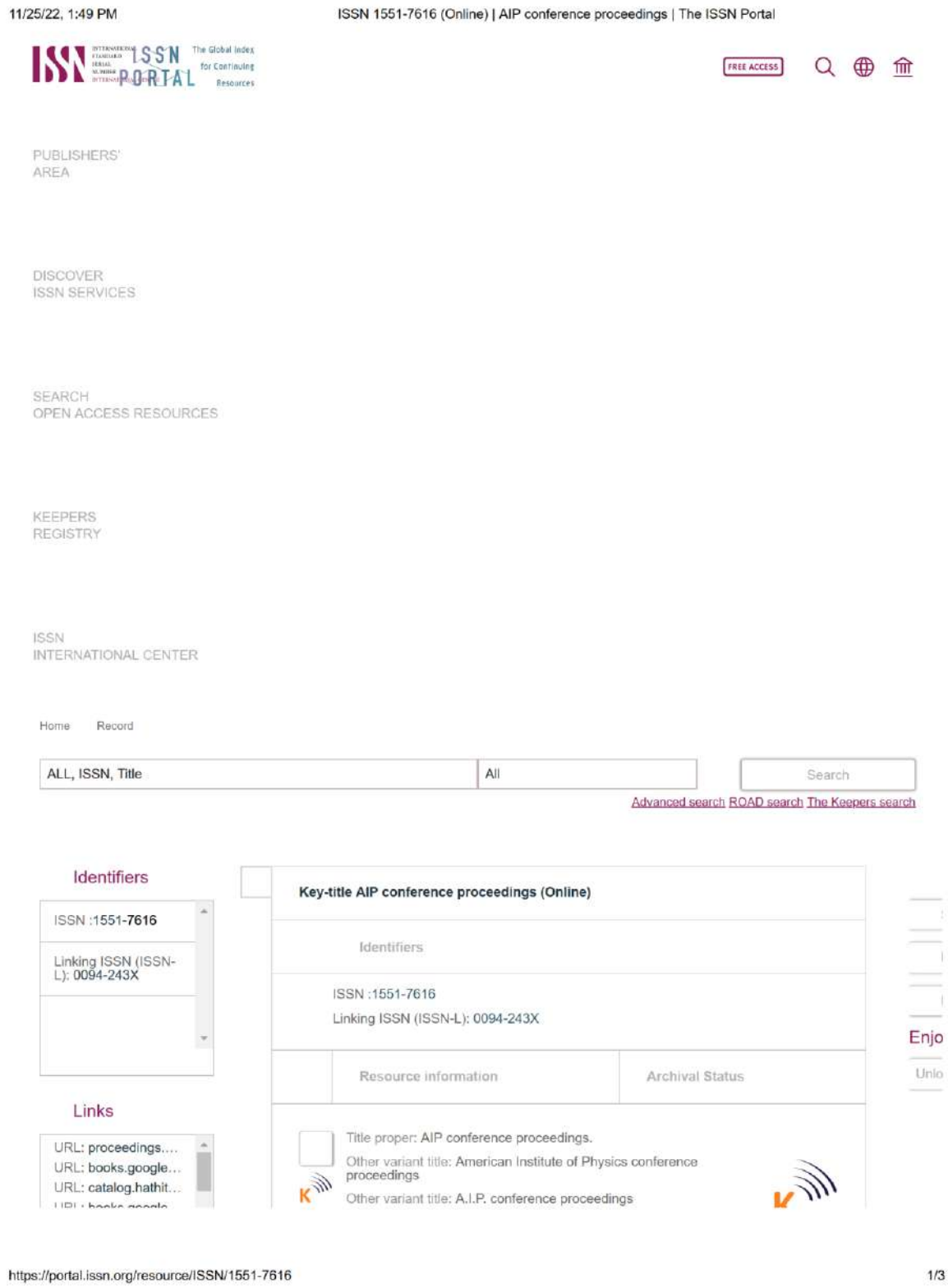
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Design and Analysis of Impeller using Corrosion Resistant Materials

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Abstract. An impeller a rotating component used to increases or decreases the flow and pressure of fluids, which has wide spread applications in aircraft sector, automobile industry, medical field and power plant technology. In real time applications bronze and hardened steel impellers quickly erode when presented to destructive mediums, for example, waste water, seawater, sewage,, chlorine, bromine, and numerous chemicals. They are dependent upon cavitation and electrolysis (galvanic erosion) which rashly demolishes the impeller drastically. The corrosion is the major problem of the impeller that increases pump operating and maintenance expenses which obligated the industries to search for alternative materials. The main criterion is to select the appropriate selection of material for the impeller to resist corrosion. Materials such as Caprolone (Nylon) and ABS (Acrylonitrile Butadiene Styrene) have been consider for the study considered which has chemical, thermal stability along with toughness and strength. The design and analysis of impeller is designed, analyzed using commercially available simulation tools.

Keywords: bronze and hardened steel impellers, ABS (Acrylonitrile Butadiene Styrene), Caprolone (Nylon)

INTRODUCTION

A centrifugalpump impeller is a rotating object in which energy transfers from the motor that operates the pump to the fluid is pumped by speed up the water outwards from the middle of rotation, these are used in many real time industrial uses like compressors, pumps, water jets and so on. In general in actual applications impellers made up off by stainlesssteel and bronze like conventional materials corrodes in faster rate when exposed to destructive mediums such as seawater, sewage, waste water chemicals like chloride, bromide, and many dissolved salt chemicals. impellers are more prone to plaque cavitations and electrolysis known as galvanic eroding which knock down the impeller considerably and there by improves the pump maintenance and operating expenditures. The corrosion of the impeller can be tackled by using Caprolone called Nylon, Acrylonitrile Butadiene Styrene formally known as ABS, and Polymer Nano Composites other than conventional stainless steel material.

Material Selection (ABS)

The superiority of ABS (Acrylonitrile Butadiene Styrene) over Caprolone (Nylon) in terms of mechanical properties made it easy for us in the selection of material for the impeller.

- Acrylonitrile Butadiene Styrene (ABS):

ABS is a terpolymer, or a polymer made out of three distinct monomers. This indistinct mix is comprised of acrylonitrile, butadiene, and styrene in shifting extents. Every last one of these monomers serve to give a bit of

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Evaluation of water quality index at Gandipet lake surroundings

PAPER ID: C4

EVALUATION OF WATER QUALITY INDEX IN GANDIPET LAKE SURROUNDINGS

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ABSTRACT

To assess water quality of Gandipet Lake (Osmansagar reservoir) and its surroundings whether it is fit for consumption, Water Quality Index (WQI) technique proposed by Ramakrishnaiah (2009) was adopted. A water quality index provides a single numeral that signifies water quality holistically at a certain location and time based on several water quality parameters. The purpose of an index is to convert complex water quality data into information that is well understood by the community. Eight most important parameters related to water quality such as pH, total dissolved solids (TDS), total hardness, total alkalinity, dissolved oxygen (DO) and electrical conductivity (EC) were taken for the calculation of WQI. The WQI values for the Gandipet Lake ranged from 77-91. The values of WQI showed that the water was free of any impurities at the sampling site. Owing to anthropogenic activities such as dam operations, water may get polluted to some extent, resulting in the decrease of water quality index. Also, WQI can be used as a tool in comparing the water quality of different sources. It gives the community a general idea of the possible problems with water in a particular region. Water Quality Index is one of the most effective ways to communicate the information on water quality trends to the public or to the policy makers and water quality management.

Keywords: Drinking, WQI, Gandipet lake, Osmansagar, Ramakrishnaiah (2009).

ScienceDirect

Materials Today: Proceedings

Volume 62, Part 4, 2022, Pages 1785-1789

Experimental assessment of coir geotextile to improve the strength of weak subgrade at different load conditions

D. Harinder [a], P. Yugendar [b], S. Shankar [c]

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https://doi.org/10.1016/j.matpr.2021.12.351

Abstract

The stabilization of weak subgrade soil with natural geotextile fiber is a cost-effective to improve the stability of the low-volume roads (LVRs). The coir geotextile is naturally available eco-friendly and biodegradable material having the high strength and durability compared to the other natural material. The present study, the test were conducted to determine the effectiveness of coir fiber and coir geotextile mats under the static and dynamic loading condition by using the CBR and WTT respectively. The inclusion of the coir geotextile fiber to the BC soil subgrade improved the load bearing capacity in soaked and un-soaked condition. The study was also conducted with two types of the coir mats under the repeated loading condition with help of the fabricated mould. It has two layer flexible pavement system like subgrade and sub-base are prepared according to CBR Standard. From the results, it was concluded that the provided coir geotextile mats helps in the slow settlement, reduce the permanent deformation/rut improved the performance of the roads. The placement of coir geotextile in both the test (CBR and WTT) showed the significant improved in reinforced section improved the service life of the flexible pavement structure with lower cost of maintenance.

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Keywords

Coir fiber; Coir mats; Reinforcement; Separation; California bearing ration test (CBR); Wheel tracking test (WTT)

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Experimental study on mechanical and durability properties of recycled aggregate based geopolymer concrete

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Volume 52, Part 3, 2022, Pages 649-654

Experimental study on mechanical and durability properties of recycled aggregate based geo-polymer concrete

R. Swami Ranga Reddy, B. Anand Sagar

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Abstract

To reduce the carbon foot print from the production of Portland cement, there is requirement of creating other bond produced materials to make concrete. In this connection several efforts are put forward to develop binders with pozzolanic materials without cement, for this addition of chemicals is unavoidable to cause reactive, this work involves the use of fly ash, Recycled aggregate, alkaline activated fluids. Alkaline to binder ratio is 0.55 with exchange of 100% cement with fly ash and determine the strengths for 24hrs oven curing at temperature 60 °C and 28 days atmospheric curing. In this work waste materials fly ash and GGBFS are taken in the proportion of 70:30. The proportion of Sodium Silicate and Sodium Hydroxide is taken as 2.5 and the alkaline liquid to binder ratio is taken as 0.5. The molarity of the alkaline solution is taken as 8 M and 10 M. In this work, the coarse aggregates have been replaced by recycled aggregates for different proportions i.e. 0%, 25%, 50% and 100% the mechanical properties such as compressive strength, Split Tensile and Flexural Strength are evaluated.

Previous Next

Keywords

Fly-ash; GGBFS (Ground Granulated Blast Furnace Slag); Portland cement; Alkaline Solution; Workability; Durability

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Crushed Stone Dust as a Replacement for River Sand in Self Compacting Repair Mortars - A Sustainable Solution

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Materials Today: Proceedings

Volume 52, Part 3, 2022, Pages 1168-1174

Crushed stone dust as a replacement for river sand in self compacting repair mortars – A sustainable solution

V Krishna Rao Mupparisetty [a], Faeq Ahmed Mohammed [b]

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Abstract

Rapid growth in the infrastructure to cater to the demands of increasing population is forcing engineers to think the route of sustainability even for repairs of critical infrastructure. Self-Compacting Mortar (SCM) is one such repair material with tremendous advantages in terms of ease in application and mechanical properties. The present paper reports the effect of use of alternate materials for river sand on the fresh state behavior (based on mini V-funnel and mini slump flow tests) and mechanical properties of SCM's (based on 28-day compressive, split tensile and flexural strengths) to ascertain the mechanical behavior, while to understand the ingress of moisture and harmful chemicals through the repair material to the substrate, sorptivity test (for durability) was performed. The parameters of investigation include, type of aggregate (River sand, crushed stone dust and foundry sand), mix proportion (1:1 and 1:2), size of fine aggregate (4.75 mm down, 2.36 mm down, and 1.18 mm down), and age of curing (28 days). A total of 225 specimens were cast and tested in this study. The results are of the evidence that crushed stone dust as fine aggregate showed superior performance and can be a suitable alternative to the scarce river sand.

Previous Next

Keywords

Sustainable materials; Self compacting mortar (SCM); Mechanical properties; Sorptivity; Natural sand (NS); Crushed stone dust (CSD); Foundry sand (FS)

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A review on the influence of copper slag as a natural fine aggregate replacement on the mechanical properties of concrete

2022, Materials Today: Proceedings

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Mode Shape Modification of Irregular Buildings

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Volume 62, Part 4, 2022, Pages 1790-1795

Mode shape modification of irregular design of buildings

A. Balaji Rao, P.Srinivas Reddy, Ch. Meghana Shaly

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Abstract

Earthquakes are the most unpredictable and devastating of all natural disasters. In view of the extensive damage it can cause, it is very much necessary to understand the seismic response of buildings under various conditions. One such situation is buildings with plan irregularity, and poses a challenge to structural engineers because of the damage it can cause. These torsional irregular buildings are subjected to large rotations about the vertical axis due to the eccentricity between centre of mass and with centre of rigidity. Table 5 of IS 1893(Part-1):2016 mentions re-entrant corners, large cut outs in the slabs, non-parallel lateral force system are some of the causes of torsional irregularity. These buildings will have torsional mode as the fundamental mode and will be subjected to extensive damage during seismic activity. In situations where the irregular shape is inevitable because of architectural and functional demands, the structural engineer has to find means to transform the fundamental mode shape from torsional mode to translational mode. Adding structural walls, bracings at the appropriate locations are a few of the viable solutions. In the present study, an attempt is made to investigate the appropriate location and geometry of structural walls for few torsional irregular buildings. Three-dimensional dynamic analysis (Response Spectrum Method) of 15 storied L and C- shape buildings is carried out as per IS 1893 (part 1) using ETABS. Response quantities like Time Periods, Base Shear, Storey Moments, Modal Participation factors, Joint displacements, Storey Drifts are evaluated. A comparative study is made to arrive at the optimum location of shear walls with minimum torsion displacement and where translational mode becomes the fundamental mode.

Previous Next

Keywords

Seismic response; Torsional irregularity; Shear walls; Response spectrum method; Translational mode

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Materials Today: Proceedings

Volume 52, Part 3, 2022, Pages 873-881

Towards sustainable construction through the application of low carbon footprint products

K. Ranjetha [a], LL Johnson Alengaram [a], Ahmed Mahmoud Alnahhal [a], S. Karthick [a], W.J. Wan Zurina [a], K.J. Rao [b]

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Abstract

The production of cement generates a large amount of greenhouse gas emissions; in addition, the scarcity of natural resources used in the development of building materials and products has propelled many governments, non-government organizations, construction and cement industries, and researchers around the globe to invest their time and energy towards reducing the dependency of the natural materials; one possible way of achieving sustainability is through the utilization of the locally available waste or industrial by-products as a partial or whole replacement for the conventional materials. University of Malaya (UM) has made a meaningful contribution in the development of sustainable building materials and demonstration projects. UM is the first university in Malaysia to build a cement-free house on its campus. Two single-storey houses, namely Low-Cost Model House (LCMH) and Geopolymer Concrete House (GPCH) have been built using environmentally friendly materials within the university campus. Locally available agricultural and industrial waste and by-products such as palm oil fuel ash (POFA), palm oil clinker (POC), manufactured sand (M-sand), and steel slag aggregate (SSA), were used in the development and construction of these houses. Apart from the materials, environmentally friendly methods of construction were also adopted. This article mainly evaluates the system of construction and the application of sustainable building materials used in the LCMH & GPCH along with its advantages in terms of environment, economy and the social aspects. Overall, it can be concluded that adopting green technology and incorporating waste by-products in concrete has numerous advantages. The revision in the concrete mixes by using alternative substitute materials from waste products would pave the way for reducing environmental problems, harmful effects of waste due to improper disposal methods, reliance on non-renewable substances and promotion of sustainable construction. The prime idea of building the LCMH and GPCH in University of Malaya campus is to raise awareness on the utilization of waste and industrial by-product materials; further, the dissemination of the information is to expand the use of these materials and construction practice not only in Malaysia, but also in other countries.

Previous Next

Keywords

Industrial by-products; Lightweight concrete; Demonstration project; Low-cost model green house; Geopolymer concrete house; Dissemination

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A study on mechanical properties of high strength concrete with partially replacement of cement

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Materials Today: Proceedings

Volume 52, Part 3, 2022, Pages 1201-1210

A study on mechanical properties of high strength concrete with alccofine as partial replacement of cement

Bhotla Harish [a], N.R. Dakshinamurthy [b], Malegam Sridhar [c], K. Jagannadha Rao [d]

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https://doi.org/10.1016/j.matpr.2021.11.037

Abstract

Concrete is considered as a strong and durable construction material lasting over a century. Reinforced concrete is one among the most popular materials used for construction around the world. Reinforced concrete is subjected to deterioration in harsh environments like in coastal regions. Therefore, several researchers are striving hard with their efforts towards developing a new material to overcome this problem. Invention of large construction plants and equipment around the world added to the enlarged use of construction materials which has raised the curtain to the use of additive mineral by product admixtures to improve the quality of concrete. As an outcome of the experiments and researches, cement-based concrete which meets special performance with respect to strength, durability and workability known as "HIGH PERFORMANCE CONCRETE" (HPC) is being developed. This concrete can be designed to give optimized performance characteristics for a given set of load, usage and exposure conditions consistent with the requirements of cost, service life and durability. The high-performance concrete does not require special equipment but only needs careful design and production. HPC has many advantages like lesser micro cracking than conventional concrete and improved durability characteristics. HPC is the concrete designed to give optimized performance characteristics for the given set of materials, usage and exposure conditions, consistent with requirement of cost, service life and durability.

In this paper, concrete with different grades were tested (M30 to M70) and cement is partially replaced with the ALCCOFINE at different proportions 0, 5%, 10% 15% and 20% to reduce the heat of hydration, so as to develop a durable concrete with the addition of said mineral admixture. Compression, Split tensile and Flexural tests were performed on concrete of different grades with Alccofine as admixture. Chemical admixtures were used in concretes of higher grades (beyond M50 grade) where the W/B ratio is very low (in the range of 0.28–0.35) to overcome the problem of workability. The concrete with Alccofine has shown encouraging results compared to conventional concrete.

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Keywords

Alccofine; Mineral admixture; HPC; High strength concrete; Mechanical properties

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Sustainability development and performance evaluation of natural hydraulic lime mortar for restoration

2022, Environmental Science and Pollution Research

The effect of alkali activation on the durability, mechanical properties, and characterization of alccofine-modified air lime mortar

Dynamic performance of soft storey structures with gap elements at beam-column joints

ScienceDirect

Materials Today: Proceedings

Volume 52, Part 3, 2022, Pages 622-631

Dynamic performance of soft-storey structures with gap elements at beam-column joints

Mrudula Chanumolu [a], Dr.Vimala Anthugari [b]

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Abstract

Soft-storey structures are more susceptible to failure for seismic vibrations, which is well-known to the world. But, in multi-storey apartments, it is a practice to provide a parking place at the ground storey, inducing soft-storey effects. In the present study, an effort is made to reduce the soft-storey effect on the structure's dynamic performance by introducing an arrangement of gap elements at beam-column joints. To that context, a numerical assessment is carried out to check the performance of the RC structure. The gap element is modelled as a spring either in a beam or in a column or both.

The research has been performed in two parts; the first part of the analysis is focused on optimizing the gap element pattern. Diagonal compressive struts replace the infill walls, and the ground storey is modelled as an open ground storey without infill walls, which is considered a soft-storey. From the first part, an optimal gap element pattern from five different arbitrary patterns is obtained from the results of linear dynamic response spectrum analysis, depending upon the comparison of various seismic parameters. The second part of the analysis involves checking the effect of the gap element's optimized pattern for four levels of structures with vertically varied aspect ratios. Response spectrum analysis is performed, and a study is conducted to compare the seismic parameters for the four levels. The models with gap elements have shown an apparent reduction in storey displacements, inter-storey drift ratios, over-turning moments, and increment in storey stiffness when compared to the conventional models, thus exhibiting constructive outcomes.

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Keywords

Soft-storey; Gap element; Response spectrum; Storey displacement; Inter-storey drift ratio; Over-turning moments

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Optimization of location of outrigger system in tall buildings of different aspect ratios

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Materials Today: Proceedings

Volume 52, Part 3, 2022, Pages 588-598

Optimization of location of outrigger system in tall buildings of different aspect ratios

Pradeep Gunda [a], Vimala Anthugari [b]

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https://doi.org/10.1016/j.matpr.2021.10.034 Get rights and content

Abstract

The dynamic behavior of tall building structures is unpredictable under lateral loads. The key concern of tall building design is controlling deflections under lateral loads like earthquake loads or wind loads. There are many structural forms to resist lateral loads; the outrigger system is one of the best structural forms for effective lateral load resistance in tall buildings. Since the location of the outrigger enormously influences the dynamic behavior of tall structures, the present research focused on finding the optimum location of the outrigger along with the height of the structures. For this contest, a numerical study is carried out with five structural models of different aspect ratios. The aspect ratio of the models considered is 0.91, 0.61, 0.45, 0.36 and 0.30. All five models are designed as per Indian codes, IS456, and IS1893. For the observation of the dynamic performance of the five models, the outrigger truss without any belt truss is placed at different heights of the building. For each position, the dynamic performance of the 3D structure is observed. The study is made to compare the reductions in displacements, inter-story drifts, and overturning moments for the buildings with and without outriggers. This study focus on the change of the position of the outrigger for greater resistance to lateral loads depending upon the aspect ratio of the buildings. The analytical results have been studied to find out the optimum location of the outrigger, along with the height of the structures with different aspect ratios. It was concluded that the optimum position of outrigger truss without belt truss is at 65 to 80% of the height of the building for aspect ratios between 0.45 and 0.95.

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Keywords

Outriggersystem; Inter-storydrift; Roof displacements; Overturning moments; Response spectrum

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Interrelations of slenderness ratio and main design criteria in supertall buildings

2022, International Journal of Building Pathology and Adaptation

Recent Advances in Structural Engineering pp 21–28

Studies on Infiltration Rate of Pervious Concrete

Nune Srikanth & N. R. Dakshina Murthy

Conference paper | First Online: 01 April 2021

Part of the Lecture Notes in Civil Engineering book series (LNCE,volume 135)

Abstract

Concrete is the only material in the construction engineering for which the usage has been multifold over the last decade. Owing to rapid urbanization, there has been an increase in the consumption of construction materials by which the natural resources are depleting day by day. Porous concrete or no fines concrete or permeable concrete is known as special type of concrete which allows the water to penetrate through the concrete, thereby reducing the external runoff and boosting the ground water table. As pervious concrete has little to no fine aggregate, the

India

Dr. Seeram Madhuri

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Recent Advances in Structural Engineering, Volume 1

Select Proceedings of SEC 2016

Editors: A. Rama Mohan Rao, K. Ramanjaneyulu

Covers a wide range of research areas in structural engineering, making it a useful reference resource for researchers, academicians, and practicing engineers

Presents recent advances in structural engineering along with contributions from top experts in the field

Includes articles on applications like structural health monitoring, vibration control, nanomaterials, machine learning and artificial intelligence

Part of the book series: Lecture Notes in Civil Engineering (LNCE, volume 11)

Conference series link(s): StEnCo: Structural Engineering Convention

Conference proceedings info: StEnCo 2016.

of reinforced concrete plate and shell structures; and structural health assessment and management of bridges. He has published over 80 papers in refereed national/international journals, and over 100 papers at international and national conferences/seminars.

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Series Title	**DOI**	**Publisher**
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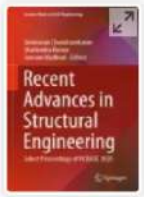

Recent Advances in Structural Engineering pp 51–59

Stress–Strain Behaviour of Self-consolidated Processed Recycled Aggregate Concrete

Nune Srikanth, N. R. Dakshina Murthy ✉ & M. V. Seshagiri Rao

Conference paper | First Online: 01 April 2021

Part of the Lecture Notes in Civil Engineering book series (LNCE,volume 135)

Abstract

Self-consolidating concrete (SCC) is considered as a special concrete that streams and strengthens by its self-weight and passes through the congested reinforcement without any segregation and mechanical vibration. In the recent era, a bombastic amount of construction and demolition (C&D) scrap produced from deteriorated structures and ready mix concrete plants is creating a severe environmental pollution. This has encouraged the reuse of C&D scrap as aggregates in concrete. Utmost investigation

Department of Civil Engineering
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25th - 26th June 2021
Green fields, Vaddeswaram, Guntur District, A.P., India - 522502. Phone: +91 - 864 - 5350200

Paper ID - 53

IDENTIFICATION OF CRITICAL CONSTRUCTION DELAY FACTORS: AN INDIAN PERCEPTION

M.V. Krishna Rao, Abdul Rafae Syed, L. Amogh Reddy D, and Sudarshanam Abhilash

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Abstract: Construction delays are a general phenomenon that persists in most of the construction projects and thus requires an extensive analysis in order to identify the potential delay factors. To identify the critical delay factors, a questionnaire was developed to conduct an industry survey aimed to obtain a collective opinion of professionals in the Indian construction industry. The questionnaire was distributed to 175 construction professionals at Hyderabad, India who have at least 10 years of experience in the construction industry and the rate of return was 78.2%. Most of the survey was performed physically via paper and by online means with 39 site engineers, 35 contractors, 23 consultants, 21 private clients, and 19 public clients. The objective of this paper is to identify the most critical delay factors that contribute to delays in the construction projects and rank them using the Relative Importance Index (RII). The individual group of factors is subjected to the Cronbach's alpha (Cα) test to assess their reliability or internal consistency. Spearmen's rank correlation coefficient, r. was also used to observe the existence of correlation between the interpreted choices made by the different paired groups of respondents (contractors, consultants, clients) so as to report any significant differences in their opinion. The results of the analysis show varying opinions among the respondents based on their work experience, designation, and the scale of construction projects they have worked upon. This paper accentuates the importance of identifying the critical delay factors that aid in delay analysis and in creating awareness to minimize their effects during the course of the construction project.

Keywords: Construction delays; critical delay factors; Industry survey; Cronbach's alpha (Cα); Relative Importance Index (RII); Spearmen's rank correlation coefficient.

Macroscopic analysis of traffic flow behavior on multi-lane highways under heterogeneous traffic conditions

Recent Advancements in Civil Engineering pp 633–643

Macroscopic Analysis of Traffic Flow Behaviour on Multilane Highways Under Heterogeneous Traffic Conditions

Kanchumurty Anusha, Poojari Yugendar & S. Moses Santhakumar

Conference paper | First Online: 15 December 2021

461 Accesses

Part of the Lecture Notes in Civil Engineering book series (LNCE,volume 172)

Abstract

Traffic flow behaviour is a complex phenomenon and needs better understanding and concepts for its analysis. The highways in India normally operate under mixed traffic conditions, and the driving behaviour varies from one place to another. Macroscopic models which are quite suitable for describing the behaviour of entire stream and further accepted worldwide for estimation of capacity. The present study demonstrates the dynamic nature of

Maharashtra, India

Dr. Abhay Tawalare

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An Experimental study on durabilty of pervious concrete

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25th - 26th June 2021
Green fields, Vaddeswaram, Guntur District, A.P., India - 522502. Phone: +91 - 864 - 5350200

Paper ID - 70

AN EXPERIMENTAL STUDY ON DURABILTY OF PERVIOUS CONCRETE

R. Swami Ranga Reddy
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Abstract: Pervious concrete is a special high porosity concrete used for flatwork applications that allows water from precipitation and other source to pass through there by Reducing the Runoff from a site and Recharging Ground Water Levels. Durability and Water Absorption are important properties of Pervious Concrete. This paper represents the experimental methodology and experimental results related to durability and water absorption. Cylinders of size 100 mm Ø and 200 mm height are prepared to investigate both these properties. This investigation should be carried out at the end of 28 days for water absorption and 56 days for durability in which cylinders are immersed in Sodium Chloride (NaCl) Solution after 28 days of casting. Different concrete mix proportion such as 1:5, 1:7 and 1:9 with different size of gravel such as 18.75 mm and 9.375 mm should be used to check both these properties of pervious concrete. Test results indicates that pervious concrete made by 1:6 concrete mix proportion has more durability and less water absorption and pervious concrete made by 1:10 mix proportion has more water absorption and less durability that`s why durability and water absorption are inversely proportional to each other.

Keywords: Pervious concrete, porosity, durability, Porosity

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Studies on Impact Resistance of Self-Compacting Concrete with mechanically treated Recycled Coarse Aggregate

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Abstract. Self-compacting concrete (SCC) is an extraordinary type of concrete that is extremely flowable and spreads into the formwork without the need of external vibration. In order to attain self-compatibility SCC obliges extensively surplus quantity of fine particles as compared to conventional concrete. Recycled Coarse Aggregate (RCA) obtained by crushing of old concrete is used in the investigational analysis. Nan-Su method is used to design the SCC mixes A and B (M35 and M45). The current experimental study aims to evaluate the impact energy of Recycled Coarse Aggregate (RCA) based self- compacting concrete by replacing with Natural Coarse Aggregate (NCA) (25%, 50%, 75%, and 100%) in unprocessed and processed states for various number of revolutions (500R, 1000R, 1500R, 2000R). Tests were carried out with a constant mass of hammer (16.38 kg). The impact energy determined for the Mixes A and B is compared with respect to replacement level and processing of RCA. The impact energy calculated is maximum for mix-A (1500 and 2000 revolutions) and mix-B (2000 revolutions) at 75% and 100% replacement of RCA respectively. From the experimental results of obtained Coefficient of Variation (CoV) with respect to processing of aggregate, in both the mixes it is observed that RCA in unprocessed state and processed state (1500R) has good Coefficient of Variation. Comparing the results of Coefficient of Variation with respect to replacement level of aggregate it has a very good CoV at 25% replacement level of RCA for both the mixes.

Keywords: Self-Compacting Concrete, Natural Coarse Aggregate, Processed recycled coarse aggregate, unprocessed recycled coarse aggregate, Impact resistance.

1. Introduction

One of the current trending challenge for a Civil engineer is to plan, design and built the construction projects with the minimal use of natural resources and also to make use of alternate construction materials to maintain ecological balance. [1] Enormous amount of demolition waste generated is creating a huge pressure on the environment thereby increasing land pollution. [2] To minimize the impact of demolition waste it can be recycled and used in construction projects. [3] There is an urgent need for improving the standards of using alternate construction materials to make a sustainable development.

A virtuous volume of research has been carried out on the static behaviour of concretes but there is a lag in the behaviour of impact resistance of special concretes using recycled materials. [4] RCC structures are subjected to dynamic loads for a very short duration. [5] The various dynamic loads coming on the structures are like machine vibration, seismic forces, wind

Time Impact Analysis (TIA) and the Window Analysis (WA) Techniques in Construction Delay Assessment (Paper ID: 55)

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Paper ID - 55

TIME IMPACT ANALYSIS (TIA) AND THE WINDOW ANALYSIS (WA) TECHNIQUES IN CONSTRUCTION DELAY ASSESSMENT

M.V. Krishna Rao, Abdul Rafae Syed, L. Amogh Reddy, and Sudarshanam Abhilash
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Abstract: The growing scale and complexity of present-day construction projects resulted in significant volumes of delay, thus making it rather imperative to assess and analyze the same. Construction projects being bound to extensive contractual agreements leading to legal disputes among different parties, in case of deviations, has rendered the delay analysis an integral part of the construction process. Researchers and practitioners undergo a dilemma on the choice of an appropriate Delay Analysis Technique (DAT). Though Time Impact Analysis (TIA) and the Window Analysis (WA) techniques are widely accepted, many a practitioner in the Indian construction industry does not apply them due to mere lack of awareness. These techniques along with providing an accurate analysis of the delay enable management of time and cost overruns, aid in resolving legal disputes due to various factors that result in the deviation from the baseline schedule of the construction project. This paper considers a real case of a high-rise building project situated in Hyderabad, Telangana (India) for the analysis of construction delay, employing Time Impact Analysis (TIA) and the Window Analysis (WA) techniques and to draw a comparison between TIA and WA techniques elucidating their accuracy and utility in the construction Industry. PRIMAVERA® P6 V20. 12 software has been used in analyzing the as-planned and as-built schedules of the chosen project case. This paper alongside emphasizing the benefits of performing delay analysis and allocation of justified delay claims illustrates the usefulness of the above-mentioned Delay Analysis Techniques for project delay assessments.

Keywords: Delay Analysis Technique (DAT), Time Impact Analysis (TIA), Window Analysis (WA)Technique, Construction Industry, Disputes.

Performance of different grades of Self Compacting Concrete (SCC) with Recycled Concrete Aggregates (RCA)

In: Recycled Aggregates
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ISBN: 978-1-53619-485-2

Chapter 8

PERFORMANCE OF DIFFERENT GRADES OF SELF COMPACTING CONCRETE (SCC) WITH RECYCLED CONCRETE AGGREGATES (RCA)

K. Jagannadha Rao[1] and Srinivas Vasam[2]
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Hyderabad, Telangana, India
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Korremula Village, Hyderabad, Telangana, India

ABSTRACT

This chapter describes the investigations on the consumption of recycled concrete aggregates (RCA) in the production of self compacting concrete (SCC). It has been described as the most revolutionary development in concrete construction in the recent past. It has many advantages like rapid construction, a decrease in manpower, improved surface finishes, easier placing, enhanced durability, reduced noise levels due to the absence of vibration, and a safe working environment. Further, the dismantling of old structures to construct high-rise buildings is

Bypass Diodes Configurations for Mismatch Losses Mitigation in Solar PV Modules

Innovation in Electrical Power Engineering, Communication, and Computing Technology pp 197–208

Bypass Diodes Configurations for Mismatch Losses Mitigation in Solar PV Modules

Priya Ranjan Satpathy, Pritam Bhowmik, Thanikanti Sudhakar Babu, Renu Sharma & Chiranjit Sain

Conference paper | First Online: 16 December 2021

200 Accesses | **1** Citations

Part of the Lecture Notes in Electrical Engineering book series (LNEE,volume 814)

Abstract

Partial shading among the photovoltaic modules is the most commonly observed scenario that can permanently damage the modules by creating mismatch among cells, hotspot, and unexpected losses in the system. Basically, modules are provided with bypass diodes for

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Different Control Mechanisms of a PMSM Drive for Electrified Transportation—A Survey

Communication and Control for Robotic Systems pp 395–405

Different Control Mechanisms of a PMSM Drive for Electrified Transportation—A Survey

Chiranjit Sain, Atanu Banerjee, Pabitra Kumar Biswas, Sudhakar Babu Thanikanti & Karthik Balasubramanian

Chapter | First Online: 03 August 2021

500 Accesses

Part of the Smart Innovation, Systems and Technologies book series (SIST,volume 229)

Abstract

With the availability of permanent magnet materials, the concept of modern industrial electronics with some integrated signal processing applications Permanent Magnet Synchronous Motor Drive (PMSM) is an

Sain, C., Banerjee, A., Biswas, P.K., Thanikanti, S.B., Balasubramanian, K. (2022). Different Control Mechanisms of a PMSM Drive for Electrified Transportation—A Survey. In: Gu, J., Dey, R., Adhikary, N. (eds) Communication and Control for Robotic Systems. Smart Innovation, Systems and Technologies, vol 229. Springer, Singapore. https://doi.org/10.1007/978-981-16-1777-5_25

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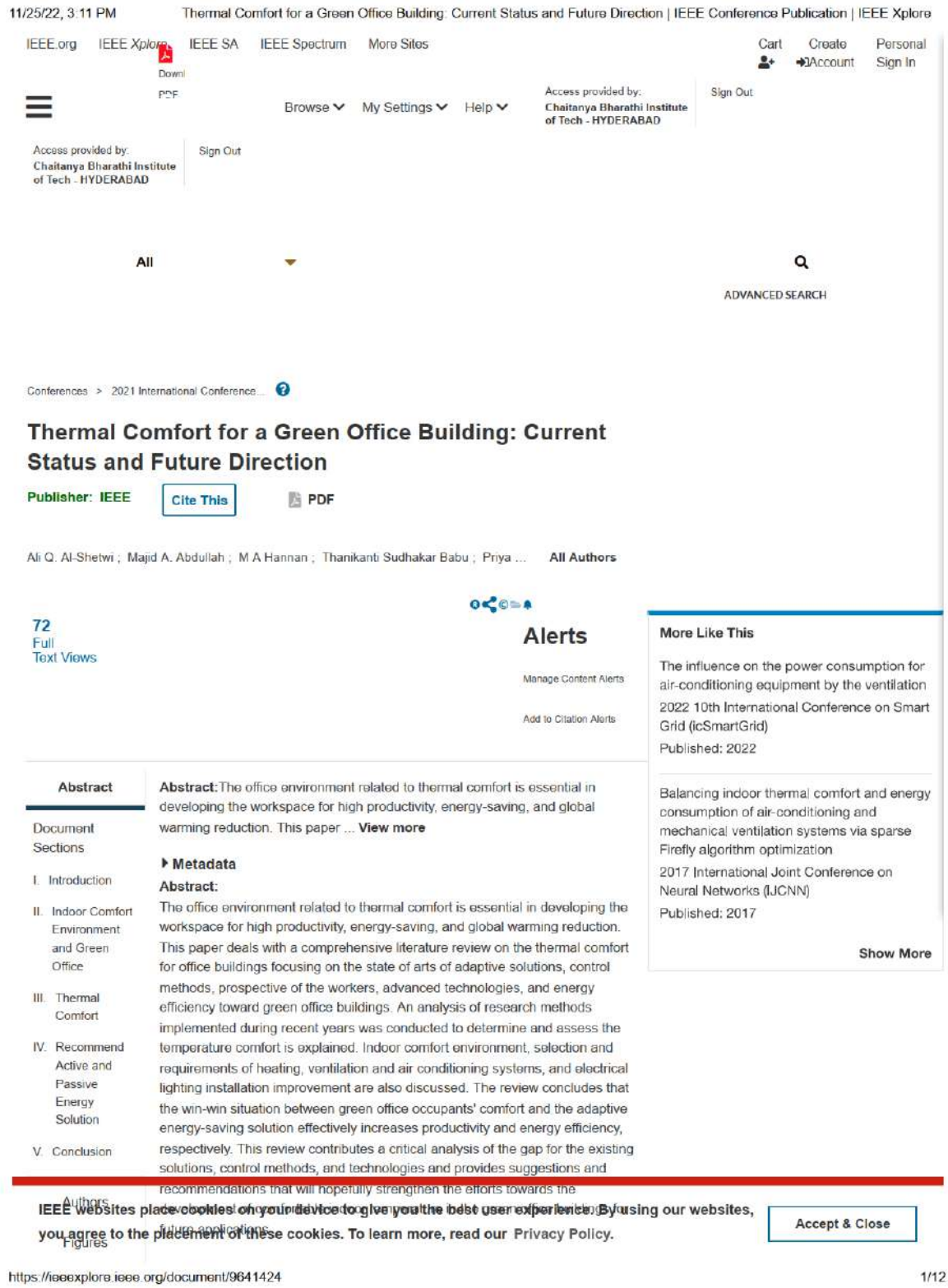
Thermal Comfort for a Green Office Building: Current Status and Future Direction



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Contents

SECTION I.
Introduction

Buildings represent approximately 40% of the worldwide energy usage and add over 30% of CO_2 emissions. A big part of this energy is used for thermal comfort and lighting. The fact of the situation is that the majority of individuals presently spend around 90% of their daily life indoors and rely on mechanical heating, air-conditioning, and noisy lights [1]. Based on the study conducted in the north of Europe [2], commercial buildings and main offices are the most energy consumption buildings. Total annual electricity use in office buildings is estimated between 100–1000 kWhlm^2 per year depending on location, usage and type of office facilities, schedules of operation, usage of heat ventilation air conditioning (HVAC) systems, lights, etc.

Increased urbanization has attracted extra attention from the public and society to environmental and energy problems. Recently, the global economic transition from the industrial sector to the information and services sectors led to most people living and working in urban areas and office environments [3]. Therefore, understanding the indoor office setting and its impact on occupant comfort is becoming essential as the office environment strongly impacts the productivity of its occupants [4]. Previous studies of sustainable buildings suggested that green design techniques can improve indoor workplace comfort [5]. Previous studies of sustainable buildings suggested that green design techniques improve indoor workplace comfort [3], [4]. The promotion and execution of the idea of green buildings have thus become the main theme for modern buildings because it promotes buildings that are healthy, secure, comfortable and environmentally sound [5]. Because of the various rates of economic development, the geographical location, the accessibility of resources and other variables, no standard definition in literature has been made of green buildings [6]. However, some researchers have often described green buildings

Thermal Comfort for a Green Office Building: Current Status and Future Direction

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***Abstract*— The office environment related to thermal comfort is essential in developing the workspace for high productivity, energy-saving, and global warming reduction. This paper deals with a comprehensive literature review on the thermal comfort for office buildings focusing on the state of arts of adaptive solutions, control methods, prospective of the workers, advanced technologies, and energy efficiency toward green office buildings. An analysis of research methods implemented during recent years was conducted to determine and assess the temperature comfort is explained. Indoor comfort environment, selection and requirements of heating, ventilation and air conditioning systems, and electrical lighting installation improvement are also discussed. The review concludes that the win-win situation between green office occupants' comfort and the adaptive energy-saving solution effectively increases productivity and energy efficiency, respectively. This review contributes a critical analysis of the gap for the existing solutions, control methods, and technologies and provides suggestions and recommendations that will hopefully strengthen the efforts towards the development of comfortable indoor temperature in the green office buildings for future applications.**

Keywords— Thermal comfort, Office building, HVAC, building energy, Air conditioning system, Energy efficiency

I. Introduction

Buildings represent approximately 40% of the worldwide energy usage and add over 30% of CO_2 emissions. A big part of this energy is used for thermal comfort and lighting. The fact of the situation is that the majority of individuals presently spend around 90% of their daily life indoors and rely on mechanical heating, air-conditioning, and noisy lights [1]. Based on the study conducted in the north of Europe [2], commercial buildings and main offices are the most energy consumption buildings. Total annual electricity use in office buildings is estimated between 100–1000 kWh/m^2 per year depending on location, usage and type of office facilities, schedules of operation, usage of heat ventilation air conditioning (HVAC) systems, lights, etc.

Increased urbanization has attracted extra attention from the public and society to environmental and energy problems. Recently, the global economic transition from the industrial sector to the information and services sectors led to most people living and working in urban areas and office environments [3]. Therefore, understanding the indoor office setting and its impact on occupant comfort is becoming essential as the office environment strongly impacts the productivity of its occupants [4]. Previous studies of sustainable buildings suggested that green design techniques can improve indoor workplace comfort [5]. Previous studies of sustainable buildings suggested that green design techniques improve indoor workplace comfort [3, 4]. The promotion and execution of the idea of green buildings have thus become the main theme for modern buildings because it promotes buildings that are healthy, secure, comfortable and environmentally sound [5]. Because of the various rates of economic development, the geographical location, the accessibility of resources and other variables, no standard definition in literature has been made of green buildings [6]. However, some researchers have often described green buildings as those with natural ventilation capacity, i.e. free-running buildings or low-energy [7].

Over the last decade, multiple attempts have been made to study the effects of acoustic quality [8], visual comfort [9], thermal comfort [10], HVAC [11], and quality of indoor air [12] on office buildings occupants' comfort, safety, and productivity. However, the field of thermal comfort studies has drawn the attention of many researchers worldwide, perhaps partly due to the enhanced government debate on climate change and energy saving.

Several review articles studied the office building have been published throughout the years, focusing on visual convenience and providing periodic updates on trends [13]. However, limited review on the thermal comfort and especially for office building is conducted. In this context, the authors in [14] have conducted a review on the effect of demand response on the occupant thermal comfort in the air-conditioned commercial building. The impact of volume and level of thermal degree on occupant comfort in tropical regions were reviewed in [15]. Fan-use rates and their impacts on thermal comfort, conservation of energy and human productivity were highlighted in [16]. Different other studies were focused on the impact of indoor thermal comfort on the outdoor environment [17]. Furthermore,

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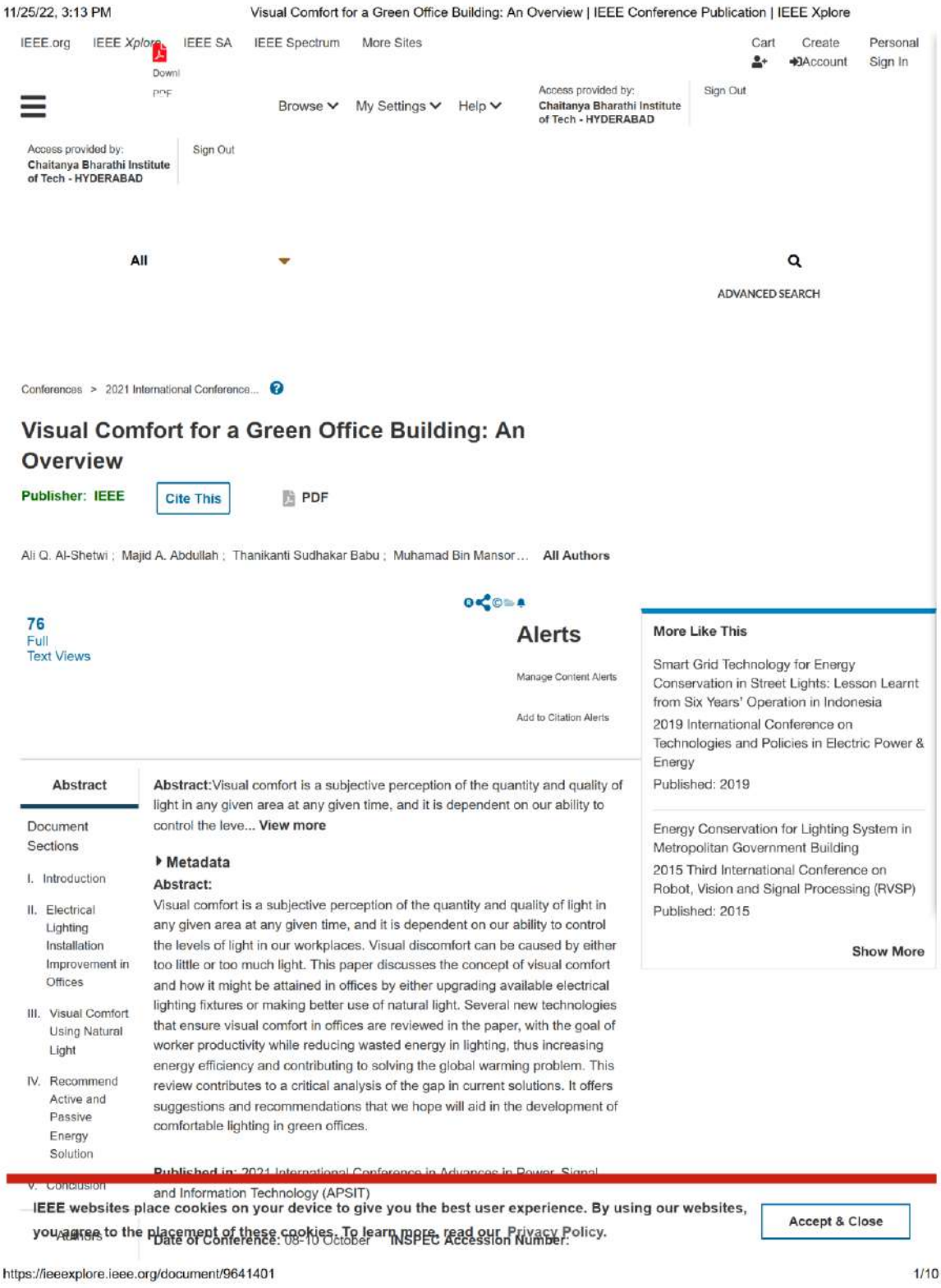
Visual Comfort for a Green Office Building: An Overview



References

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SECTION I. Introduction

Visual comfort is a subjective response to the quantity and quality of light in a specific space at a given time. Achieving visual comfort is based on regulating the light concentrations around us, as too little or too much light can cause visual discomfort. The human eye constantly adapts to light levels, and changes in light concentrations or sharp contrasts can lead to stress and tiredness [1]. Even under the right lighting conditions, working in an office without windows and working in an office with a view are entirely different experiences and directly impact the occupant performance. Studies have shown that working from a well-viewed office has beneficial effects on job satisfaction, mood, productivity, health, alertness, etc. [2]. In general, light directly affects the regulation of many biological functions of humans, including sleep, mood, and wakefulness; thus, regulating light directly affects our health, well-being, and awareness of the environment [3], [4].

Several previous studies have analyzed the impact of visual comfort on employee performance, productivity, convenience, and satisfaction. According to the studies, visual comfort at the workspace is indicated by the views and lighting conditions. The study [5] showed that office landscapes, including trees, flowers, and other natural elements, reduce the negative impact of work stress on employees and enhance general well-being. Similarly, architectural design affects office lighting, as the lighting levels in the work environment can be influenced by window geometry, surface light gauge, amount of glass, etc. [5], [6]. This has a direct impact on luxury and productivity. In contrast, poor lighting can affect work quality, especially when accuracy and overall productivity are required. Poor lighting can be a health hazard by straining the eyes, causing a burning sensation, and causing a headache [7].

Relying on natural light is very important to keep artificial lighting minimum, especially if natural lighting is unavailable or in the evening. Natural light is one of the main ways to save energy as it reduces the required amount of artificial light and thus reduces electricity costs. Besides, the heat produced by electric lighting necessitates frequent use of air conditioners,

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***Abstract*— Visual comfort is a subjective perception of the quantity and quality of light in any given area at any given time, and it is dependent on our ability to control the levels of light in our workplaces. Visual discomfort can be caused by either too little or too much light. This paper discusses the concept of visual comfort and how it might be attained in offices by either upgrading available electrical lighting fixtures or making better use of natural light. Several new technologies that ensure visual comfort in offices are reviewed in the paper, with the goal of worker productivity while reducing wasted energy in lighting, thus increasing energy efficiency and contributing to solving the global warming problem. This review contributes to a critical analysis of the gap in current solutions. It offers suggestions and recommendations that we hope will aid in the development of comfortable lighting in green offices.**

Keywords*—*Visual comfort, green building, green office, energy efficiency.

I. Introduction

Visual comfort is a subjective response to the quantity and quality of light in a specific space at a given time. Achieving visual comfort is based on regulating the light concentrations around us, as too little or too much light can cause visual discomfort. The human eye constantly adapts to light levels, and changes in light concentrations or sharp contrasts can lead to stress and tiredness [1]. Even under the right lighting conditions, working in an office without windows and working in an office with a view are entirely different experiences and directly impact the occupant performance. Studies have shown that working from a well-viewed office has beneficial effects on job satisfaction, mood, productivity, health, alertness, etc. [2]. In general, light directly affects the regulation of many biological functions of humans, including sleep, mood, and wakefulness; thus, regulating light directly affects our health, well-being, and awareness of the environment [3, 4].

Several previous studies have analyzed the impact of visual comfort on employee performance, productivity, convenience, and satisfaction. According to the studies, visual comfort at the workspace is indicated by the views and lighting conditions. The study [5] showed that office landscapes, including trees, flowers, and other natural elements, reduce the negative impact of work stress on employees and enhance general well-being. Similarly, architectural design affects office lighting, as the lighting levels in the work environment can be influenced by window geometry, surface light gauge, amount of glass, etc. [5, 6]. This has a direct impact on luxury and productivity. In contrast, poor lighting can affect work quality, especially when accuracy and overall productivity are required. Poor lighting can be a health hazard by straining the eyes, causing a burning sensation, and causing a headache [7].

Relying on natural light is very important to keep artificial lighting minimum, especially if natural lighting is unavailable or in the evening. Natural light is one of the main ways to save energy as it reduces the required amount of artificial light and thus reduces electricity costs. Besides, the heat produced by electric lighting necessitates frequent use of air conditioners, raising the bill further. Some studies indicate that using natural light can save up to 75% of the energy used to illuminate buildings and reduce cooling costs [8]. To optimize energy savings, a so-called smart lighting system has recently emerged [9]. Smart lighting systems are defined as systems that generate the necessary lighting intensity at the right time at the right place [10]. The most common types of these systems take advantage of motion sensors [11], occupancy sensors [12], and optical sensors. Sensors of motion and occupancy detect activity within the defined area; it then turns on lights automatically as soon as someone enters and stays in that area and turns off the lights when that person leaves the defined area. Doing so saves a significant amount of wasted energy used in lighting unoccupied areas. Optical sensors are used to stop lights from being on when it is bright outside and controls the indoor lights' operation by monitoring light levels [13]. There has been a lot of research done on evaluating some specific aspects of visual comfort that characterize the relationship between human needs and the lighting environment. These include available light, light uniformity, color rendering quality, and predicting the risk of glare for space occupants. These aspects have been thoroughly reviewed in reference [6], and some studies on them are summarized in Table I.

These studies, as shown in the table, were conducted in different countries. They came to different conclusions explaining the extent of variation in assessing visual comfort and the lack of a specific criterion for judging the degree of visual comfort availability in a particular location. This paper will look at how to increase visual comfort in offices by upgrading existing electrical installations and ensuring that natural light is utilized to its full potential.

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