PR0CEEDINGS

National Conference on
Artificial Intelligence, Sustainable Manufacturing
&
Electrical and Electronics Engineering

(NCAISMEEE-2022)

27th and 28th August 2022

Published Online In Association with

International Journal of Engineering Sciences Paradigms and Researches

IJESPR

Organized by:

Department of Mechanical &Electrical Engineering
College of Engineering Bhubaneswar
Plot No. 1(A), CNI Complex, Patia, Bhubaneswar-751024, Odisha, India

ABOUT THE CONFERENCE

The Department of Mechanical & Electrical Engineering, College of Engineering Bhubaneswar is glad to announce the **"National Conference on Artificial Intelligence, Sustainable manufacturing & Electrical and Electronics Engineering (NCAISMEEE-2022)"** on 27th and 28th August 2022 at College of Engineering Bhubaneswar. NCAISMEEE provided an ideal academic platform for leading academicians, scientists and research scholars to exchange and share their experiences and research results about all aspects of multidisciplinary studies. New research findings and cutting-edge technology in the fields of science, engineering, management, and the humanities were showcased during the conference. A concerted attempt was made to introduce the audience to diverse subjects and the various features of current developments in these fields. Discussions and participation from a variety of groups of individuals offered helpful strategies for overcoming the problems that humanity is currently experiencing. In order to help sustain life on Earth for a longer amount of time, emphasis was placed on being aware of nature and bringing to light all feasible solutions to the many problems.

ABOUT THE INSTITUTE

College of Engineering Bhubaneswar has upheld its leading place in the domain of the technical education since 1999. The institute is located in the eastern region of India, at the heart of the capital city Bhubaneswar, Odisha. In response to the expectations of quality technical education, our college is approved by the All India Council for Technical Education (AICTE), New Delhi, Government of India and affiliated to Biju Patnaik University of Technology (BPUT), Government of Odisha, It has trained, experienced dedicated faculty members. The introduction of post-graduate programmes has given impetus for research and innovation. Many of our students and faculty have been presenting papers at national and international conferences, and many have published their work in research journals of repute. Our excellence in academic and related areas has been well-recognized. The corporate world has also taken note of our efforts and good work. We have both faculty and student chapters of the Indian Society for Technical Education (ISTE) and the Institution of Engineers (IE). We also have various departmental and institute-level societies and clubs to encourage students to look beyond examination-centric learning, to explore and innovate, and to be life-long learners. Physical education is as important, if not more, than other domains of learning. A healthy mind requires a healthy body. We have excellent sports & games infrastructure. We equip our students with all the necessary skill sets in terms of technical knowledge, interpersonal skills, communication, and leadership skills to get placed in highly reputed companies.

ABOUT THE DEPARTMENTS

The Department of Mechanical Engineering is one of the oldest departments of the College of Engineering Bhubaneswar. It has been established in 2003. The Department of Mechanical Engineering has been actively engaged in teaching and research in diverse fields of Mechanical Engineering. With excellent faculty, the Department of Mechanical Engineering offers undergraduate (B.Tech) and graduate (M.Tech) in Heat Power Engineering. The Department of Electrical Engineering is one of the oldest departments of the College of Engineering Bhubaneswar. Established as one of the major departments of the Institute, since its inception in 1999, the Department of Electrical Engineering has been actively engaged in teaching and research in diverse fields of Electrical Engineering. With excellent faculty, the Department of Electrical Engineering offers undergraduate (B.Tech) and graduate (M.Tech) in Power System Engineering and research programmes.

MESSAGE FROM CHAIRMAN

Er. Prabhat Ranjan Mallick
Chairman

On behalf of College of Engineering Bhubaneswar, I extend a very warm welcome to all the delegates and participants from various organizations to **"National Conference on Artificial Intelligence, Sustainable manufacturing & Electrical and Electronics Engineering (NCAISMEEE-2022).** The Institute has taken on the mantle of greatness and is dedicated to giving the students a place where they can study, develop, and widen their knowledge by pursuing a variety of academic interests.

I would like to thank the faculty & staff members, the organizers of NCAISMEEE-2022 and students for their contribution in successfully organizing and managing the event.

I hope all the participants will extract the benefits of the said conference for their future growth.

Thank you!

Er. Prabhat Ranjan Mallick

(Chairman)

College of Engineering Bhubaneswar
Plot No. 1(A), CNI Complex, Patia, Bhubaneswar

MESSAGE FROM VICE-CHAIRMAN

Mrs. Namita Mallick
Vice-Chairman

I am glad to know that Department of Mechanical and Electrical Engineering, College of Engineering Bhubaneswar is going to organize **"National Conference on Artificial Intelligence, Sustainable manufacturing & Electrical and Electronics Engineering (NCAISMEEE-2022)"** on 27th and 28th August 2022. These conferences are designed to distribute dormant and novel concepts, which are very beneficial for industry researchers and scholars to succeed in their research-focused endeavours. I sincerely appreciate the conference organizing committee.

 I send out my best wishes for the conference to be a huge success.

Mrs. Namita Mallick
Vice-Chairman

College of Engineering Bhubaneswar
Plot No. 1(A), CNI Complex, Patia, Bhubaneswar

MESSAGE FROM PRINCIPAL

Prof. (Dr.) Subrat Kumar Mohanty
Principal

It gives me immense pleasure to known that Department of Mechanical Engineering and Department of Electrical Engineering are conducting a **"National Conference on Artificial Intelligence, Sustainable manufacturing & Electrical and Electronics Engineering (NCAISMEEE-2022)"** on 27th and 28th August 2022.

I hope that this conference would certainly induce innovative ideas among the participants paving way for new inventions and technologies in their respective area of interests.

I congratulate the convener and the entire organizing team for their contribution in successfully organizing and managing the event.

Prof. (Dr.) Subrat Kumar Mohanty
Principal

College of Engineering Bhubaneswar
Plot No. 1(A), CNI Complex, Patia, Bhubaneswar

MESSAGE FROM CONVENER

Dr. Subhakanta Nayak
Convener
Mechanical Eng. Department

Dr. Sibasish Panda
Convener
EE Department

We are extremely glad to organize **"National Conference on Artificial Intelligence, Sustainable manufacturing & Electrical and Electronics Engineering (NCAISMEEE-2022)"** on 27th and 28th August 2022. NCAISMEEE provided an ideal academic platform for leading academicians, scientists and research scholars to exchange and share their experiences and research results about all aspects of multidisciplinary studies. The conference presented emerging technologies and novel research results in all aspects of Sciences, Engineering, Management and Humanities. An effort was made to make the audience aware of multidisciplinary fields and the recent advances in these fields on various aspects. Participation from diverse groups of people and discussions provided useful ways in conquering challenges which mankind is facing today. Therefore, the emphasis was laid on paying attention towards nature and to bring into light all possible measures to resolve the various issues so that one can contribute in maintaining the life on Earth for longer period.

As a convener I extend my gratitude to all Professors, Invited speakers, Chief guests and all the delegates and participants for their wholehearted contribution in the National Conference.

I wish the conference and the Proceedings a grand success.

Dr. Subhakanta Nayak
Convener

Dr. Sibasish Panda
Convener

24	NCAISMEEE/2022/24	Use of medium-voltage grid status control as a foundation for comprehensive automation in smart distribution networks	Bishnupriya Das,Priti Kumari	24
25	NCAISMEEE/2022/25	MULTICLASS ARRHYTHMIA CLASSIFICATION USING GRASSHOPPER OPTIMIZATION ALGORITHM-OPTIMIZED SUPPORT VECTOR MACHINE	Bivas Ranjan Parida,Nandini Kumari	25
26	NCAISMEEE/2022/26	Adaptive urban mobility model based on artificial intelligence for low-power vehicle networks	C.Sunil,Raja Paramanik	26
27	NCAISMEEE/2022/27	Energy-Aware Location Security Based on Factors WiFi Sensor Network Routing Protocol	Chandra KantaMallick,Bindu Singh	27
28	NCAISMEEE/2022/28	Dependability of load management systems in networks with low voltage	Debarpita Roul,Ranjit Sahoo	28
29	NCAISMEEE/2022/29	Embedded System Education: A New Paradigm for Engineering	Dibyalekha Nayak,Aruna Sahoo	29
30	NCAISMEEE/2022/30	Biomedical Signal Processing: Content, teaching and training	Dilleep Kumar Bhadra,Anish Mohanty	30
31	NCAISMEEE/2022/31	Factors influencing learnability of AR usage performance: survey validation	Sanjay Kumar Sarangi, Sandip Kumar Bala	31
32	NCAISMEEE/2022/32	Improving the IDaaS System's Access Privacy with the SAML Protocol in Fog Computing	Sanjay Kumar Sarangi, Sandip Kumar Bala	32
33	NCAISMEEE/2022/33	Multiple chaotic maps using the quick Fourier transform to encrypt speech	Sunita Satapathy, SandipSahoo	33
34	NCAISMEEE/2022/34	The Algorithmic Perspective of the Alternating BWT	Sunita Satapathy, Sanjay Kumar Sarangi	34
35	NCAISMEEE/2022/35	Masked Face Recognition Using Dual-Proxy Modeling	Bhramarabara Biswal, Manoj Muduli	35
36	NCAISMEEE/2022/36	Continual Quality Improvement for Learning Process in a Microwave Engineering Based Core Subject	Dr.G Ramprabu	36
37	NCAISMEEE/2022/37	Machine Learning-based Signal Processing Using Physiological Signals for Stress Detection	K.Murali Babu,Lipsa Mishra	37
38	NCAISMEEE/2022/38	Mobility Prediction based on Machine Learning	L.N.Sarangi,Garima Mishra	38
39	NCAISMEEE/2022/39	Machine Learning Solutions to Denial-of- Services Attacks in Wireless Sensor Networks	R.Siva Kumar,Santosh Sahoo	39
40	NCAISMEEE/2022/40	Machine Learning Algorithms and Performance Comparison	Snehasis Dey,Subrat Kumar Mohanty	40
41	NCAISMEEE/2022/41	WSN HYBRIDIZATION OF METAHEURISTICS-BASED CLUSTERING FOR ENERGY USING DATA AGGREGATION	G.Arul Dalton, Harish Behera	41
42	NCAISMEEE/2022/42	Assessing depression from tweets using stack assembly technique with a glove embedding model	GSS. Rao,Minati Mohanty	42
43	NCAISMEEE/2022/43	A HYBRID APPROACH IMPLEMENTED IN VEHICULAR AD-HOC NETWORKS FOR SYBIL ATTACK	Hiren Kumar Praharaj,Satish Kundu	43
44	NCAISMEEE/2022/44	Applying hybrid design patterns, resilient micro services architecture developed for cloud-based applications in Agile approach	Jagdish Kumar KB, Manish Rout	44
45	NCAISMEEE/2022/45	Different mobility models' performance evaluation in a vehicle-delay-tolerant network (VDTN) using VNETs,IEEE 802.11P Standard	JVN Ramesh	45
46	NCAISMEEE/2022/46	SMART SECURITY CONTROLS FOR DYNAMIC COMPUTING MODELS	K.Venkata Ramana, Kabita Sahoo	46
47	NCAISMEEE/2022/47	Load-induced Permanent Deformation behaviour of	SachiKanta	47

		Cold Recycled Asphalt	Pradhan,Sabita Mohanty	
48	NCAISMEEE/2022/48	ARTIFICIAL NEURAL NETWORK TECHNIQUES FOR HEALTHCARE SYSTEMS ON HEART ATTACK BY INCLUDING CORONAVIRUS VACCINE AND INFECTED WITH CORONAVIRUS	M. Pavan Kumar	48
49	NCAISMEEE/2022/49	Biometric authentication systems for facial recognition using deep learning-based challenge response liveliness matching for presentation attack detection	M. Pavan Kumar	49
50	NCAISMEEE/2022/50	To Combat the Rising Rate Of Individual Mental Degeneration, Intelligently Identify Hate Speech	Prasanna Kumar Mishra,Manish Mohanty	50
51	NCAISMEEE/2022/51	An Optimal Prediction of Software Faults through Sampling-based Software Prone Technique.	Naba Kumar Rath	51
52	NCAISMEEE/2022/52	Implementing Transfer-Learning for COVID-19 Prediction Using RT-PCR Confirmed CXR Images and VGG-19 with Transfer learning-Technique	Nrusimhadri Nareen,Mamata Muduli	52
53	NCAISMEEE/2022/53	Emotion Recognition Using Hybrid Approach of Shuffled Frog Leaping Algorithm and Subset Feature Selection	P.Karunakar Ready,Amita Rath	53
54	NCAISMEEE/2022/54	CONCEPTUAL REVIEW OF MICROFINANCE AND WOMEN HOUSEHOLD, ECONOMIC, AND SOCIAL EMPOWERMENT OF MICROFINNACE BORROWERS.	Sadasiv Dash,Anita Das	54
55	NCAISMEEE/2022/55	Effect of Microfinance on Women Empowerment: A Case Study of Pakistan	Sadasiv Dash,Amrit,Rath	55
56	NCAISMEEE/2022/56	Microfinance and Accounting's Support for Women's Empowerment Based on Family Resilience	Sasmita Nayak, Minati Das	56
57	NCAISMEEE/2022/57	Importance of operations management problems in service organizations	Niranjan Nayak ,Sonali Das	57
58	NCAISMEEE/2022/58	Improvement of employee well-being by Work–life balancing	Sushant Mishra,Pradeep Kumar Mohanty	58
59	NCAISMEEE/2022/59	New Age Management Trends and the Growth in Economy	Barsha Baishali Sahoo,Bikram Nayak	59
60	NCAISMEEE/2022/60	The Art of High-Involvement Human Resources Practices on Real Use Cases	Barsha Baishali Sahoo,Manati Das	60
61	NCAISMEEE/2022/61	A Comprehensive Analysis of India's Currency Revolution: The E-Rupee	Purnachandra Pradhan.	61
62	NCAISMEEE/2022/62	An Analysis of Credit Risk Management in Indian Commercial Banks	Anurag Sahani,Deeepak Nanda	62
63	NCAISMEEE/2022/63	An Analysis of the Differences between the New and Old Tax Regimes	Anurag Sahani,Minati Das	63
64	NCAISMEEE/2022/64	Green Deposits Acceptance Framework Promoting an Ecosystem of Green Finance	Purnachandra Pradhan,Asit Kumar Mahapatra	64
65	NCAISMEEE/2022/65	Artificial Intelligence(AI) and Leadership.	Minati Das,Anil Kumar Sahoo	65
66	NCAISMEEE/2022/66	A SATELLITE IMAGE COVER MAP USING DEEP LEARNING TECHNIQUES FOR LAND USE	Alka Rout,Lipika Sahoo	66

67	NCAISMEEE/2022/67	An Experimental Study on Improving Sandy Soil with Reinforced Granular Blanket and Single Stone Column	Salini Patra,Subrat Pani	67
68	NCAISMEEE/2022/68	MULTICLASS ARRHYTHMIA CLASSIFICATION USING GRASSHOPPER OPTIMIZATION ALGORITHM-OPTIMIZED SUPPORT VECTOR MACHINE	Bivas Ranjan Parida	68
69	NCAISMEEE/2022/69	Theory and Applications of Evolvable Embedded Systems	Anwesha Halder,Sandeep Kumar Mishra	69
70	NCAISMEEE/2022/70	Application of Geosynthetics in subgrade and roads: A Comprehensive Review	Srinivasan Kumar, Ankit Mandal	70
71	NCAISMEEE/2022/71	SECURITY IN EMBEDDED SYSTEMS	Arpit Sourav Mohapatra,Prasant Sethi	71
72	NCAISMEEE/2022/72	Artificial Neural Networks For Controlling Chlorine And Coagulant Doses In A Water Treatment Plant	Mamata Mohanty	72
73	NCAISMEEE/2022/73	THE WIRED SENSOR NETWORK-BASED COOPERATIVE FUZZY ARTIFICIAL IMMUNE SYSTEM	Ashok Kumar Panda	73
74	NCAISMEEE/2022/74	Requirements Patterns for Embedded Systems	Asit Kumar Satapathy,Sandeep Kumar Mishra	74
75	NCAISMEEE/2022/75	Assessing the Impact of Expanded Polystyrene from Shredded Waste on the Properties of Asphalt Concrete and Binder	M. Ramakoteiah	75
76	NCAISMEEE/2022/76	BehaviorOf A Highly Expansive Clay During Wetting And Drying Cycles At Varying Initial Densities	P.Adaikala Kumar	76
77	NCAISMEEE/2022/77	A SCIENTIFIC ANALYSIS OF THE GRAPH ALGORITHM WITH RESPECT TO REGULAR SUBGRAPH MINING ON THE GIRAPH SYSTEM	BhimsenMoharana,Alaka Rout	77
78	NCAISMEEE/2022/78	ROUTING ALGORITHM FOR VANET UNDER LOAD DISTRIBUTION IN A HYBRID NETWORK	BivasRanjanParida,Sasmita Mishra	78
79	NCAISMEEE/2022/79	A SMART DRONE FOR ENSURING PRECISION AGRICULTURE WITH ARTIFICIAL NEURAL NETWORK	C.Sunil	79
80	NCAISMEEE/2022/80	ARTIFICIAL NEURAL NETWORK AND FUZZY LOGIC TRUST MODEL FOR CLOUD AND GRID ENVIRONMENT	Chandra KantaMallick,Ranjit Sahu	80
81	NCAISMEEE/2022/81	Composite Columns in Construction: An Analytical Investigation	P.Adaikala Kumar,Manish Singh	81
82	NCAISMEEE/2022/82	Automated Evaluation of Android Tasks Using Cloud-native Technologies	Manas Kumar Satapathy,Sanjay Kumar Sarangi	82
83	NCAISMEEE/2022/83	Sliding mode of second order Management of DFIG-Powered Wind Turbines	Ranjan Kishore Mohanty,Padmini Rout	83
84	NCAISMEEE/2022/84	Communication technologies used in wireless sensor networks	Salil Kumar Malla, Anwesha Halder	84
85	NCAISMEEE/2022/85	An intelligent tutoring system's learner profiling using a graph-based approach	Prasant Sethi ,SambasivaRaoPedapudi	85
86	NCAISMEEE/2022/86	The Future of Mobile Wireless Communication	Sandeep Kumar Mishra Dillep Bhadra	86

87	NCAISMEEE/2022/87	USING OPTIMAL CLASSIFIERS, KNOWLEDGE DATA ANALYSIS ON MIGRAINE HEADACHES	Sasmita Mishra, Prasanth kar	87
88	NCAISMEEE/2022/88	Maximum power point tracking of photovoltaic system using artificial neural network control	Sibasish Panda , Epsita Srinath	88
89	NCAISMEEE/2022/89	Real-time surveillance videos with a crowd detection and classification model enabled by intelligent deep learning	Sivaraman.G Arpit Maharana	89
90	NCAISMEEE/2022/90	A COMPLETE ENERGY MINIMIZATION ALGORITHM USING GRAVITATIONAL SEARCH AND COLONY ALGORITHM FOR WIRELESS SENSOR NETWORKS	SK. Moulali , Deparpita Jena	90
91	NCAISMEEE/2022/91	6G Wireless Communication Systems	Snehasis Dey , Salil Das	91
92	NCAISMEEE/2022/92	Study on Stone Column Behaviour in Soils with Predominant Settlement	V. Dinesh Kumar,Dilip Ghosh	92
93	NCAISMEEE/2022/93	Hybrid energy system interactions with the power grid using an industrial enterprise	T C Manjunath, Anand Kumar	93
94	NCAISMEEE/2022/94	CLUSTER HEAD SELECTION AWARENESS IN A DEEPER NEURAL NETWORK USING META-HEURISTIC BASED TRUST	T.StephenThangaraj , T.Niroja	94
95	NCAISMEEE/2022/95	MEASUREMENT OF LEVEL USING NON-INTERACTING TANKS LEVEL IMAGES AS THE BASIS FOR FEATURE SELECTION IN THE GABOR FILTER	Tanmaya Kumar Das ,Dilip Singh	95
96	NCAISMEEE/2022/96	Technologies for Recycling Asphalt: An Overview of the Drawbacks and Advantages	Loknath sarangi, Arpit Mahapatra	96
97	NCAISMEEE/2022/97	The Long-Term And Short-Term Performance Of High-RAP Mixtures With Waste Cooking Oil As A Recycling Agent	Dileep Bhadra, Salil Dash	97
98	NCAISMEEE/2022/98	The Ultimate Bearing Capacity of E-shaped footing resting on Layered Sand	Arpit Sourav Mahapatra, Jaganath Rout	98
99	NCAISMEEE/2022/99	HYBRID DEEPER LEARNING TECHNIQUE BASED ON DATA AGGREGATION FOR IDENTIFYING UNCERTAINTIES AND ACCURATE OBJECT DETECTION	Ashok Kumar Panda ,Anindita Das	99
100	NCAISMEEE/2022/100	A Keynote Study on Literature, Language and Communication	Mrutyunjaya Padhi , Anima Das	100
101	NCAISMEEE/2022/101	Teaching English Literature in English as a Foreign Language (EFL) Classrooms	Ananta Charan Mishra, Ashok Das	101
102	NCAISMEEE/2022/102	Defying Convention: Evidence for Differential Evaluation in Physics	Suchismita Samantray, Ashima Nanda	102
103	NCAISMEEE/2022/103	Research Method and Its Respective Studies	G.S.S Rao, Alok Khatua	103
104	NCAISMEEE/2022/104	Nanotechnology and its application in green chemical processes for natural products	Prasant Sethi	104
105	NCAISMEEE/2022/105	The Future of probiotics	M.Pavan Kumar, Ranjita Kumari	105
106	NCAISMEEE/2022/106	Interaction and Isolation Constant Thickness Assessment using Photo-thermal Methods	Suchismita Samantaray,Subash Acharya	106
107	NCAISMEEE/2022/107	Mental Health and Respective Solution for anxieties	Abhaya Mohanty,Purna Chandra Pradhan	107
108	NCAISMEEE/2022/108	Research and Basic Technique of Researching	Abhaya Mohanty,Asha Bikash Mohapatra	108
109	NCAISMEEE/2022/109	Sustainability, Biomedical Engineering, and Healthcare	Asha Bikash Mohapatra,Niranjan Nayak	109

110	NCAISMEEE/2022/110	The field of biomedical engineering: its role and impact from the perspective of developing countries	Debarchana Jena,Anwesha Halder	110
111	NCAISMEEE/2022/111	Machine Learning in Additive Manufacturing	G.S.S Rao, Dilleep Kumar Bhadra	111
112	NCAISMEEE/2022/112	Applications and Difficulties of Machine Learning Techniques for Smart Manufacturing in Industry 4.0	Sankar.G, Arup Dash	112
113	NCAISMEEE/2022/113	Applying hybrid design patterns, resilient micro services architecture developed for cloud-based applications in Agile approach	Jagdish Kumar KB	113
114	NCAISMEEE/2022/114	Different mobility models' performance evaluation in a vehicle-delay-tolerant network (VDTN) using VNETs,IEEE 802.11P Standard	JVN Ramesh	114
115	NCAISMEEE/2022/115	SMART SECURITY CONTROLS FOR DYNAMIC COMPUTING MODELS	K.Venkata Ramana, Kamal Khatua	115
116	NCAISMEEE/2022/116	Load-induced Permanent Deformation behaviour of Cold Recycled Asphalt	SachiKanta Pradhan	116
117	NCAISMEEE/2022/117	ARTIFICIAL NEURAL NETWORK TECHNIQUES FOR HEALTHCARE SYSTEMS ON HEART ATTACK BY INCLUDING CORONAVIRUS VACCINE AND INFECTED WITH CORONAVIRUS	M. Pavan Kumar	117
118	NCAISMEEE/2022/118	Biometric authentication systems for facial recognition using deep learning-based challenge response liveliness matching for presentation attack detection	M. Pavan Kumar, Arpit Rath	118
119	NCAISMEEE/2022/119	An Optimal Prediction of Software Faults through Sampling-based Software Prone Technique	Naba Kumar Rath	119
120	NCAISMEEE/2022/120	Requirements Patterns for Embedded Systems	Asit Kumar Satapathy	120
121	NCAISMEEE/2022/121	Assessing the Impact of Expanded Polystyrene from Shredded Waste on the Properties of Asphalt Concrete and Binder	M. Ramakoteiah	121
122	NCAISMEEE/2022/122	Behavior of A Highly Expansive Clay During Wetting And Drying Cycles At Varying Initial Densities	P.Adaikala Kumar	122
123	NCAISMEEE/2022/123	A SCIENTIFIC ANALYSIS OF THE GRAPH ALGORITHM WITH RESPECT TO REGULAR SUBGRAPH MINING ON THE GIRAPH SYSTEM	BhimsenMoharana	123
124	NCAISMEEE/2022/124	ROUTING ALGORITHM FOR VANET UNDER LOAD DISTRIBUTION IN A HYBRID NETWORK	Bivas Ranjan Parida	124
125	NCAISMEEE/2022/125	A SMART DRONE FOR ENSURING PRECISION AGRICULTURE WITH ARTIFICIAL NEURAL NETWORK	C.Sunil,Ramesh Nayak	125
126	NCAISMEEE/2022/126	Carbon fiber-reinforced smart cement-based composites: Recent Advances and Applications	Pradeepta Kishore Dehury	126
127	NCAISMEEE/2022/127	ARTIFICIAL NEURAL NETWORK AND FUZZY LOGIC TRUST MODEL FOR CLOUD AND GRID ENVIRONMENT	Chandra KantaMallick	127
128	NCAISMEEE/2022/128	Characterization and the mix designs of Waste Clay bricks-based Geo-polymer Concrete suitable for rigid pavement construction	Nibedita Sahoo,Arijit Nanda	128
129	NCAISMEEE/2022/129	Composite Columns in Construction: An Analytical Investigation	P.Adaikala Kumar	129
130	NCAISMEEE/2022/130	IoT Based Home Automation System with Customizable GUI and Low	Dibyalekha Nayak	130

		Cost Embedded System		
131	NCAISMEEE/2022/131	Biomedical Systems and Biomedical Signal Processing Techniques	Dilleep Kumar Bhadra,Sibani Nath	131
132	NCAISMEEE/2022/132	A Robotic Method for Cloud Performance Benchmarking	Bhramarabara Biswal, Sanjay Kumar Sarangi	132
133	NCAISMEEE/2022/133	Unsupervised Machine Learning Algorithms for Early Fault Detection in Predictive Maintenance	G Ramprabu, Sandeep Kumar Mishra	133
134	NCAISMEEE/2022/134	An efficient toolkit for biomedical signal processing	K.Murali Babu	134
135	NCAISMEEE/2022/135	A Wavelet Based Method for Denoising of Biomedical Signal	L.N.Sarangi, Salil Kumar Malla	135
136	NCAISMEEE/2022/136	A Systematic Review of the Chain of Things beyond Bitcoin	Parimal Giri,Sandip Kumar Bala	136
137	NCAISMEEE/2022/137	Techniques for facial expression feature extraction and classification: a surety	Parimal Girl,Sanjay Kumar Sarangi	137
138	NCAISMEEE/2022/138	The Fifth International Conference on Machine Learning	R.Siva Kumar	138
139	NCAISMEEE/2022/139	Machine Learning Solutions to Denial-of Services Attacks in Wireless Sensor Networks	Subrat Kumar Mohanty	139
140	NCAISMEEE/2022/140	Demand response and storage systems for optimal operation of a low voltage public network using renewable distributed generation	Eepsita Sridevi	140
141	NCAISMEEE/2022/141	Flexibility markets offering new revenue streams for customers andefficient distribution system operation	Eepsita Sridevi,Pranati Sahoo	141
142	NCAISMEEE/2022/142	Demand response and storage systems for optimal operation of a low voltage public network using renewable distributed generation	Gopal Krishna Mohanty	142
143	NCAISMEEE/2022/143	Effect of Adding Cement Kiln Dust And Granulated Blast-Furnace Slagon The CBR Of Gypsum Subgrade Soil	H. Vijay Kumar	143
144	NCAISMEEE/2022/144	Effect of Lime and Coir Fibre-Activated Carbon on mechanical properties of stabilized lateritic subgrade soil	Sachi Kanta Pradhan	144
145	NCAISMEEE/2022/145	Experimental and finite element modelling to evaluate the self-sensing properties of carbon fibre cement composites for structural health monitoring	M. Ramakoteiah	145
146	NCAISMEEE/2022/146	Geotechnical Investigation On Failure Mode Of Gabion Walls	Mamata Mohanty	146
147	NCAISMEEE/2022/147	Power flow prediction for data pre-processing and time-series-based planning using artificial neural networks	Gopal Krishna Mohanty	147
148	NCAISMEEE/2022/148	SCRUTINIZATION, ESTIMATION, AND SELECTION OF CLOUD SERVICES CSESF FRAMEWORK USING KNN-COSINE METRICS	GSS.Rao, Animesh Pradhan	148
149	NCAISMEEE/2022/149	DISCOVERY OF KNOWLEDGE IN PROSTATE CANCER DATA USING ENTSEMBLE LEARNING	Hiren Kumar Praharaj,Ravindra Sharma	149
150	NCAISMEEE/2022/150	Influence of temperature and moisture on the design of pile foundations in expansive soil	Sipra Mallick, Shalini Patra	150
151	NCAISMEEE/2022/151	Power and control system for grid-connected small-scale wind turbines	Jagatjyoti Ranjan Das, Aditya Sharma	151

152	NCAISMEEE/2022/152	Control of voltage and reactive power to optimize a GW-sized EHVAC offshore wind farm link	Jagatjyoti Ranjan Das, Arpit Mohapatra	152
153	NCAISMEEE/2022/153	FRAMEWORK FOR SOFTWARE BUG PREDICTION BASED ON AGGLOMERATION FOR EXTRACTING INFORMATIVE FEATURES	Jagdish Kumar KB, Rakesh Pradhan	153
154	NCAISMEEE/2022/154	AN EFFECTIVE WEBSERVICES DISCOVERY APPROACH BASED ON DENSITY	JVN Ramesh, Salil ku. Malla	154
155	NCAISMEEE/2022/155	HYBRID META-HEURISTIC AOMDVACOPSO OPTIMIZATION ROUTING PROTOCOL IN MANET	K.VenkataRamana, Dillip ku. Bhadra	155
156	NCAISMEEE/2022/156	Long-Term Performance of Steel-Concrete Composite Structures	Edara Krishan Reddy, Vishal Krishnan	156
157	NCAISMEEE/2022/157	Automated Evaluation of Android Tasks Using Cloud-native Technologies	Manas Kumar Satapathy	157
158	NCAISMEEE/2022/158	Polynomial Coding Techniques For Image Compression: A Recap	Manoj Kumar Behera, Asit Satpathy	158
159	NCAISMEEE/2022/159	Secure Message Transmission Using Multiple CLMM Keys	Prasanna Kumar Mishra,Puspita Ray	159
160	NCAISMEEE/2022/160	Improved Authentication Protocol for Internet of Things: A Novel Approach	Manas Kumar Satapathy, Shradhanjali Das	160
161	NCAISMEEE/2022/161	Embedded real-time temperature and humidity monitoring system implementation	Manoj Kumar Behera, Sanjay Kumar Sarangi	161
162	NCAISMEEE/2022/162	An Internet of Things model for Food Reserve Agency's Grain Tracking and Warehouse Intrusion Detection (E-Perimeter)	Prasanna Kumar Mishra, Sanjay Kumar Sarangi	162
163	NCAISMEEE/2022/163	Application of Convolutional Neural Network Technique for Vegetable Detection as Suggestion for Vegetable Recipe	B.B.Biswal	163
164	NCAISMEEE/2022/164	Design and deployment of a digital communication system for smart homes as a step toward secure smart cities	Sandip Kumar Bala, Sanjay Kumar Sarangi	164
165	NCAISMEEE/2022/165	A Crime Dataset's Ideal Warehouse Design	Sandip Kumar Bala, Puspita Ray	165
166	NCAISMEEE/2022/166	Optimizing the size and positioning of DGs using the modified crow search algorithm to improve active radial distribution networks	Debarchana Rout,Ranita Sahu	166
167	NCAISMEEE/2022/167	Energy-Aware Data Placement Strategy Based On FCA For High-Volume Cloud Computing Workflow	Debarchana Rout, Sanjit Behera	167
168	NCAISMEEE/2022/168	Large-scale wind farm installed by power control using a DC transmission line linked to the large system for frequency control	N Veda Kumar	168
169	NCAISMEEE/2022/169	Improving the challenges of storing data using Blockchain visualization and IoT techniques	Naba Kumar Rath,Tanmaya kumar Das	169
170	NCAISMEEE/2022/170	Utilizing Cat Swarm Optimization Variants for Active Behavioural Biometric Authentication with Deep Learning	Nrusimhadri Nareen, Debarpita Raul	170
171	NCAISMEEE/2022/171	Urine Flow-Based Intraurethral Energy Harvesting as a Method to Power Urologic Implants	P Jagannatham, S.K.Verma	171
172	NCAISMEEE/2022/172	Transcutaneous Energy Transmission System with a Two-Wire Archimedean Spiral Coil	P Jagannatham,Srikant Verma	172
173	NCAISMEEE/2022/173	Gradient Weight for the Enhanced Pair wise-Potential Activation Layer in CNN	P.Karunakar Ready	173

174	NCAISMEEE/2022/174	Partial replacement of aggregate by Construction and Demolition Waste for sustainable Concrete Production	Srinivasan Kumar, Jaishankar Reddy	174
175	NCAISMEEE/2022/175	Performance Evaluation of Biaxial Geo-grid at the interference of Ballast in Granular Earth Railway Embankment	Mamata Mohanty, Shalini Patra	175
176	NCAISMEEE/2022/176	Performance of Laterally Reinforced Silica-Manganese Slag Stone Column for improvement of Soft Marine clay	Mamata Mohanty, Sipra Mallick	176
177	NCAISMEEE/2022/177	Designing renewable power plants with ambiguous data: a risk-based decision-making approach	Prakash Kumar Sahoo, Namrata Mallick	177
178	NCAISMEEE/2022/178	Stability analysis of linked AC power networks with multiple terminal DC grids	Prakash Kumar Sahoo, Rajeev Ranjan	178
179	NCAISMEEE/2022/179	Forty five years of European microwaves. What about the future?	Prasanta Kumar Sethi	179
180	NCAISMEEE/2022/180	Predicting settlement behaviour of Pile Foundation using PLAXIS 3D	Pradeepta Kishore Dehury, Sasikant Mishra	180
181	NCAISMEEE/2022/181	Increasing the AC unit's rooftop condenser's heat rejection in a bus	Sujit kumar khuntia, Firoz Lakra	181
182	NCAISMEEE/2022/182	Validation of Commercial Passenger Bus Virtual Vehicle Dynamics Models via Testing	Tapas kumar Chand,Ganesh Maithy	182
183	NCAISMEEE/2022/183	Using BS 7910 techniques, the effects of crack-tip constraint on the fracture toughness of API 5L X65 steel are assessed	Jagannath Mohapatra, Jagabalia Nayak	183
184	NCAISMEEE/2022/184	Optimizing the Firing Phenomenon for Multiple Unguided Rocket Launches from the LAROM Platform	Subhakanta Nayak, Iteshree Mallick	184
185	NCAISMEEE/2022/185	Creation and Evaluation of Volatile Combinations Including Polyurea/Polyurethane Binders	Biplab Mohapatra, Banabihari Rout	185
186	NCAISMEEE/2022/186	Analyzing Nozzle Flow Numerically for a Rocket Engine Using Liquid Oxygen/Methane Propellants	Shanta Mohapatra, Pabitra Nayak	186
187	NCAISMEEE/2022/187	AN ENTSEMBLE APPROACH AND DEEP LEARNING MODELS TO IMPROVE KIDNEY TUMORS SEGMENTATION PERFORMANCE ON CT IMAGES	Sakar.G, Lokanath Sarangi	187
188	NCAISMEEE/2022/188	Development performance for Mobile Phone Wireless Communication Networks	Salil Kumar Malla, Dillip kumar Bhadra	188
189	NCAISMEEE/2022/189	A CASE STUDY BASED ON SOFTWARE PROJECT ACTIVITIES AND USER INVOLVEMENT IN TRANSITION USING AGILE METHOD	Sambasiva Rao Pedapudi,Raghunath Verma	189
190	NCAISMEEE/2022/190	Mobile Phone Wireless Communication Networks	Sandeep Kumar Mishra, Anwesha Halder	190
191	NCAISMEEE/2022/191	NETWORK TRAFFIC FORECASTING USING MACHINE LEARNING APPROACHES	Sasmita Mishra,Debarchana Jena	191
192	NCAISMEEE/2022/192	Deep neural networks: the general architecture flow of pipelined hardware implemented	Satya Krishna V,Ankit Sharma	192
193	NCAISMEEE/2022/193	DESIGNING AN ALGORITHM FOR CONTINUOUS AUTHENTICATION ON SMARTPHONE	Satya Krishna V, Subrat kumar Mohanty	193
194	NCAISMEEE/2022/194	DYNAMIC BABY SIGN LANGUAGE RECOGNITION SYSTEM BASED ON DEEP LEARNING	Sivaraman.G,Sipra Mallick	194
195	NCAISMEEE/2022/195	A Machine Learning-Based Smart Lead Scoring System	SK. Moulali, Biswajit Das	195
196	NCAISMEEE/2022/196	The Future of Wireless Communications System	Snehasis Dey, Prasanth Sethi	196

197	NCAISMEEE/2022/197	**HARMONY SEARCH OPTIMIZATION WITH QOS AWARE MODIFIED FOR VANET ROUTE SELECTION**	**Sonali Pradhan, Sasmita Das**	197
198	NCAISMEEE/2022/198	**Using Embodied Learning, a Weighted Hybrid Model to Enhance Predictive Performance in Recommendation Systems**	**Sonali Pradhan, Alka Rout**	198
199	NCAISMEEE/2022/199	**An optimal strategy for virtual machines to improve security and privacy issues in cloud computing using random fields**	**Sonali Pradhan, Animesh Pradhan**	199
200	NCAISMEEE/2022/200	**Developing a Hybrid Bio-Swarm model (HBSBA) to improve Blockchain miner efficiency through resource augmentation methods**	**T.Stephen Thangaraj, Ankit Sahney**	200
201	NCAISMEEE/2022/201	**AN IOT-BASED HYBRID SECURITY FRAMEWORK FOR MEDICAL DATA USING AES**	**Tanmaya Kumar Das, Sonali Pradhan**	201
202	NCAISMEEE/2022/202	**Studies on the Use of Ultra-short Term Wind Power Forecasting Models**	**Tanushree Mishra, Radhika Sharma**	202
203	NCAISMEEE/2022/203	**Use of Plastic waste in Concrete: A step towards Sustainable development**	**BiswaRanjan Tripathy,Sipra Mallick**	203
204	NCAISMEEE/2022/204	**Using low-quality aggregates in asphalt mixes: A comprehensive review**	**Sipra Mallick, Shalini Patra**	204
205	NCAISMEEE/2022/205	**Utilizing alternative clustering algorithms, the performance of students in placement activities is resolved using R-Tool and standard deviation equation.**	**Vijay Kumar, Rajesh Verma**	205
206	NCAISMEEE/2022/206	**Warm Mixed Asphalt using Foaming Technology: A Cost effective approach**	**EdaraKrishan Reddy, Pratiksha shethy**	206
207	NCAISMEEE/2022/207	**Plastic waste in Concrete Technology: A Survey**	**Biswa Ranjan Tripathy**	207
208	NCAISMEEE/2022/208	**Low-quality aggregates in asphalt mixes: A comprehensive review**	**Sipra Mallick**	208
209	NCAISMEEE/2022/209	**Coal and biomass pyrolysis in sequence: The impact of volatiles produced from coal on the properties of biochar**	**Gangadhar Mande, Badal Maharana**	209
210	NCAISMEEE/2022/210	**Deep neural networks: the general architecture flow of pipelined hardware implemented**	**Satya Krishna V**	210
211	NCAISMEEE/2022/211	**Studies on the Use of Ultra-short Term Wind Power Forecasting Models**	**Tanushree Mishra**	211
212	NCAISMEEE/2022/212	**NETWORK TRAFFIC FORECASTING USING MACHINE LEARNING APPROACHES**	**Sasmita Mishra**	212

Successful Marketing Strategy of any Organization and its Importance

[1]Sasmita Nayak,[2]Anuj Sahoo
[1,2]College of Engineering,Bhubaneswar,Biju Pattnaik University of Technology

ABSTRACT:

A key component in the electrical product market is marketing strategy. Apple has had success in this field. Apple is the pioneering brand in the market to launch a flagship store with exceptional customer care. However, the location and offerings fall short. We will investigate why Apple can succeed in the market in this essay. We will investigate Apple's marketing approach utilizing the 4Ps method. Apple's approach to customer word-of-mouth and its product ecosystem. Conversely, Apple is now refining its price strategy and shop locations. Keywords: word-of-mouth, marketing strategy, brand image, 4Ps, and consuming experience.

INTRODUCTION

Nowadays, Apple is the highest market capitalization company in the world. Apple is like a symbol of the high-tech industry. Apple's products are activated by a huge number of people around the world. What makes Apple so successful in the market? Apple is like an innovator in the smartphone market. The iPhone 2G is the first-generation iPhone, which has a touch screen, and it combines the three products. Like Steve Jobs said, "An iPod, a phone and an internet communicator." Before the iPhone 2G, people need three products to get the three functions. iPod was easy to carry out and listen to music, but it could not make a phone call or connect to the internet. The other brand of phones at that time still used old and useless function systems, and customers begin to fall bored with those products. The internet communicator will be a very big computer that cannot be portable. The iPhone is the best solution for customers at that time. But the unique product is just one of the leading successful marketing factors.

Graphene interleaves SiOx/C circles through atomic polymerization as high-stability lithium-ion battery anodes.

[1] Sagarika Dash, [2]Rahul Sharma
[1,]College of Engineering,Bhubaneswar,Biju Pattnaik University of Technology
[2]Krupajal Engineering College,Bhubaneswar Biju Pattnaik University of Technology

ABSTRACT

SiOx/carbon composite materials are promising candidates for Li-ion battery anodes due to their high capacity. However, their widespread use is hindered by poor electrical conductivity and stability due to the increase in volume. Here, electrodes composed of spherical carbon-coated silicaparticlessandwiched betweenelectrochemicallyexfoliated graphene wereprepared by molecular po lymerization followed by physical stirring. Spherical silica was obtained by carbonization of the reaction product between dialdehyde and (3-aminopropyl)trimethoxysilane. The interwoven graphene flakes provide both electrically conductive pathways between the particles and porous support structures formed between the silicon oxide flakes and the holographic flakes. A selection of SiOx/C-G anodes is obtained by adjusting the graphene content. Batteries assembled with optimal graphene generation (SiOx/C: G = 2:1 (w/w)) have excellent Li-ion storage performance, including high cycle stability, 88.6% capacity retention and 99% high efficiency after 250 cycles. 1 A·g-1.

INTRODUCTION:

Rechargeable lithium batteries (LIBs) have received widespread attention in recent decades due to their high safety and long service life [1]. However, the capacity of currently used anode materials such as graphite limits other applications. With a theoretical capacity of about (3579 mAh/g) and a low lithiation potential (0.2 VversusLi/Li+), silicon anodes have become the most popular [2-4]B. However, silicon, one of the most common elements on earth, has a relatively low electrical conductivity, which is detrimental to LIB applications. In addition, the lithium-silicon alloy forms the electrochemical storage mechanism of the silicon anodes. This can cause a huge volume increase (NOT in electrosolidification) and destroy the solidification percentage of each phase (~300 S) of the delithiation process, leading to continuous consumption of liquid electrolyte. All these problems prevent their practical implementation in LIBs.

The intricacy of intricate analysis

[1] Ananta Mishra,[2]Rajesh swain
[1,]College of Engineering,Bhubaneswar,Biju Pattnaik University of Technology
[2]Krupajal Engineering College,Bhubaneswar Biju Pattnaik University of Technology

ABSTRACT

We demonstrate that the rational combinations of three or fewer holomorphic functions of a single complex variable give rise to the classical kernel and domain functions associated with an n-connected domain in the plane. The domains where the classical functions are provided by rational combinations of two or fewer functions of a single complex variable are characterized by us. The condition that an Ahlfors map and its derivative are algebraically dependent is analogous to the feature that these domains have, which is that all of their classical domain functions extend to be meromorphic functions on a compact Riemann surface. We also demonstrate the number of generalizations of these conclusions to finite Riemann surface

INTRODUCTION

On a simply connected domain OaC $\overline{\text{in}}$ the plane, the classical Bergman kernel Kðz; wÞ associated to O
ð Þ   ð Þ¼   ð Þis given by wh f_aðzÞ   e   n mapping function mapping O one-to-one onto
the unit disc D_1 0   is th Rieman with f_a a 0 and f_d^{0} a > 0: Thus, the Bergman kernel is a
ere rational combination of just *two*
holomorphic functions of *one* complexvariable. I have recently proved in [9] that the Bergman kernel and many other objects of potential theory associated to a finitely multiply connected domain are rational combinations of only *three* holomorphic function of *one* complex variable, namely two Ahlfors maps plus the derivative of oneAhlfors map.

Non-Verbal Communication in the Modern World

[1] **Alek Baliyar Singh,** [2] **Arpita Sahoo**
[1] **College of Engineering Bhubaneswar,Biju Patnaik University of Technology**
[2] **Aryan Institute of Engineering and Technology,Biju Patnaik University of Technology**

ABSTRACT

This article is dedicated to non-verbal communication in English-speaking countries. In the first part of this article, we analyze such theoretical issues as communication theories in linguistics and psycholinguistics, as well as perception theory and non-verbal and verbal communication in general. The second part presents a comparative analysis of the definition of non-verbal communication on the example of English-speaking countries such as the United States, Great Britain, Australia, Canada, India and New Zealand. The main conclusion is that, despite being English-speaking, these countries have both similar and different non-verbal communication signs, and all these differences depend on different cultural contexts, ways of thinking and perception of non-verbal signs. The main idea of this article can be valuable for the world of psycholinguistics and modern communication, because it shows all the important non-verbal communication methods that help every communication..

INTRODUCTION

Communication as a field of scientific knowledge has a long history. The problems of studying communication processes are the most urgent problems of humanity. The central position in the history of human communication explains why fields as diverse as anthropology, art, education, ethnology, history, journalism, law, linguistics, philosophy, political science, psychology and sociology are drawn to the study of communication processes. leading mass communication theorist Erik Barnouw (Culture in Europe, 09.01.15) Communication is a social process. It acts as a bridge in society. Communication occurs not only in social systems, but some types of communication that can be typical for animals, for example: bird song, bee language, etc. We also use the term communication and talk about technical means, mechanisms such as transport, telephone signals, computer systems, etc. In our article, we are interested in interpersonal communication. In the process of communication, actions are performed, which are speech acts. Here we point out that the division of the communication process into individual actions is conditional. Communication can only be shared for research purposes and to change roles from sender to receiver because communication is continuous.

WAY TO IMPROVE COMMUNICATION BETWEEN PARENTS AND CHILDREN

[1] Suchismita Samantaray ,[2]Subhashree Panda
[1,2]College of Engineering Bhubaneswar,Biju Patnaik University of Technology

ABSTRACT

Children are surprisingly complex creatures. They use a whole arsenal of non-verbal signals to communicate their thoughts, feelings and desires. These include facial expressions, body language, voice and gestures. Some children are more open about their thoughts and feelings, while others are more closed off. As parents, it is important that we understand how our children communicate so that we can determine the most effective way to talk to them. Whether your child is the quiet one or the outspoken one, it is important that your child feels comfortable coming to you to talk about anything. Knowing how children communicate best will also help you find the best approach to connect with them. It is also important to understand how your child likes to interact with others. For example, does your child communicate well at school? Does your child need to hang out with friends and just talk to them? Or is your child generally reserved with people outside the family?.

INTRODUCTION

Parenting isn't easy, and no one ever said that. No matter how skilled you are as a parent, there will be moments in your parenting journey that are overwhelming and moments when you need your child to listen and understand what you are saying. In these moments, it is important to remember not to lecture your child. As tempting as it is, lectures are never helpful. In fact, it can do more harm than good to your relationship with your child. Lecturing can even make children stop communicating altogether. If you feel like you're hitting a communication wall, it's best to leave the conversation and come back to it later when you're both ready. Parenting is teaching and guiding children through life. At the same time, parents must remember that children are people with their own opinions. Although their opinion is important and may differ from yours, be sure to listen when your children speak, even if your judgment dictates otherwise. When you really listen to children, it sends the message that no matter how much your opinions differ, you still respect them enough as individuals who can think for themselves and express their thoughts and feelings freely without fear of judgment..

DIFFERENCE BETWEEN ONLINE AND OFFLINE CLASS

[1]Litan Barikee,[2]Sangita Swain
[1,2]College of Engineering Bhubaneswar,Biju Patnaik University of Technology

ABSTRACT

Many students wonder why balancing online and study abroad is so important. A good balance depends on your personal situation and learning style. With online classes, it's better to work in smaller batches than looking for full-time studies. If your goal is to complete your studies on time, you must prioritize both types of study. Teenagers who spend more than three hours a day online may experience high levels of digital addiction. However, they can still use offline features to help them stay connected and complete their rites of passage. Parents can support a teen's search for balance by giving them advice on finding a healthy balance online and offline. In addition, they can be a role model for a balanced digital lifestyle. The first step to a healthy digital balance is to understand the benefits and limitations of each. Students often spend a lot of their time online, but they need to set aside some times to disconnect and get outside. For example, they could make a rule that they have to check in with their parents on the phone during mealtime. Another option is to organize family free time. If possible, book a Saturday afternoon when everyone is free.

INTRODUCTION

The main difference between online and offline learning is location. Online learning allows you to study anytime, anywhere, even from the comfort of your own home. Online learning requires you to travel to the classroom and arrive on time. While online learning allows you to learn when and where you want, there are several disadvantages to this approach. Here are some advantages and disadvantages of online learning. Some of the most important differences are listed below. Online learning is better because it allows you to interact with fellow students in a real environment. You can ask questions and solve problems and get personal feedback from your teacher. Another advantage of offline classes is that they are more reliable. Students taking offline classes cannot cheat on exams or do homework without teacher supervision. You will also have a more personal relationship with your teacher, which is important if you want to be successful. While many teachers appreciate the time savings of digital programs, students may prefer pen and paper to a keyboard or word processor. In addition to balancing online and offline learning, both have a number of advantages.

Modernism vs. Realism: the Differences

[1]Rojalini sahoo,[2]Manmayee Mohanty
[1]College of Engineering Bhubaneswar,Biju Patnaik University of Technology
[2]Aryan Institute of Engineering and Technology,Biju Patnaik University of Technology

ABSTRACT

Both modernism and realism are theories and ideas that were deeply reflected in literature during the period when these philosophies were at their peak. In this article, we recognize these two different practices in the world, paying particular attention to their influence on literature. The main difference between modernism and realism, two thought patterns or philosophies, is that it was a conflict between old traditional values, beliefs and new rational, logical views. Modernism in its strictest sense was the refusal to accept the conservative views, ideologies and theories of realism. Modernism was revolutionary because it challenged the things that hindered human progress. It focused deeply on human efforts, their self-awareness to examine all aspects of human life and the right things that were wrong. Modernism questioned everything from business to philosophy and encouraged people to seek answers to problems through deep thinking, introspection and knowledge. In premodern realism, the basic idea was that everyday reality is the ultimate truth

INTRODUCTION

Modernism is said to have flourished between 1900 and 1930. However, literary scholars agree that modernism as a form of literary style penetrated deep into the 20th century and continued to exist after the middle of the 20th century. It is also believed that the post-Vietnam War era, around the 1990s, introduced the era of postmodernism. Realism preceded modernism in literature, and the period 1860-1900 was considered the period of literary realism. . It does not depend on the power of the observer, so it must be represented as it is in art and literature. Modernism challenged realism because of its focus on inner self-awareness and the power of scientific experimentation to challenge and thus change reality..

Analytics for Management and Social Insights

[1]Ananta charan Mishra,[2]Ranjita Mohanty
[1]College of Engineering Bhubaneswar,Biju Patnaik University of Technology
[2]Aryan Institute of Engineering and Technology,Biju Patnaik University of Technology

ABSTRACT

This article examines the modeling and pricing of what we refer to as the LOEXoption, which is a combination of the Exchange option and the Lookback option. Given that its price is contingent upon the highest and lowest price of the assets under consideration, it falls under the category of exotic, clearer, path-dependent options. In actuality, we present a conditional claim on two assets: the holder has the option to cancel the transaction at any time or switch the first asset from the highest price to the second from the lowest price.After outlining and modeling this choice, we utilize MATLAB software to estimate the pricing numerically and offer the findings in this work.

INTRODUCTION

It is a big world in finance .Financial instruments are one area of this world, and many articles have been written about simulating the pricing of these products. We consider introducing the "LOEXoption" in this paper. There are two options included with the LOEX option. We combined the Exchange and Look back options to provide this security. In other words, using the Look back option on the results in this option.Exchange option. The LOEX option is a kind of conditional claim focusing on two assets that consider one with the highest price and the other with the lowest.The research background in this area is generally divided into two parts because there is no research directly related to this option:

Numerical simulation of an influenza epidemic: forecasting with a partial SEIR and ARIMA model

[1]Prabhat Rath,[2]Tatini Pradhan
[1,2]College of Engineering Bhubaneswar, Biju Patnaik University of Technology

Abstract
This article provides a summary analysis of the SEIR model used to monitor and predict the spread of influenza. In addition, the ARIMA model predicts the seasonal evolution of influenza epidemics. The object of investigation is the fractional operator Atangana-Baleanu-Caputo (ABC), which provides a more precise explanation of the flu dynamics than the usual integer operators. The study shows that the fractional order model outperforms the ARIMA model and matches the real data. The results emphasize the importance of using fractional models in health risk management and the creation of numerical methods with precise parameter values. The article contains graphic representations of several factions. The article includes graphic images of different levels of fractional and fractal measurement. These findings are important for creating even more accurate mathematical models of the pandemic and for creating realistic flu control methods.

Introduction
During flu season, the highly contagious virus influenza, which spreads quickly through human contact, poses a serious threat to the public's health. This respiratory condition, which has symptoms ranging from mild to severe, affects people of all ages. While certain influenza strains can spread from humans to animals and vice versa, others are only contagious between people. The annual winter influenza epidemic is caused by influenza A and B, and the disease burden is also influenced by influenza C and D viruses [1, 2, 3, 4]. It's crucial to comprehend the mechanics of the illness and create efficient management plans if you want to effectively stop and manage influenza epidemics. These objectives can be accomplished in large part by using mathematical modeling techniques, which also help researchers assess and forecast disease outbreaks. Significant study has been put into mathematical modeling of the flu in recent years to help us better understand how it spreads and to enable effective preventative measures.

Women Empowerment in Self Help Groups through:A Case Study of Rautahat District

[1]Minati Dash,[2] Anita Pradhan
[1,]College of Engineering Bhubaneswar, Biju Patnaik University of Technology
[2]Aryan Institute of Engineering and Technology,Biju Patnaik University of Technology

Abstract:-

In poor countries, microfinance institutions are in charge of advancing women's empowerment through social and economic growth. This study's main goal is to examine how microfinance affects women's empowerment in the Rautahat district. Measures of women's empowerment include mobility, ownership of assets, income and savings, and decision-making. This study's primary data came from a five-point Likert scale survey that was given to 209 women participating in microfinance programs in the Rautahat District. The convenience sample approach was used to choose the participants. Descriptive, correlational, and regression methods were used in the study with the Statistical Package for Social Science (SPSS). According to the report, microcredit plays a significant role in the social and economic empowerment of women. Offering a range of services, including tiny. The results show that women who participate in micro lending programs see a discernible rise in their income and savings. In addition, they demonstrate more asset ownership, active participation in household financial decision-making, and increased mobility confidence as compared to non-participants. According to research, microfinance has had a major impact on women's empowerment. These results highlight the importance of microfinance as a vehicle for reducing poverty and igniting social change, both of which are essential for advancing women's empowerment. The report emphasizes how important microfinance through self-help groups is in empowering women.

Introduction

Microcredit plays a significant role in the social and economic empowerment of women. Offering a range of services, including tinyThe results show that women who participate in microlending programs see a discernible rise in their income and savings. In addition, they demonstrate more asset ownership, active participation in household financial decision-making, and increased mobility confidence as compared to non-participants. According to research, microfinance has had a major impact on women's empowerment. These results highlight the importance of microfinance as a vehicle for reducing poverty and igniting social change, both of which are essential for advancing women's empowerment. The report emphasizes how important microfinance through self-help groups is in empowering women.

Women Empowerment: A Literature Review & Research Agenda

[1]Minati Dash,[2] Rani Sahoo
[1,2]College of Engineering Bhubaneswar, Biju Patnaik University of Technology

Abstract

In India, the discussion of women's empowerment began many years ago. Even though social workers, lawmakers, policymakers, and academics commonly utilize this phrase, the situation for women is nonetheless dire. The current study attempted to conduct a thorough literature evaluation in order to identify the fundamental elements that contribute to effective women's empowerment. Thus, the purpose of this study is to look at the key factors that prior research has looked into in relation to women's empowerment. Furthermore, in order to address the current lack of research on the evaluation of women empowerment plans introduced and executed by the central government and various state governments of India on occasion, the current study also suggests the direction for future research.

Introduction

One way to create a social context where people can make choices for social transformation—either individually or collectively—is through empowerment. By gaining information, strength, and experience, it fortifies the intrinsic talent (Hashemi Schuler and Riley, 1996). According to a different study by Alsop & Heinsohn (2005), empowerment is the capacity of an individual to make decisions that are effective, or to translate those decisions into desired behaviors.It is rebellious to reach the status they have today. While the developed countries are better off, developing countries like India still lack behind in women empowerment.

A Critical Review Of Current Progress of Recycling Household Plastics

[1]Biswa Ranjan Tripathy,[2]Sarita Nayak
[1,2]College of Engineering Bhubaneswar, Biju Patnaik University of Technology

Abstrac t

There are many different uses throughout the household, where plastics such as polypropylene (PP), polyethylene (PE), polyethylene terephthalate (PET), polystyrene (PS) and polyvinyl chloride (PVC) are more suitable for other organic uses. resources The recycling of these plastics is receiving enormous attention as their use has increased, resulting in significant landfills around the world. This research investigates the recycling processes of household plastics, such as sorting, cleaning, degradation and recycling, based on information from the literature. Sorting processes including flotation separation, magnetic density separation, melt filtration and spectrometric separation have been found to offer significant potential at various points in the recycling plant. Magnetic density separation is the most efficient and environmentally friendly, but relatively expensive separation method. Cleaning processes are very simple when different caustics and/or temperatures are used with water. They cause thermomechanical degradation due to cutting, high temperature and cleaning processes.

Introduction

Since the invention, the use of synthetic polymers has increased without attention to the end of life treatment of these materials. Too often, synthetic polymers such as household plastics end up in landfills or incineration because technology has not advanced enough to prepare polymer waste for reuse. Plastic waste falls into the natural environment, rots and decomposes as a result of the interaction of biological and physicochemical elements. As a result of decomposed plastic waste, microplastics are produced, which can be further broken down into nanoplastics. Without valid recycling techniques, the world has developed an almost unhealthy addiction to plastic consumption, which is why plastics pose a serious threat to the environment through their production and lifespan. A typical mechanical recycling method involves collecting, sorting, washing, drying and granulating plastic waste. The quality of the sorting and washing methods is extremely important, because bad procedures would lead to impurities remaining in the mixture, and the incompatibility of different plastics in the melt would reduce the quality of the product (Carvalho, 2012).

Organizational change, change management and resistance to change

[1]**Sitansu Ranjan Swain**,[2]**Mousumi Dash**
[1,2]**College of Engineering Bhubaneswar, Biju Patnaik University of Technology**

Abstract

An organization must always compete for limited resources in a constantly changing and dynamic environment in order to survive; not just react to change, but observe change. Organizational change, change management and resistance to change; are tripartite concepts, where one cannot conveniently be mentioned without mentioning the other. The method used in the research is a survey approach. The change management literature determines the level of resistance to change and possible organizational changes. The presentation started with conceptual literature, theoretical literature, empirical literature, literature findings, conceptual framework and conclusion, recommendations were made to address managers in program management.

Keywords: Organizational changes, change management, resistance to changes.

Introduction

There is almost universal agreement on the importance of change in organizations; and many companies are adopting new management concepts to maintain profitability and remain competitive. Some changes have a significant impact on the organization, but many others have little impact and are often referred to as management products (Luketa, 2012). For an organization to remain relevant and competitive, change is necessary (Jorgensen, Owen and Neus, 2009)). Organizational change is the movement of an organization from its current state to some desired future state to increase efficiency. Organizations must adapt and respond to relevant changes in a timely manner to advance organizational performance. The mere mention of change can create nervousness and excitement, and as the change begins to take shape, organizational members can feel uncertain and confused. This may be due to fear of the unknown. Given such facts, it seems unlikely that key organizational leaders would underestimate the consequences of change initiatives (Bernerth, 2004). Change is a regular feature of organizational life and an integral part of nature, while resistance is an integral part of change

A critical review of smart geosynthetics and their potential for monitoring civil infrastructure.

[1]Salini Patra,[2] Rashmita Pradhan

[1,]College of Engineering Bhubaneswar, Biju Patnaik University of Technology

[2]Aryan Institute of Engineering and Technology,Biju Patnaik University of Technology

Abstract:

Monitoring of urban infrastructure with the aim of early detection of damage and obtaining information necessary for urban management not only prevents the unexpected collapse of the infrastructure and increases its useful life and durability, but also facilitates the management of a smart city, including aspects of urban economy. intelligent transport. In this context, intelligent geosynthetic materials can act as essential arteries that collect and transmit information about the stress states, stresses, damages, deformations and temperatures of the systems in which they are embedded, in addition to their traditional infrastructural role. This article reviews the wide range of technologies, manufacturing techniques and processes, materials and methods that have been used to date to develop smart geosynthetics to make a strong case for current trends and use the trends as a guide to predict where to focus. in future studies. Various multifunctional geosynthetic applications and future challenges and functional solutions are also discussed, and a path to develop suitable geosynthetic products is proposed. This critical review provides an overview of the development of new intelligent geosyntheses in civil engineering.

Introduction:

According to the geosynthetic terminology, mathematical and graphic symbols, and descriptions of geosynthetic functions recommended by the International Geosynthetic Association, geosynthetic materials are flat, relatively permeable, synthetic or natural polymer sheets used in civil engineering and infrastructure. Most common geosynthetic materials can be classified into geomembranes, genets, geotextiles and geocomposites. Geocomposites are made by integrating different geosynthetic materials or combining geosynthetic materials with non-synthetic materials such as bentonite clay in an optimal and cost-effective manner. way - effectively handles certain field applications. Geocomposite structures and materials include geosynthetic clay liners (GCL). Geotextile genes, geomembranes, geogrids and polymer cores; geomembrane geogrids; and three-dimensional polymeric cellular structures.

A review of challenges and opportunities in using plastic waste to develop composite bricks with improved mechanical properties

[1]**Nibedita Sahoo,**[2] **Amit Behera**
[1,]**College of Engineering Bhubaneswar, Biju Patnaik University of Technology**
[2]**Aryan Institute of Engineering and Technology,Biju Patnaik University of Technology**

ABSTRACT

The population is increasing the demand for plastic in all sectors, and the demand for single-use plastic is growing rapidly, but its recycling rate is still low. Using plastic like bricks is difficult and generally has a better impact on the ecosystem, economy, and industrial revolution. This article explored the available research on plastic bricks made from different plastic wastes. The processes used to make bricks from plastic waste, the possible contamination of used waste materials, the lack of relevant standards, and the spread of bricks based on waste materials are discussed. In addition, it focused on the research and development necessary for the widespread production and use of bricks made from waste materials, not only from the technical, economic, and environmental aspects, but also from the point of view of standardization, government policy, and public awareness. of waste recycling and sustainable development. Studies have shown that PET is primarily recycled plastic more efficiently than other plastics. Global production is followed by PE, PVC, and PP. The share of PET in global plastics recycling is only five percent.

INTRODUCTION

The ecosystem of transport of dangerous substances is called pollution. These hazardous compounds are classified as pollutants. Natural contaminants such as volcanic ash are possible. They can also be generated by private individuals, such as waste or industrial runoff. Pollution damages air, water and land. The availability of air, water and land on Earth is essential for all living things, from single-celled microorganisms to blue whales. All living things are at risk of pandemonium if their natural resources are polluted. The problem of pollution is global. Although cities are generally more polluted than rural areas, pollution can occur in remote areas where people do not live. Plastic affects air, soil and water. Plastic is treated as a soil pollutant when land filled, as an air pollutant when incinerated, and as a water pollutant when land filled. Most environmental diseases and early deaths are caused by pollution.

A Review of Geosynthetic Performance as an effective material used for filtration and stabilization

[1]H. Vijay Kumar,[2] Arpit Mohanty

[1,]College of Engineering Bhubaneswar, Biju Patnaik University of Technology
[2]Aryan Institute of Engineering and Technology,Biju Patnaik University of Technology

Abstract

Since the 1960s, geosynthetics have been widely utilized in the building of civil engineering projects such retaining walls, roads, and railroads, coastal protection, soft ground development projects, and landfill systems. The creation of polymer materials within the previous forty years has assisted to increase the geosynthetics' lifespan. Engineers need to be aware of the proper application of geosynthetics in order to use them practically. This paper's first section gives a general overview of geosynthetics, outlining their kinds, elements, and uses. The geosynthetics employed as filters are covered in the second section. The filtering mechanism, variables influencing geotextile filter durability, design principles, lab testing, and case studies are all briefly covered in this section.

Keywords: geosynthetics; polymers; drainage; filtration; stabilisation; civil engineering

Introduction

Ageosynthetic product is one that has at least one component made of a synthetic or natural polymer. It can be utilized as an integral part of a civil engineering project and can take the form of a sheet, strip, or three-dimensional structure that is employed in contact with soil and/or other materials,engineering undertaking, system, or structure . Geosynthetics have become widely used in a variety of civil engineering applications over the last thirty to forty-five years. There could be several reasons for this. The properties of geosynthetics include great flexibility, long-term durability, resistance to biological and chemical deterioration, and non-corrosiveness. In addition, they are affordable, eco-friendly, and simple to carry and store. The most crucial geotextiles to install, for drainage systems, are unquestionably needle-punched nonwoven geotextiles. The technique of "needling" involves mechanically interlocking the fibers through the web to fuse nonwoven web structures together. Installing needle-punched nonwoven geotextiles is crucial, especially for drainage systems. Barbed needles, which are positioned on a board, insert fibers into the web before being removed.

Secure data transmission in networks based on macro-ECDH

[1]Alka Rout,[2]Saroj Badi
[1,2]College of Engineering Bhubaneswar,BijuPattnaik University of Technology

Abstract

Wireless Mobile Ad Hoc Network (MANET) is a network of mobile nodes that is self-contained. The unique characteristics of mobile ad hoc networks (MANETs), such as dynamic topology and an open wireless medium can expose MANETs to a variety of security vulnerabilities. This has an effect on the protection of data transmitted between network nodes. Due to self-configuration and maintenance capabilities, the MANET faces a range of security problems as it expands its technology. Further more, because of the highly complex and resource-constrained existences of MANETs, conventional security solutions for wired networks are ineffective and inefficient. As a result, an effective technique is needed to prevent abnormal nodes following the detection process while also improving QOS parameters. There searchers in this paper use an optimization technique to improve efficient data transmission with high protection in the MANET. The optimal route is selected using modified ant colony optimization (MACO).To improve the transmission security of the MANET, an Elliptic curve Diffie-Hellman (ECDH) can beused. The Elliptic curve Diffie-Hellman (ECDH) method improves its overall efficiency and security. Thepacket delivery ratio, overhead, end to end delay and throughput are used in the security-based research.Finally, the results show that using optimization techniques, the MANET can achieve a high transmission rate while also improving data protection.

Introduction

MANET is a network made up of a large number of mobile nodes (MN) that can be used for a variety ofmechanical, security, and rural applications, such as transportation movement tracking, environmentalmonitoring, smart offices, and battlefield surveillance [3][6]. Nodes in these networks interact with one anotherin a multi-hop manner. When a sender sends a data packet to a destination node, it communicates with anintermediate node. As a result, each node in the network plays an equal role [18]. The mobile devices in therespective networks function as routers, allowing users to send and receive data while also controlling androuting the network. Routing allows for the proper path selection within a network. The routing protocol, on theother hand, facilitates contact between routers and processes data packets from source to destination bydetermining the best path between sender and receiver [18].

Sliding mode control used for Maximum Power Point Tracking Controller for Photovoltaic System

[1]Anjan Kumar Sahoo,[2]Sasmita Naik
[1,2]College of Engineering Bhubaneswar,BijuPattnaik University of Technology

Abstract:

This work offers a sliding mode control scheme (SMC) Maximum Power Point Tracking (MPPT) controller for photovoltaic (PV) systems in stand-alone configuration. This controller's goals are to maximize MPP functioning without requiring measurements of the atmospheric conditions and to increase the PV power system's efficiency. The power oscillation around the operating point that is present in the majority of MPPT systems that are employed is eliminated by the suggested controller. In order to ensure that the operating point converges to the optimal operating point, the sliding surface of the suggested MPPT controller employing SMC has been designed to be the MPP condition. To enable the compensation, an adaptive SMC gain has been developed and incorporated into the suggested controller.

INTRODUCTION

Applications for solar or photovoltaic energy have grown recently, particularly for standalone systems. It is among the most promising renewable energy sources.

Obtaining an MPP operation is required due to the constraints of PV energy systems, which include low efficiency and non-linear output characteristics. The output of the PV system is impacted by variations in solar irradiance levels, ambient temperatures, and dust accumulation on the PV panel's surface [1]. The MPPT technique seeks to automatically determine the best MPP operation in the presence of varying meteorological conditions. For PV systems, several MPPT approaches have been developed.The MPPT controller made extensive use of incremental condition and perturbation and observation (P&O) algorithms. Those algorithms have a very similar concept. P&O operates by perturbing the operating point until maximum power is reached.

MULTI-LEVEL FUSION CLASSIFIER WITH MULTIMODAL EVENT DETECTION IN BIG DATA

[1]Anugnya Prabha Manjari,[2]Baisha Soren
[1,2]College of Engineering Bhubaneswar,BijuPattnaik University of Technology

Abstract

Deep learning-based multimodal event detection using the Multi-Level Fusion Classifier (MLFC) model is proposed to overcome these complexities. The data are gathered from the multimodal data, including text, images and audio placed in the Hadoop platform for storage. The data are fed to MLFC, and the modals of text, image and audio are generated through various approaches. The text modal is generated through pre-processing, Enhanced Term frequency - Inverse document frequency (TF-IDF) and attention-based BiLSTM (Attn_BiLSTM). The image modal is generated through the Improved CapsuleNetwork (I-CapsNet). The audio modal is generated by extracting low-level, mid-level and high-level features directed to Convolutional Neural Network _Opposition Salp swarm Algorithm (CNN_OSA). Theextracted features are fused through Deep FF (Feature Fusion) strategy, and the various events are classified through the SoftMax classifier. The overall accuracy obtained in classifying the multimodal events is 98.26% which outperforms better when compared to the existing approaches**.**

Introduction

Event detection (ED) is the procedure of exploring the event streams to determine different sets of real-world events and offers a clear understanding of social events. Multimodal ED investigates events from heterogenous vast data such as images, texts, and audio/video. Advanced image processing technology can detect different types of events automatically [Zhou et al. (2020)]. With the increasing growth of multimedia content on the internet and broadcast, creating unstructured multimedia data is searchable and approachable with high flexibility [Cao et al. (2018)]. Various technologies are developed to detect the events in varied scenarios likeroad traffic event detection [Alomari et al. (2020)], event detection in smart cities [Chen et al. (2021)], event detection in social media, sports event detection etc. Event detection is mainly important for learning video semantic procedures for video summarization, retrieval and indexing purposes [Liu et al. (2017)]. Hence high research efforts have been com mitted to detecting the event for video analysis. Many of the previous event detection techniques depend upon videos and domain knowledge features and utilize labelled samples to train event detection models. The semantic gap between reduced level features and enlarged level events of varied types of videos, background clutter, unclear video cues and different alternations of camera motion etc., makes the video analysis more complex and obstructs the implementation process of event detection systems [Lu et al. (2018)].

A PRECISE IMAGE RETRIEVAL MODEL BASED ON EDGE CLUSTERED SEGMENTATION

[1]Ashok Kumar Panda,[2] Haresh Mohanty
[1,]College of Engineering Bhubaneswar, Biju Patnaik University of Technology
[2]Aryan Institute of Engineering and Technology,Biju Patnaik University of Technology

Abstract

The modern era necessitates efficient smart image retrieval from various image collections. Image retrieval relies heavily on primitive image signatures and their internal features. Image retrieval relies heavily on deep metric learning, which aims to identify semantic similarities between data points in the image for accurate image retrieval procedures. The image shape feature representation was generated using a histogram image processing model. To limit the search space, the image pixel shape-based retrieval procedures are effectively used for image retrieval. The dominant colour, edge and shape descriptor has become a common feature in image processing applications. Because of lighting and other variables, colour in nature can shift slightly. A consistent region of an image is detected and extracted from this consistent zone for an accurate image retrieval strategy by performing image segmentation. The proposed model implements a Related Edge Clustered Pixel Extraction Model with Weighted Feature Vector Set (RECPE-WFVS) for extracting the image content set for searching with the query image foran accurate image retrieval procedure.

Introduction

In today's digital age, the image retrieval method is used extensively on the internet because of digital image approaches. The features extraction system gets images from the internet and stores them in a database with distinct labels and captions for each image. It is referred to as Content-based Image Retrieval (CBIR) [Yuan etal. (2019)] when the content of an image is used as the identifier for browsing. Color, shape, and texture [Yu etal. (2018)] are just a few details gleaned from an image using the CBIR approach. The research community contributed image characteristics, relevance feedback, fuzzy color, and texture histograms to CBIR .Color histograms, based on relevant feature extraction, use low-level factors [Wei et al. (2017)], such as the physicalattributes of the objects in the image, for image retrieval [Raza et al. (2018)]. It's possible, though, that the sevisual cues don't accurately transmit the image's underlying meaning. Photographs may lead to erroneous findings when these techniques are applied to a large content data base. All image retrieval algorithms aim to recover the image as quickly and correctly as possible. The image canbe retrieved with more accuracy [Liu et al. (2017)]. Intensity differences often influence images. To avoid any distortion, the histogram distributions of the images must match exactly, using the edges and intensities of the photos as a starting point [Liu et al. (2019)]. Large-scale datasets are required to verify the accuracy of the similarities between the photographs today.

Learning Embedded Systems with Multi-Microcontroller Evaluation Tool

[1]**Asit Kumar Satapathy,**[2] **Ramesh Raita**
[1,2]**College of Engineering Bhubaneswar, Biju Patnaik University of Technology**

Abstract

Embedded systems have an everyday presence and direct impact in every day's lives. Therefore, learning institutions are continuously improving their courses in microcontroller and embedded system programming. Although the diversity of curriculums, the availability of learning tools, where the student can practice and improve their skills, is a key factor to the success of the learning process. The platform developed and presented in this paper results from author's experience in teaching embedded systems. From the analysis of teaching/learning needs, a learning environment based on the Freescale HC11, MCS51, and Microchip PIC 16 Series families was designed. This tool can be expanded by modules and adjusted, at a specific time, to student's real needs.

INTRODUCTION

Embedded systems courses are today included in most of the graduate and undergraduate curriculums of Electric & Electronics engineering and Computer Science from all over the world [1-5]. Increasing the impact of microcontrollers in our daily lives justifies this option. These devices can be found either in very simple products, like toasters or toys, or in highly technological products, as for examples, cellular phones, camcorders or cars. The complexity of an embedded system can change from product to product, depending on the task that they must perform. Therefore, embedded system designers must have knowledge in different areas that, sometimes, are separately handled. Hardware project requires knowledge related with digital and/or analogue electronics and at the same time, with electromagnetic compatibility issues that cannot be forgotten in high frequency operation or in products that must work in very restrictive environments as the ones found in hospitals.

Effects of wind storage and curtailment on the Irish electricity grid 2020 ambitions for renewable energy

[1]B. Veera Murthy Pandian,[2]Sandip Sahoo

[1,]College of Engineering Bhubaneswar, Biju Patnaik University of Technology

[2]Aryan Institute of Engineering and Technology,Biju Patnaik University of Technology

Abstract

The goal of the All-island power system, which consists of the electrical grids of Northern Ireland and the Republic of Ireland, is to supply 37% of wind-powered electricity by 2020. This poses a significant integration problem, particularly in light of the growing frequency of instances where the system is overloaded with wind energy and must "curtail" or shut off wind power. There is interest in projecting future levels of curtailment and looking for ways to lower it, as the installed wind capacity needed to fulfill this aim depends on how much wind power is curtailed. The 2020 All-island system's potential restriction has been estimated by several studies.

INTRODUCTION

Managing times when there is too much wind generation and little system demand is a challenge when integrating high wind penetration rates. When this happens on a national scale, wind power may need to be reduced, or "curtailed".Research focusing on enabling significant renewable energy penetration and decarbonizing power networks indicates that curtailment must be avoided by utilizing excess wind energy, such as for electrical energy storage system charging [2–5]. The "All-island" power grid, which powers both Northern and Republic of Ireland, already experiences wind curtailment. 2011 saw the dispatch of 2.2% of the total potential wind output (119 GWh), with curtailment accounting for an estimated 80% of the output [1]. Dispatched down 2.1% in 2012 [6]. 2395 MW of wind power met 16% of the island's total electricity demand in 2013 [7].The All-island system aims to generate 40% of its electricity from renewable sources by 2020 [8,9], with wind power predicted to meet 37% of this target, the highest percentage in the EU. There is interest in projecting future levels of curtailment and looking for ways to lower it, as the installed wind capacity needed to fulfill this aim depends on how much wind power is curtailed.

CONSTRUCTING SECURITY BARRIERS IN BLOCKCHAIN THROUGH MODIFIED ALGORITHMS

[1]**Bhimsen Moharana,**[2]**Anima Mandal**
[1,2]**College of Engineering Bhubaneswar, Biju Pattnaik University of Technology**

Abstract

Now a days security of user credentials and confidential data of the user in database plays important role in web applications. Blockchain technology performs the hashing during the block generation process. MD5, SHA128, SHA256, and SHA512 are only few of numerous hashing algorithms. The use of SHA256 in Blockchain has been discovered. There are several aspects to consider while picking an appropriate hashing algorithm, including collision ratio, storage space, and time complexity. There are fewer collisions with SHA256 and it takes up less space. Modified MD5 is the hashing algorithm used in the suggested research. On the other hand, SHA256 takes more storage capacity, but traditional MD5 has a lower collision resistance. The objective of this study is to develop a faster and more collision-resistant version of the standard MD5 algorithm. Because of this, a system that is both secure and efficient is essential. This study tested the improved MD5 for storage capacity and collision probability, as well as a CPU clock cycle simulation. In terms of collision resistance, the improved MD5 results clearly exceed SHA256, MD5, and SHA1 while consuming less storage space and time.

*Keywords***:** Blockchain, MD5, SHA1, SHA256, SHA512, collision resistance, SQL Injection, Cross Script

Introduction

Many people in the IT industry and beyond are interested in the "distributed ledger [1]" technology known as blockchain. By offering a safe, transparent, highly resistant to failure, auditable and efficient way to record transactions or any digital interaction, blockchain technology [2] has the potential to upend industries and create new business models. While the technology is still developing in its early phases, widespread commercialization is yet some years away. It's possible to use blockchain technology to store an ever-increasing volume of data [4]. Because it is decentralized, no one computer has complete command over the whole network. Rather, each of participating nodes receives a copy of chain from the others. New recordings are added to chain, making it ever expanding as well.

Use of medium-voltage grid status control as a foundation for comprehensive automation in smart distribution networks

[1]Bishnupriya Das,[2]Priti Kumari
[1,2]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

Abstract:

The primary focus of this study is an automation system for medium-voltage networks as a crucial element of a larger smart distribution system. The system design that is based on current grid control methodologies and monitoring technologies is the main focus. An outline of its possibilities and the firsthand experience in real-world settings in the specified field will be used.

INTRODUCTION

It has been determined that smart grid systems (SGS) are a highly effective and affordable way to handle the continuous change of electrical distribution networks. Digitalization at both the high and low voltage levels (HV, LV) has advanced to a very high technological degree. Progressive and quick development of more intelligent systems and solutions is seen in the R&D field as well as in the marketplace. The creation of autonomous medium voltage (MV) control techniques has filled in the final intelligence gap in distribution systems. The installed decentral generation (DG) is situated in distribution networks, primarily at the MV level, therefore distribution system operators (DSO) must enhance their grid monitoring and control methods. The tasks of a DSO will become more complex as DG levels continue to rise. As an actuator in vertically coordinated control processes, he will participate more and more in the goal of system stability—the primary duty of the transmission system operator. Previously, these functions could be controlled at the transmission level with little to no communication with lower-level networks. There is already a great deal of flexibility at the distribution level, and this will only increase in the future in accordance with the prevailing European energy policy.

MULTICLASS ARRHYTHMIA CLASSIFICATION USING GRASSHOPPER OPTIMIZATION ALGORITHM-OPTIMIZED SUPPORT VECTOR MACHINE

[1]Bivas Ranjan Parida,[2]Nandini Kumari
[1,2]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

Abstract
Currently the requirement of data processing using container assisted cluster computing is gaining a high momentum and becoming mature now days. In scientific workloads scenarios, data processing needs high performance computing cluster to execute the applications. High performance computing aka cluster computing is configured with multiple system parallelism equivalents to provide supercomputing. Parallel cluster could build up with high speed interconnected computational systems to enhance the execution speed. The open source or community developed software could be used to build the cluster and to deploy the applications but the allocation and scheduling of computing resources is usually a matter of concern which must be done efficiently. This paper is proposing architecture to assign the computing resources at run time to address the challenge of high performance computing resources such as GPU, Storage, and CPU as cloud deployments. Results are captured as output of different deployment sizes in terms of computing infrastructure and the comparison of load and execution time with different configurations along with deployment of computing resources.

Keywords: High Performance Computing, Computing Resources, Parallel Computing, Resource Scheduler, Cluster Computing, Virtualization, Torque, Slurm, X86, GPU

Introduction
There were 4.66 billion active internet users reported in January 2021 worldwide and generating huge amount of data every day which is estimated around 2.5 quintillion bytes per day. To solve the large computational problems in terms of application execution is always recommended in form of High Performance Computing from last few decades. Generally it uses Message Passing Interface (MPI) library to allocate the cluster computing resources to multiple parallel running job. Allocated infrastructure must be suffice to meet minimum computational requirement in terms of memory, CPU, GPU, network interconnect to hold cluster computing functionalities. A current resource manager for cluster computing like Torque is responsible for mapping of resources to the application execution with the proposed configurations and specified requirement. In case of updating or any changes required in terms of already defined computing resources, the complete job respective to application must reset and resubmit due to static behavior in configuration.

Adaptive urban mobility model based on artificial intelligence for low-power vehicle networks

[1] C.Sunil,[2]Raja Paramanik
[1,2]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

Abstract

The communication in Vehicular Ad-hoc networks (VANET) is turning into a significant and famous exploration point in wireless networking because of both opportunities and difficulties it presents. VANETs are self-organizing, distributed transmission networks comprised of moving vehicles and represented by high mobility nodes. The vehicular mobility models assume a critical part in assessing various difficulties like traffic, security, and client application-based challenges. Most of earlier studies created models that better relate to urban mobility. However, none of the previous researchers proposed a necessary level of mobility models for modeling and simulating low power and lossy networks i.e IEEE 802.15.4 LLN's. The urban/city environments have many Road Side Units (RSU) which may even be utilized RPL protocol in routing of communication data. This paper proposes novel methodology to develop a unique urban mobility model for getting accurate control mechanism and efficient coordination among vehicles in vehicular networks. The proposed model results in efficient performance with better PDR, lower EED, little OH and better consumption of power.

Keywords: VANET, RPL, Urban Mobility, RSU, ITS, Vehicular Communication

Introduction

There is a growing interest in designing and deploying Intelligent Transportation Systems (ITS) applications and systems. ITS has grabbed the attentiveness from many scientists across the world. The purpose of introducing Intelligent Transportation Systems is to make development concerning the effectiveness of road safety level and the transportation system through advanced applications, protocols, and standard. In addition, the greater number of vehicles gives the cause for improving road safety and inter-vehicle communication. As a part of ITS, Inter-vehicle communication or transmission together with VANET systems has become the emerging research field. [13] VANETs are certain type of Mobile Ad-Hoc Networks (MANETs) and comprise of a bunch of vehicular nodes mobile on road lanes and able to communicate with each other with or without a fixed transport and communications infrastructure. The high mobility of nodes is a defining feature of VANETs, making the mobility models a critical aspect to consider when evaluating any protocol. There are various protocols can be used for vehicular communication i.e., to dispatch the information from source to sink. The exceptional protocol must be selected so that it is suitable for the area to be applied. In urban contexts. The implementation and assassination of routing conventions for VANETs in urban areas are of great use for road safety [14].

Energy-Aware Location Security Based on Factors WiFi Sensor Network Routing Protocol

[1]Chandra KantaMallick,[2]Bindu Singh
[1,]College of Engineering Bhubaneswar, Biju Patnaik University of Technology
[2]Aryan Institute of Engineering and Technology,Biju Patnaik University of Technology

Abstract
In wireless sensor networks, all the sensors are deployed at untrustworthy environments and base station is far away from the sensors. To increase the lifetime of the sensor network entire region is divided into clusters. The sensors in the cluster have been communicated thorough the cluster heads. All the sensor in the network are busy in sensing, transmission of the messages, due to this any sensor will gone into dead state which causes delay in data transmission. This affects the traffic overload in other paths. To overcome this problem we are proposing an energy aware factor based location security algorithm which transmits the messages in a route which is selected based on reliability and energy levels of the different routes. The proposed methodology also includes homorphic energy-based encryption encrypts the data related to the sensor node with less computational complexity. Heuristic conditions are used for optimizing the sampling rate and battery level for tackling the battery capacity constraints of the wireless sensor nodes

Introduction

Wireless Sensor networks cope with the hard trouble like node replication, node failure, packet losing and change with the aid of an adversary to disrupt conversation. Many schemes have been proposed to mitigate these issues but only some can efficaciously and correctly perceive the severity of the network [1]. In addition Wireless Sensor networks are prone to attacks on data classifications. Widespread adoption of WSNs, particularity for mission vital tasks, hinges at the improvement of sturdy safety mechanisms in opposition to such attack [2]. The symmetric-key based schemes calls for complex key management, lacks of scalability, and isn't always resilient to massive numbers of node compromise attacks for the reason that message sender and the receiver should percent secret key [3].In this paper, data gathering can be performed simultaneously with Greedy Protocol. Once a node depletes its energy, its sensing quality and overall network connectivity degrade. Energy based homomorphism encryption undergoes the key generation, encryption and decryption process on the basis of the energy level. Once the data received to the sensor and it finds the best paths to transmits the data using Energy Aware Factor based Location Security. The remainder of this paper is organized as follows: In Section 2, the literature review on mobile sink scheduling framework towards energy harvesting and throughput maximization is provided.

Dependability of load management systems in networks with low voltage

[1]**Debarpita Roul,**[2]**Ranjit Sahoo**
[1,]**College of Engineering Bhubaneswar, Biju Patnaik University of Technology**
[2]**Aryan Institute of Engineering and Technology,Biju Patnaik University of Technology**

Abstract

The basic idea and design of load management systems for low-voltage networks are presented in this paper. Based on this, an analytical reliability calculation approach that already exists is improved in accordance with load management system criteria. Using a load management system for an example low-voltage network, the effects on reinforcement costs and reliability indices are evaluated between a conventional and an extension variation of the network. The findings highlight the fact that while the system average interruption duration index (SAIDI) rises by around 25%, network reinforcement costs can be lowered by roughly 30%. To guarantee that protective devices do not release as a result of overloads during malfunctioning situations of a load management system, predetermined fallback values should be taken into account.

INTRODUCTION

In order to successfully transfer combustion engine vehicles to electrified vehicles, low-voltage (LV) networks must widely integrate charging infrastructure. Given that it primarily takes the form of additional load supplied by the network, this new infrastructure suggests a significant shift in the behavior of the power network. LV networks frequently need to be strengthened or enlarged in order to ensure that they operate within the permitted voltage-level constraints and thermal loading of lines and transformers.This can be accomplished, for instance, by using decentralized network automation (DNA) systems, such as load management systems (LMSs), or by using standard network infrastructure, such as cables and transformers. Since LMSs are relatively new to the market, it is not well understood if they are more dependable, cost-effective, or effective than traditional equipment. This study presents a method for taking LMS into account while network planning. Additionally, the LMS standard improves the analytical reliability calculation approach, enabling a thorough reliability examination. variations.

Embedded System Education: A New Paradigm for Engineering

[1]Dibyalekha Nayak, [2]Aruna Sahoo
[1,]College of Engineering Bhubaneswar, Biju Patnaik University of Technology
[2]Aryan Institute of Engineering and Technology,Biju Patnaik University of Technology

Abstract

 Embedded systems are emerging as an essential component of modern electronic products. Embedded system design problems are posing challenges that involve entirely new skills for engineers. These skills are related to the combination of traditionally disjoint engineering disciplines. There is a shared concern that today's educational systems are not providing the appropriate foundations for embedded systems. We believe a new education paradigm is needed. We will argue this point using the example of an emerging curriculum on embedded systems at the University of California at Berkeley. This curriculum is the result of a distillation process of more than ten years of intense research work. We will present the considerations that are driving the curriculum development and we review our undergraduate and graduate program. In particular, we describe in detail a graduate class (EECS249: Design of Embedded Systems: Modeling, Validation and Synthesis) that has been taught for six years. A common feature of our education agenda is the search for fundamentals of embedded system science rather than embedded system design techniques, an approach that today is rather unique.

INTRODUCTION

Embedded systems have been a strong research area for the University of California at Berkeley. We will briefly review this intense research activity as a preamble to present the Berkeley effort in embedded system education that is intimately related to the research program. The research activities on embedded systems at Berkeley can be cast in a matrix organization where vertical research areas cover application domains such as automotive, avionics, energy, industrial control, and horizontal areas cover enabling technologies such as Integrated Circuits, Sensors, Wireless Networks, Operating Systems, Embedded Software, Automatic Control, Design Methodologies and Tools. The important aspect of our approach is that the enabling technologies are explicitly linked to the vertical application areas and are geared towards the embedded system domain.

Biomedical Signal Processing: Content, teaching and training

[1]Dilleep Kumar Bhadra,[2]Anish Mohanty
[1,,2]College of Engineering Bhubaneswar, Biju Patnaik University of Technology

Abstract

In this paper, discussed are points cumulated in our practices in taking the course of "Biomedical Signal Processing". The contents include the arrangement of the contents, selection of multi-teaching methods, reformation of examination methods, the way of communication with students and the design of experiments.

INTRODUCTION:

"Biomedical Signal Processing" is one of the most important major subjects in Biomedical Engineering. The goal is to let students to understand what biomedical signals are, which is being obtained from various biological and medical practices, and to know what a digital signal processing technique is suitable to one of the commonly faced biomedical signals processing problem [1, 2]. Biomedical Signal Processing mainly is about the innovative applications of signal processing methods in biomedical signals though various creative integrations of the method and biomedical knowledge. In general, almost all the signal processing algorithms have the potential to be applied to various biomedical problems [3]. Due to the limited teaching units (48 units with each unit 45 minutes), the selection of signal processing methods and application of biomedical and clinical processes are very important. According to the characteristics of our students, we designed a teaching outline of 48 units: 40 units as classroom teaching and 8 units as experimental training. The teaching contents include Introduction, Power analyze and solve the practical biomedical problems, four design experiments are required in Power Spectrum Estimation, Correlation Technology, Wiener Filtering and Signal Parameter Modeling .

Factors influencing learnability of AR usage performance: survey validation

[1]Sanjay Kumar Sarangi, [2]Sandip Kumar Bala,

[1,,2]College of Engineering Bhubaneswar, Biju Patnaik University of Technology

ABSTRACT

In the educational and learning domains, augmented reality has grown in importance as a learning tool. Virtual reality has long been used in gaming technology. Furthermore, more opportunities for AR have been observed in training and education, particularly in industrialized nations. Augmented Reality (AR) has improved users' ability to learn. This work begins by compiling a list of the variables that affect learnability when using augmented reality (AR) in order to comprehend the effects of its use. Kolb's Experiential Learning Theory (ELT) from 1984 was used in the Literature Review (LR) process to identify the list of seven (7) elements. The factor's questions were validated using a survey method. After that, students and academics were given the validated questions to respond to in a separate survey for factor validation. The characteristics that were shown to be important within the proposed learnability enhancement model (LEM) were motivation, improved lab experience, enhanced focus, satisfaction, ability to visualize invisible concepts, better learning and performance, and confidence. Furthermore, the survey 1 was used to validate each question and gain the approval of 32 academicians and experts. Additionally, in survey 2, every element received an acceptance percentage of 94% and higher. In order to improve learnability and performance when using AR, it is important to identify these acceptance factors. In the next stage of this research, the efficiency of the LEM will be tested by simulating AR usage in a real-world setting.

Keywords—Augmented Reality, Education, Learnability, Survey, Kolb's Experiential Learning Theory, learnability enhancement model (LEM).

INTRODUCTION

These days, augmented reality (AR) is a widely accepted tool for teaching and education. Augmented Reality bridges the gap between our digital and physical environments. Augmented Reality (AR) augments the things that are already there and around us in our everyday lives by adding better computer-generated replies to them. These responses can include audio, GPS, video graphics, and other elements that overlap real inputs to meet the demands of the user. Furthermore, due to the widespread usage of mobile devices, augmented reality mobile applications are growing in popularity with consumers.

Improving the IDaaS System's Access Privacy with the SAML Protocol in Fog Computing

[1]**Sanjay Kumar Sarangi, [2]Sandip Kumar Bala**
[1,,2]**College of Engineering Bhubaneswar, Biju Patnaik University of Technology**

ABSTRACT

The industry's acceptance rate of fog environments is rising daily. Because user identities and information are preserved at endpoints and middleware, unauthorized access to data can occur. This study suggests a mechanism to safeguard and maintain users' identities while they are transmitting data. To protect data from security risks in cloud and database environments, fog computing is used. The Security Assertion Mark-up Language (SAML) protocol and Pentatope-based Elliptic Curve Crypto encryption used in the Fog computing-based Identity management as a service (IDaaS) system may address data security issues that cloud and database architectures were unable to resolve. In-depth comparisons of the suggested and current methods are examined, taking into account identity and access management, security services, service providers, and multi-authentication discussion.

Keywords: Fog environment, IDaaS, SAML, Pentatope-based ECC, multi- authentication

INTRODUCTION

Identity management as a service, or IDaaS, is one of the key services that modern cloud-based enterprises can use. It results in the deployment and enrichment of security services in cloud settings, such as access control, authorization, and accountability. Despite this, the computing industry relies heavily on the cloud paradigm environment to monitor and regulate data. In addition to making it easier to transition from a traditional approach to a promise delivery model to an on-demand delivery model, IDaaS also makes it easier to maintain identity infrastructure. Additionally, IDaaS provides cloud customers and providers with a number of benefits, including cost savings and control over data that is outsourced and pertains to the user's identity. It goes so far as to expand the range of services it provides in an effort to make security services easier.Globally, the use rate of cutting-edge technologies such as blockchain technology and fog and edge computing infrastructure has expanded because they manage the enormous volume of data that is gathered from IoT-connected devices.

Multiple chaotic maps using the quick Fourier transform to encrypt speech

[1]Sunita Satapathy, [2]SandipSahoo

[1,]College of Engineering Bhubaneswar, Biju Patnaik University of Technology
[2]Aryan Institute of Engineering and Technology,Biju Patnaik University of Technology

ABSTRACT

There are many ways to communicate socially, such as writing (WhatsApp, Messenger, Facebook, Twitter, Skype, etc.), calling (using a mobile phone), and recording voice messages (recording your voice and sending them to another person). However, there are ways to intercept calls and voice messages. One method to deal with this issue is by using cryptography. The foundation of chaos cryptography is nonlinear dynamics. Data security has seen some progress in the chaotic system. It offers a substitute for traditional cryptography that is based on mathematical structures. The goal of this study is to protect speech recordings by encrypting them using a variety of encryption techniques, such as chaotic maps (Logistic Map and Sine Maps).

Keywords: cryptography, Data security, chaotic maps, Logistic Map, Sine Maps

INTRODUCTION

Information security can be defined as the safeguarding of assets and the prevention of illegal access. Numerous methods originating from fields including computer science, mathematics, and engineering have been presented. The perimeter (firewall, intrusion prevention system, intrusion detection system), the computer system (password, biometrics), and the data itself (steganography, cryptography) are all secured by these measures. A key component of secure communications is provided by cryptography using an encryption algorithm. Text, images, videos, and speech are the subjects of interest for encryption the most. Symmetric and asymmetric systems are two categories into which mathematically based encryption techniques can be divided. Encrypting audio recordings can help stop illegal users from accessing, stealing, and using the data as a dangerous instrument in the future.

The Algorithmic Perspective of the Alternating BWT

[1]Sunita Satapathy, [2]Sanjay Kumar Sarangi,
[1,,2]College of Engineering Bhubaneswar, Biju Patnaik University of Technology

ABSTRACT

A word transformation called the Burrows-Wheeler Transform (BWT) was first used for data compression in 1994. It is now a vital tool for creating self-indexing data structures and has significant uses in many fields of research and engineering. Another transformation that was just introduced and is being researched in the field of combinatorics on words is the Alternating Burrows-Wheeler Transform (ABWT). Similar to the BWT, except instead of using the standard lexicographical order, it employs an alternate one. Building on results, where we have demonstrated that BWT and ABWT belong to a broader class of reversible transformations, and here we present an algorithmic and combinatorial analysis of the novel transform ABWT. Furthermore, we demonstrate that the backward-search process can be effectively extended to the ABWT; this outcome suggests that the ABWT can also serve as a foundation for effective compressed full text indices. Lastly, we demonstrate that the ABWT can be computed effectively by combining a linear time approach for determining the minimum cyclicrotation of a word with regard to the alternating lexicographical order with a combination of the Difference Cover suffix sorting algorithm.

Keywords: Burrows-WheelerTransform,Rank-invertible, Difference cover algorithm, Alternating Burrows-Wheeler Transform

INTRODUCTION

A reversible word transformation was first presented by Michael Burrows and David Wheeler in 1994[4]. According to BWT, it has "myriad virtues."When the Burrows-Wheeler Transform was first introduced in the text compression sector, it was thought of as a magic box since, when applied as a preprocessing step, it would make relatively weak compressors competitive in terms of compression ratio with the available stones. Since BWT can be viewed as a "booster" of memory less compressor performance, numerous research conducted in the years that followed have demonstrated the effectiveness of BWT and its essential role in the field of data compression. Furthermore, it was demonstrated in that the BWT may be utilized to effectively search for patterns within the original text. These BWT capabilities have led to the development.

Masked Face Recognition Using Dual-Proxy Modeling

[1]Bhramarabara Biswal, [2]Manoj Muduli
[1,]College of Engineering Bhubaneswar, Biju Patnaik University of Technology
[2]Aryan Institute of Engineering and Technology,Biju Patnaik University of Technology

ABSTRACT

Nearly everyone wears a mask every day as a result of the recent global COVID-19 pandemic, which has severely reduced the accuracy of traditional facial recognition systems. A number of studies enhance the masked face performance by using artificial masked face images during training. These techniques, however, frequently result in a decline in performance on unmasked faces, creating a discrepancy between the accuracy of the face recognition system on masked and unmasked faces. In order to enhance the performance of masked faces while preserving the performance of unmasked faces, we present a dual-proxy face recognition training strategy in this study. Specifically, to reduce the significant difference between the two data distributions, we propose two fully-connected layers as the masked and unmasked feature space proxies. In order to guarantee both intra-class compactness and inter-class discrepancy, cross-space constraints are used. Our method outperforms the state-of-the-art methods on masked faces without causing a significant loss in accuracy on unmasked faces, as demonstrated by extensive experiments on popular unmasked face benchmarks and masked face benchmarks, including real-world mask faces and the generated mask faces.

Keywords: Masked face; Dual-Proxy; benchmarks; dual-proxy face recognition; cross-space constraints

INTRODUCTION

The COVID-19 pandemic is now a major challenge and a global health emergency. Wearing medical face masks in public is an efficient and successful way to reduce the hazards associated with COVID-19. But because masked faces are so severely obscured, contemporary face recognition applications—like surveillance systems, face access control and passenger identification at airports—have trouble verifying the identity of masked faces. A few techniques are put forth to enhance mask face recognition ability. In order to enhance the masked face recognition performance of models, mixed normal and masked samples into a single batch. datasets.

Continual Quality Improvement for Learning Process in a Microwave Engineering Based Core Subject

Dr.G Ramprabu
College of Engineering Bhubaneswar, Biju Patnaik University of Technology

Abstract

At the Faculty of Electrical Engineering (FKE), Universiti Teknologi Malaysia, Skudai campus, Communication System is a core subject offered to the senior students of the Electrical Engineering Undergraduate Program. The student enrolment is the largest. This paper describes the continual quality improvement performance measured for the learning process of the students. Cooperative Learning (CL) technique has been successively introduced, a serious continuous effort in implementing alternative teaching method to enhance student learning process and inculcate generic skills that have been noticeably lacked among students and recent graduates. It was found that all CL classes achieved impressive 100 % passes, with >80 % achieved a minimum of Bs grade and all performed >Cs grade. The CL class overall performances were very impressive. The students exhibited higher retention rates and better understanding of the course materials. The findings are significant in verifying the improvement observed in the quality of the said learning process.

INTRODUCTION:

This paper focuses on the continual quality improvement performance measured for the learning process of the FKE mainstream students. The first author taught using an Active Learning (AL) approach; Cooperative Learning (CL). CL is a subset of active learning. Active learning is seen to be a proven technique to enhance students' learning as it engages students in doing something besides listening to a lecture and taking notes to help them learn and apply course material. Students may be involved in discussion, or writing, reading and reflecting individually in the classroom. This is a serious continuous effort carried out in implementing alternative teaching method to enhance student learning process and inculcate generic skills that have been noticeably lacking among the students and recent graduates. As such, graduates will be ready to assume engineering tasks upon graduation.

Machine Learning-based Signal Processing Using Physiological Signals for Stress Detection.

[1]**K.Murali Babu,**[2]**Lipsa Mishra**
[1,]**College of Engineering Bhubaneswar, Biju Patnaik University of Technology**
[2]**Aryan Institute of Engineering and Technology,Biju Patnaik University of Technology**

Abstract

Stress is a common part of daily life which most people struggle in different occasions. However, having stress for a long time, or a high level of stress will jeopardize our safety, and will disrupt our normal life. Consequently, performance and management ability in critical situations degrade significantly. Therefore, it is necessary to have information in stress cognition and design systems with the ability of stress cognition. In this paper a signal processing approach is introduced based on machine learning algorithms. We used collected biological data such as Respiration, GSR Hand, GSR Foot, Heart Rate and EMG, from different subjects in different situations and places, while they were driving. Then, data segmentation for various time intervals such 100, 200 and 300 seconds is performed for different stress level. We extracted statistical features from the segmented data, and feed this features to the available classifier. We used KNN, K-nearest neighbor, and support vector machine which are the most common classifiers. We classified the stress into three levels: low, medium, and high. Our results show that the stress level can be detected by accuracy of 98.41% for 100 seconds and 200 seconds time intervals and 99% for 300 seconds time intervals.

Keywords- Machine Learning; Signal Processing; GSR; EMG; HR; Respiration; KNN; SVM.

INTRODUCTION:

Stress happens when a person is unable to deal with high demand placed upon him or her. The effects of stress are seen physically, mentally and emotionally [1]. Existing research [2, 3] have shown that physical and mental stress can be detected by the physiological information of human being. The physiological information, which can be acquired by biological or physiological sensors, usually includes Electrocardiogram (ECG), Galvanic Skin Response (GSR), Electromyogram (EMG), Respiration (RESP), Finger Temperature (FT), Skin Temperature (ST) and blood volume pulse (BVP). Work Related stress detection using biological signals can be divided into two categories: 1. Using EEG (Electroencephalographs) signals 2. Using GSR, ECG, EMG, ST, RESPIRATION, etc. or combination of them .

Mobility Prediction based on Machine Learning

[1] L.N.Sarangi,[2]Garima Mishra
[1,2]College of Engineering Bhubaneswar, Biju Patnaik University of Technology

Abstract

Mobile applications are required to operate in highly dynamic pervasive computing environments of dynamic nature and predict the location of mobile users in order to act proactively. We focus on the location prediction and propose a new model/framework. Our model is used for the classification of the spatial trajectories through the adoption of Machine Learning (ML) techniques. Predicting location is treated as a classification problem through supervised learning. We perform the performance assessment of our model through synthetic and real-world data. We monitor the important metrics of prediction accuracy and training sample size.

INTRODUCTION

Location information pre-evaluation can be matched with information classification or prediction, in the sense that, the values of certain parameters for location estimation are determined in advance. The concept of predicting location by applying Machine Learning (ML) algorithms and techniques is quite novel. A location model is proposed in order to support location prediction for mobile users. Such model predicts, with a certain accuracy level, the future position (e.g., cell) of a mobile user in a cellular environment and can be used for the pro-active management of network resources (e.g., packets, proxy-cache content). The model can be trained using a variety of ML algorithms.

Machine Learning Solutions to Denial-of- Services Attacks in Wireless Sensor Networks.

[1]R.Siva Kumar,[2]Santosh Sahoo
[1,]College of Engineering Bhubaneswar, Biju Patnaik University of Technology
[2]Aryan Institute of Engineering and Technology,Biju Patnaik University of Technology

Abstract

Wireless sensor networks (WSNs) are used in various fields where remote data collection is necessary, such as environment and habitat monitoring, military applications, smart homes, traffic control, and health monitoring etc. Since WSNs play a crucial role in various domains and the sensors are constrained by resources, they are vulnerable to different types of attacks. One of the main attack types that threaten WSNs is Denial-of-Service (DoS) attacks. DoS attacks can be carried out at various layers of the network architecture. In this paper, we review the DoS attacks at each layer of TCP/IP protocol stack. Among them we focus on the network layer attacks because they are more diverse than other layer attacks. We review a number of studies proposing machine learning solutions pertaining to network layer DoS attacks in WSNs. We also provide some comparative conclusions to aid researchers studying in this field.

INTRODUCTION

Wireless sensor network (WSN) is a group of sensor nodes distributed over a geographical area and transferring sensed data to each other via a wireless environment [1, 2]. In a WSN, sensors communicate with not only each other, but also the base station that analyzes the collected data. As the demand for wireless remote monitoring and control in various fields increases, WSNs have become more popular. Today, WSNs are used in many areas including military applications, detection of environmental disasters, wildlife monitoring, health monitoring, etc. [3]. The primary aim of WSNs is to collect meaningful data in the environment where they are settled [4]. Providing and protecting the security of this data is an important issue as there are various attacks threatening the existence of these networks. These attacks can be classified as: communication, denial-of-service (DoS), node compromise, impersonation, and protocol-specific attacks [5]. Among them, DoS attacks try to hinder the communication of sensors by preventing one or more network devices that perform routing functions [6].

Machine Learning Algorithms and Performance Comparison

[1]Snehasis Dey,[2]Subrat Kumar Mohanty ,
[1,2]College of Engineering Bhubaneswar, Biju Patnaik University of Technology

Abstract

Machine learning algorithms are mostly used in data classification and regression. This paper is a review of Machine learning algorithms such as Decision Tree, SVM, KNN, NB, and RF. This work compares the performance of these algorithms to find accuracy, confusion matrix, training, and prediction time. This work uses the dataset consisting of 786 instances and 8 attributes that are preprocessed and labeled using Python software

Introduction

Machine learning is used to teach computers how to manage the data more effectively. When observing the data, we cannot understand the pattern or get details from the data. We're applying machine learning algorithms in that case[1]. The need for machine learning is on the rise with the increase in available datasets. From data, machine learning algorithms are used to learn. This is the purpose of machine learning. Many studies are done on the way to build machines to learn by themselves. Many mathematicians and programmers have used a number of approaches to finding a solution to this problem data [2]. The related studies explained in section II, the approaches of machine learning are explained in section III and performance some of the machine learning algorithm.

WSN HYBRIDIZATION OF METAHEURISTICS-BASED CLUSTERING FOR ENERGY USING DATA AGGREGATION

[1]G.Arul Dalton, [2]Harish Behera
[1,2]College of Engineering Bhubaneswar, Biju Patnaik University of Technology

Abstract

This research work develops an unequal clustering for data aggregation technique in WSN to accomplish maximum energy efficiency. Firstly, a hybridization of social spider with krill herd optimization algorithm based unequal clustering technique is designed to construct clusters of unequal sizes and elect CHs. Secondly, Bit Reduction with Burrows Wheeler Transform called BR-BWT for data aggregation process. The experimental results highlighted the effectual outcome of the proposed techniques over the other techniques in terms of energy efficiency and compression performance.

Keywords: **Data aggregation, Unequal Clustering, Wireless Sensor Networks, Compression Efficiency, Energy Efficiency**

Introduction

Wireless sensor network (WSN) consists of a huge amount of sub and sensor nodes with a constrained battery power supply. In general, the sensors are arbitrarily dispersed in the monitoring area for aggregating the gathered information and transfer data to the sink node/BS using single/multi hops [1, 2]. The data are transmitted to the terminal system via transmission links like an internet/satellite using the BS [3, 4]. Finally, users would gather information from the terminal system and control the operation over this. But, it has few drawbacks in utilizing WSN, includes higher energy consumption, shorter network lifetime, complicated network management instability, additional network overheads, and run on a large scale [5, 6]. Because of the low cost execution, WSNs are broadly utilized in many applications like transportation, industry, medical industry, agriculture, smart home systems, and environmental monitoring [7], and so on. But, the battery powered sensors have restricted energy, and a complex battery can alter the process procedure that influences lifetime, quality, and performance of WSNs. Because of this factor, managing energy utilization is a vital issue regarding WSNs. A significant detail to note when an attempt to decrease this problem, i.e., data transmission of wireless transmission expend more energy than data processing. WSNs could function in 2 manners: event-triggered/transmission sensing afterward transmission and continuous periodic sensing [8].

Assessing depression from tweets using stack assembly technique with a glove embedding model

[1]**GSS. Rao,**[2]**Minati Mohanty**
[1,2]**College of Engineering Bhubaneswar, Biju Pattnaik University of Technology**

Abstract

With the increasing volume of web content on social network sites like Facebook, Twitter, etc. identifying the attitude of people becomes an easy task. That attitude can be used as an input to find the mental status of that person through their texts. According to WHO, depression is a general mental disorder, which has already affected more than 264 million people. With the help of sentiment analysis, it is possible to detect depression at an early stage from their tweets as they represent their attitude. Machine Learning Classification algorithms help to classify the texts as Depressed or non-depressed, but their accuracy is limited when researchers are using only traditional Bag of Words vectorizers to extract features. Instead of this, word embedding models can be used which represent words as real-valued vectors in a distinct vector space that is already defined and provides better accuracy.

Introduction

One of the universal mental disorders is Depression having a probable prevalence of 4.4% [2]. Depression affects the professional as well as the personal life of a person, reduces the number of working days, and increases the chances of illnesses like cardiac disease, diabetes, hypertension, etc. Depression is a curable mental illness, but a majority of the patients are not getting the chance of being treated on time because of many reasons. The traditional treatment requests direct interaction and the state of illness is not noticed at an early stage. But nowadays usage of social network sites is growing rapidly and people feel free to express their opinions through sites like Facebook, Twitter, blogs, etc. which offers people a chance to isolate their negative emotions at an early stage. Sentiment analysis can be treated as a pooled procedure of text mining, NLP, and computational linguistics[3]. It helps to extract the sentiment concealed in the text-positive, negative or neutral. Twitter is a microblogging site where people are conveying their attitudes and opinions very freely about an event, product, etc. which helps the users to recognize their emotions. Tweets often represent a person's present state of mind, which can be positive or negative.

A HYBRID APPROACH IMPLEMENTED IN VEHICULAR AD-HOC NETWORKS FOR SYBIL ATTACK

[1]Hiren Kumar Praharaj,[2]Satish Kundu
[1,2]College of Engineering Bhubaneswar,BijuPattnaik University of Technology

Abstract

The Vehicular Ad-hoc Network (VANET) is becoming increasingly important because of its high mobility and common link breakage architecture. There are several amusement services provided to all passengers via the VANET, and it is these services that ensure that the riding environment runs as smoothly as possible. Vehicle networks include a variety of routing protocols to help them communicate effectively, but these networks are vulnerable to a wide range of threats, including the introduction of rogue nodes. Many VANET systems face a serious security challenge today, as a misdirected conversation could result in catastrophic consequences for human lives, either immediately or in the future. In this Paper, the ns2 simulator can be used to construct the hybrid detection technique. P2DAP performs better than footprint as the number of large-capacity vehicles on the road rises. In contrast, when the number of cars increases, the footprint set of guidelines performs better. Encrypted facts, the authentication method and the car's trajectory can all be taken into consideration when creating a new Hybrid technique with set of rules**.**

Keywords- Vehicular Ad-hoc Network (VANET), Sybil attack, Foot Print Algorithm.

INTRODUCTION

New requirements for what people expect from Wi-Fi environments are emerging as the wireless era progresses and the Internet's relevance in our everyday lives grows in importance. In response to this advancement in technology, Vehicle Ad-Hoc Networks (VANs), a new type of wireless ad hoc networks, was created (VANET). In contrast to Mobile Ad-hoc Network (MANET), VANET allows each node (vehicle) to move freely within the community insurance area while also transmitting specific conversation types, which include Vehicle to Vehicle Communication and Vehicle to Roadside Communication, as well as a variety of other functions.In a report published by the Federal Communications Commission of the United States in 1999, the dedicated short range communication (DSRC) spectrum at five.9GHz was deemed excellent for VANET deployment. DSRC is built on the cutting-edge 802.11p standard, which possesses the WAVE (Wireless Access in Vehicular Environments) capability for intelligent transportation systems. Examples include IEEE 1609.1.

Applying hybrid design patterns, resilient micro services architecture developed for cloud-based applications in Agile approach

[1]Jagdish Kumar KB, [2]Manish Rout
[1,]College of Engineering Bhubaneswar, Biju Patnaik University of Technology
[2]Aryan Institute of Engineering and Technology,Biju Patnaik University of Technology

Abstract

Micro services is a notion that claims to enable the creation of large, complicated systems that must operate in an unpredictable environment. Microservices should therefore promote resiliency. This paper provides possible solutions on fault tolerant of microservices and solve the problem of frequent shutdown or restart of services through advance research on hybrid design patterns based on Agile – Iterative and Incremental approach through a process called dynamic fusion. Fusion of objects Micro services during runtime will ensure that there is no need for system restart. Though currently there are many techniques to achieve binding, still it is widely found that the microservice needs to be restarted whenever there is a new increment or iteration. This area of research is to find out all possible and feasible options of dynamic binding via a deep study on object-oriented analysis and design techniques which come out with various possible technical solutions. This study is based on "SOLID" software design concepts in general and how they are applied to microservices difficulties specifically to dynamic fusion of atomic micro services in a complex micro services architecture on cloud

Keywords: **Microservices, Agile Iterative and Incremental approach, dynamic fusion.**

Introduction

There has been minimal study into a thorough evaluation of dynamic binding systems, notably in terms of system failure and dependability, because previous research has concentrated on the design and implementation of dynamic binding processes. Microservices is a phrase that has been around for a while. Dr. Peter Rodgers invented the term "micro web services based on Simple Object Access Protocol (SOAP). Microservices design helps huge systems to avoid monolithic applications. It allows for flexible coupling between cooperating systems that operate independently in diverse settings while maintaining tight cohesion. The deployment, development, and ongoing maintenance of web applications have all changed significantly with the introduction of micro service architecture. The micro service method decays the application into numerous independently executable software components or units that coherently interoperate to deliver specific application functionality, as opposed to the traditional monolithic application architecture, which builds the entire application as a single unified system.

Different mobility models' performance evaluation in a vehicle-delay-tolerant network (VDTN) using VNETs,IEEE 802.11P Standard

JVN Ramesh
College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

Abstract

Vehicular Delay-Tolerant Networks (VDTN) is a spatial sort of Delay-Tolerant Network (DTN) for nextgeneration vehicle communication. However, limited resources in terms of delivery ratio while higher overhead are the key challenges. Therefore, a reliable with satisfying quality of service (QoS) of delay tolerable dynamic communication is required for vehicular ad-hoc networks (VANETs). This paper evaluates the varying number of mobile vehicles/nodes and two different types of Mobility Models; Traced based Mobility and Random based Mobility Model. The above scenarios were investigated based on Epidemic routing, PRoPHET routing, and SprayAndWait flooding routing. The performances were evaluated using Network Simulator (NS-3.29) with VANETs or IEEE 802.11p standard. Finally, three QoS metrics were considered: Delivery Ratio, Overhead, and Average Delay. The simulation result shows that the RWayPoint Mobility has recorded better performance metrics for all routing protocols in both (lower and higher) density vehicle scenarios. Hence the QoS are improved.

*Keywords***:** IEEE 802.11p/1609.4; DSRC; OBU; MANETs; Epidemic; PROPHET; SprayAndWait

Introduction

Annually, millions of human lives are lost due to roadside accidents (Nearly 1.3 million), and over 3000 deaths are recorded daily. In the present situation, roadside accidents are alarmingly high because of increasing vehicle density. Statistically, the annual increase in the number of vehicles density is estimated at fifty million [Sharma *et al.*, (2016)], which is mainly attributed to a lack of driver assistance and awareness. In the last decades, different technical organizations (Such as ITs, ETSI ITs-G5, ASTM, FCC, IEEE 802.11p/1609.x) attempted to develop VANETs communication to reduce the rate of roadside accidents. RFID framework will guarantee successful activity control amid crest periods to maintain a strategic distance from crashes, spare time and assets, and as well spare our planet [Matthews *et al.*, (2017)]. The Intelligent Transportation Systems (ITs) are considered two types of vehicle communication for Vehicular Ad hoc networks: vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) [Venkatesh *et al.*, (2014)]. On the other hand, Bluetooth Low Energy (BLE) is the advancement and test of an intra-vehicular framework, comprising an outline to demonstrate real-time information collected from numerous sensors dispersed inside a car, utilizing an Android smartphone [Silva *et al.*, (2017)].

SMART SECURITY CONTROLS FOR DYNAMIC COMPUTING MODELS

[1]K.Venkata Ramana, [2]Kabita Sahoo
[1,]College of Engineering Bhubaneswar, Biju Patnaik University of Technology
[2]Aryan Institute of Engineering and Technology,Biju Patnaik University of Technology

Abstract

Organizations are making use of Access and Identity Management systems in order to manage identity of consumers and access privileges. Such systems are acting as a significant source of identity and to fetch data. Process of protecting and safety of sensitive data from suspicious intruders and cyber assaults are useful for important tasks. A well-defined authorization process is required to ensure that appropriate people have access to appropriate data at appropriate time and with the appropriate rights. However there have been several Identity and Access mechanism to provide authentication and authorization in order to allow secure access. But previous models have their own limitations. Considering the issues of previous access model, this research work has proposed an integrated security mechanism for the safely of web application and Content delivery Networks.

Keywords: Block chain, Security, Authorization, Web Applications, Access control, OTP, Authentication.

Introduction

Proposed research has focused on the access control mechanism by making use of one time password. Research is also considering applicability of cryptography in order to secure the user password. On other hand blockchain mechanism has been integrated in order to enhance the security during identity management. The authorization model is being studied in order to create safe and user-friendly web-based applications that use OTP, encryption, and the block chain concept. Several access control models, as well as their properties, have been compared to a proposed security model in research. Proposed work has used OTP to provide security during transactional operations; encryption is protecting content from being decoded by unauthentic person. The blockchain mechanism has been applied in order to secure identity. The integration of OTP, encryption and blockchain is going to play significant role in identity and access management

Load-induced Permanent Deformation behaviour of Cold Recycled Asphalt

[1]SachiKanta Pradhan,[2]Sabita Mohanty

[1,2]College of Engineering Bhubaneswar,BijuPattnaik University of Technology

ABSTRACT

This study's goal was to assess how four cold recycled asphalt mixtures stabilized with foamed asphalt and asphalt emulsion behaved in terms of permanent deformation. Three flow number test procedures that were modified for use with cold recycled mixtures were taken into consideration during the analysis: (i) ABNT NBR 16505 (method A); (ii) FN test adaptation for CRAM using Kim and Lee's method (method B); and (iii) 3D-Move analysis software simulation of pavement structures to address the stress magnitude for the FN test (method C). The impact of the curing process on the materials' performance was also confirmed. An extensive database of computed pavement responses from the four different experimentally loaded asphalt pavement structures was employed in this work.The FN results, which were obtained using technique C and the 3D-Move data, showed that the cold recycled mixtures, when exposed to temperature and axial stress, exhibited good mechanical behavior in terms of permanent deformation. The efficacy of technique B, as suggested by Kim and Lee, in analyzing the CRAMs examined in this study was found to be low.

INTRODUCTION

A growing trend in the intervention, upkeep, and rehabilitation of damaged asphalt pavements is cold recycling. The primary benefits of this approach are reduced transit interruption and quicker interventions due to its positive effects on the economy and environment. Reclaimed asphalt pavement (RAP), which is typically produced by pavement milling, is added to a fresh mixture during the recycling process by means of asphalt binder addition (stabilization). The aggregate gradation of the mixture can also be modified by adding virgin aggregates. The behaviour of the recycled asphalt mixtures can be evaluated in the lab using several permanent deformation test techniques. Repeated load triaxial testing, typically with a frequency of 1 Hz to 5 Hz and several cycles ranging from 10,000 to 1,000,000, are used to create permanent deformation prediction models for CRAMs exhibiting mechanical behaviour like to that of granular materials.

ARTIFICIAL NEURAL NETWORK TECHNIQUES FOR HEALTHCARE SYSTEMS ON HEART ATTACK BY INCLUDING CORONAVIRUS VACCINE AND INFECTED WITH CORONAVIRUS

M. Pavan Kumar
College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

Abstract

Artificial neural networks have revolutionized data-driven applications in the medical area. Machine learning is a type of artificial intelligence that is used to solve a variety of data science challenges. The prediction of a result based on existing data is a typical use of machine learning. Diagnosing heart disease is a difficult process that takes a great deal of expertise and knowledge. Traditional methods of forecasting heart illness include hospital examination or a variety of medicinal checks. The health-care business has a massive amount of health-care data, much of which are buried. This concealed knowledge can help you make better decisions. For the best outcomes, computer-based data are combined with modern data mining techniques. The neural network is a widely utilized tool for predicting the diagnosis of heart disease. There is no evidence that the COVID-19 vaccination increases the risk of heart attack. However, it is being used as "proof" that the vaccine kills in social media posts. As a result, we investigated this issue by incorporating 'infected with coronavirus' and 'coronavirus vaccine' as additional criteria for improved accuracy. This study describes a proposed artificial neural network model to predict a heart attack.

Keywords: **Medical diagnosis; Feed-forward back propagation network; Decision support systems.**

Introduction

Heart problems are currently the leading cause of death throughout the world. The World Health Organization (WHO) estimates that 12 million people worldwide die each year from heart disease. Heart disease claimed the lives of 17.3 million people in 2008 and it is responsible for almost 80% of all fatalities worldwide. According to the WHO, heart disease will have claimed the lives of roughly 23.6 million people by 2030. ANNs are a valuable tool that may help physicians in a number of medical contexts analyze, model, and make connections between different clinical data. The vast majority of ANN applications in medicine are classifying tasks, in which the goal is to assign a patient to one of a small number of classes based on measurable data [1]. In [2], the authors suggested a multilayer, probabilistic, learning vector optimization, and generalized regression technique for comparative chest ailment diagnosis. Using SAS enterprise miner 5.2., [3] developed a neural network ensemble-based approach for detecting heart disease. Three separate neural network models were used to create the ensemble model. The artificial neural network is a mathematical feature of the human neural system that shows the importance of learning and adaptation.

Biometric authentication systems for facial recognition using deep learning-based challenge response liveliness matching for presentation attack detection

M. Pavan Kumar
College of Engineering Bhubaneswar,BijuPattnaik University of Technology

Abstract

Face recognition based biometric authentication systems are being widely adopted but they are vulnerable to presentation attacks. Detecting presentation attack is important to enhance the security level of face recognition biometric systems. Many presentation attack detection systems (PAD) have been proposed based on comparison of real and presentation image features. But these solutions can be deceived easily by creating the exact replica of real face. To solve this problem, this work proposes alive lines approach which solves PAD as a challenge response problem. The response of face to a challenge is measured and analyzed to detect PAD. The challenge response matching is realized using a novel Face action unit biased convolutional neural network which selectively skips feature learning in non action unit areas. This novel deep learning model speeds up the challenge response face matching ,increases the accuracy of liveliness matching and robust against environmental distortionss**.**

*Keywords***: Face recognition, Spoofing, PADS, liveliness detection, Deep learning, CNN, Emotion smapping.**

Introduction

Biometric features have become the most widely adopted secure and reliable authentication systems due to various advantages like difficult to steal, uniqueness, high recognition accuracy and convenience. Biometric authentication systems were found to provide stronger security compared to token based methods (cards, keys etc) and knowledge based methods (username/password), but this is getting challenged recently. Various technological advancements make it easy to generate fake biometric samples with close resemblance to real samples. Though the fake samples can be created for any biometric features like face, iris, fingerprint etc, this work address the problem of faking in face based biometrics. Face recognition based biometric authentication is used in various applications like Smartphone/computer login, passport control, premises access control. In spite of various challenges in illumination and pose variations, it is still being used in biometric authentic action systems. Users face presented in front of cameras are captured. Features extracted from the face are matched to features stored in database to recognize the person. Various attacks exploit the loop holes in face acquisition process like printed photographs, masks, or video displays and reduce the security level of the system.

To Combat the Rising Rate Of Individual Mental Degeneration, Intelligently Identify Hate Speech

[1]Prasanna Kumar Mishra,[2]Manish Mohanty

[1,2]College of Engineering Bhubaneswar,BijuPattnaik University of Technology

Abstract

Hate speech refers to expressions made in public that show animosity or cause distress against an individual or group, usually on the basis of race, age, religion, sexual orientation, membership in a minority group, mental illness, political beliefs, etc. Such an act is one of the main factors contributing to the widespread mental degradation of people worldwide. Because people are using social media more frequently these days, we have seen an increase in the dissemination of hate speech via videos. Because it has increased in frequency on many social media platforms, causes low self-esteem, and has serious negative effects on human existence, researchers are focusing on this problem. Since people are posting a lot of these kinds of unfavorable movies on social media sites like Facebook and YouTube these days, our work focuses on gathering data from these kinds of videos. After converting the audio from these movies into text, we assembled a dataset and used a few classification models.

Introduction

Since we are human, it is our right to communicate our views and feelings. We are free to express ourselves and speak up. However, there are instances when we can use our voices and expressions to harm someone, disregard someone's status, engage in racism, define gender bias, express unfavorable religious views, and a host of other things. Thus, there are a lot of detrimental activities associated with the right to free expression. The majority of online communication sources that are accessible to the general public can be tracked down .We applied a state-of-the-art transfer learning Bidirectional Encoder Representations from Transformers (BERT) model in this research. More specifically, we adjusted our transfer learning-based model to assess BERT's ability to recognize dangerous environments inside YouTube, transfer learning-based model, dissemination

An Optimal Prediction of Software Faults through Sampling-based Software Prone Technique.

Naba Kumar Rath
College of Engineering Bhubaneswar,BijuPattnaik University of Technology

Abstract

Finding faults in software modules is an emerging issue in software reliability systems and the assessment of the fault is performed by software fault prediction systems (SFPS). An identification process of fault prone of software modules is the most prioritized before initiating the testing process of the same modules. The SFPS helps to improve the quality of software within the specified time and cost values. Early fault prediction in SFPS for the different software components showed significant results concerning the co stand time parameters. According to the state-of-the-art of SFPS, ensemble-based classifiers were performed as the best and most cost-effective when compared to other classifier methods. An ensemble random forest with adaptive synthetic sampling (E-RF-ADASYN) is developed recently is tested on a sample of PROMISE datasets and shows the cost-effective classifier results. Our proposed work is focused on the development of another sampling method, say, Multi-Distinguished-Features Sampling (MDFS) for obtaining the best sample illustration for representing the entire dataset.

Keywords: **Software Reliability; Software Faults; Software Fault Predictions Systems; Ensemble Classifiers Sampling;**

Introduction

Assessment of software quality is the most important estimation of working reliability factor for the software products. Fault prediction in various components of software products is the primary scenario of the software quality assessment. It can be determined in early software development stages to reduce time and space requirements values. The fault prediction in software is commonly known as software fault prediction (SFP). The SFP is still facing some obstacles like fault density prediction due to software entity identification problems. Determining appropriate naming conventions is required and it is possible with the best representation of samples of data entities. Advances in software and its technologies are wildly used in fabulous social and real-life applications, such as air-traffic systems, space control systems, anonymous identification systems, defense systems, etc. Large-scale systems usually consist of many components, in such cases, - the various suspects or faults are a critical and challenging issue since they depend on the massive amount of data. Data characteristics or classifications for the components need to be assessed for the prediction of software faults. The ultimate aim of the prediction systems is to deliver an error-free and software-prone system.

Implementing Transfer-Learning for COVID-19 Prediction Using RT-PCR Confirmed CXR Images and VGG-19 with Transfer learning-Technique

[1]**Nrusimhadri Nareen,**[2]**Mamata Muduli**
[1,]**College of Engineering Bhubaneswar, Biju Patnaik University of Technology**
[2]**Aryan Institute of Engineering and Technology,Biju Patnaik University of Technology**

 Abstract
Corona-virus is a disease which caused immense destruction to human lives in 21st century. This virus outbreak is considered as an epidemic that spread globally. Crores of people are infected by this virus all over the world. Early detection of the virus is very much important to overcome Covid-19 crisis. This model proposes a convolution neural network model implemented using VGG-19accompanied with Transfer Learning Technique for the Covid-19 Detection. The Covid-19 dataset considered in this model is a verified report of positive cases confirmed by both RT-PCR and CXR images. Initially, One Hot Encoding Method is used for CXR image data conversion and then pre-processing is done to extract features and then filtered data is forwarded through the VGG-19 and is further processed to Fully Connected Layers. Therefore, the model is later fine-tuned to achieve better classification results. The achieved model accuracy is around 0.94 with a loss is about 0.55.

Introduction

COVID-19 is the newly emerged contagious disease also known as corona virus which changed the entire world upside down. It is a new strain of Corona virus having a scientific name Ortho coronaviridae or Coronaviridae [Cheng, et al. (2007)]. It is described as Severe Acute Respiratory Syndrome-2 (SARS-CoV-2)[Wang, et al. (2020)]. It is a respiratory disease, which is caused due to a virus genome named SARS-CoV-2.It is primarily identified on December 2019, Wuhan Hubei Province, China[Liu, et al.(2020)].The most common symptoms of this virus are Cough, Fever, difficulty in breathing, Muscle aches, chills, sore throat, runny nose, headache, chest pain, pink eyes and loss of sense of taste and smell. The severity is determined in three stages i.e., Mild, Moderate and Severe. RT-PCR test is a highly preferred laboratory Covid-19 diagnosis.

Emotion Recognition Using Hybrid Approach of Shuffled Frog Leaping Algorithm and Subset Feature Selection

[1]**P.Karunakar Ready,**[2]**Amita Rath**
[1,2]**College of Engineering Bhubaneswar, Biju Pattnaik University of Technology**

Abstract

Emotion recognition method is required for therapy to recognize the emotions of patient and helps in treatment. Many computer science based emotion recognition works focused on facial expression, speech, body gesture and multi-modal based machine learning techniques. Existing methods have limitations of poor convergence and easily trap into local optima. In this research, the Shuffled Frog Leaping Algorithm (SFLA)-Incremental Wrapper-based Subset Selection (IWSS) hybrid method is proposed to improve the emotion recognition. The proposed method involves in analysis the emotion of user through video, audio, and text features and recommends the music to the users. The analysis shows that hybrid modality shows the higher performance in emotion recognition. AlexNet model is applied for the feature extraction in video data and Latent Dirichlet Allocation (LDA) is applied for text feature extraction. Multi-Class Support Vector Machine (MC-SVM) model is used for the classification. The proposed SFLA-IWSS method has 97.05 % accuracy and existing gSpan method has 90 % accuracy. Keywords: AlexNet; Incremental Wrapper-based Subset Selection; Latent Dirichlet Allocation; Multi- Class Support Vector Machine; Shuffled Frog Leaping Algorithm**.**

Introduction

In the field of human-computer interaction and artificial intelligence, emotion recognition plays a
promising role. Various techniques like heartbeat, blood pressure, body movements, speech recognition, facial expressions and textual information were used to detect emotions of the users (Batbaatar et al., 2019). Individual's mental state related with behavior, feelings, thoughts are often defined as an emotion. Emotion recognition is one of the popular research in Artificial Intelligent and its ability to mine opinions in social media data such as Twitter, Reddit, YouTube, and Facebook, and others (Poria et al., 2019). Speech is considered as natural way to express ourselves and this is used for emotion recognition. Text is used to way of communication in emails, messages and this is used to recognize the importance of the emotion. Speech Emotion Recognition (SER) is often used for the emotion recognition [Akcay et al. (2020)]. Emotion recognition embedded in a healthcare system to monitor the patient physical and mental state and prescribe suitable medicine or therapy [Hossain et al. (2019)]. Another important module in emotion recognition is facial expression.

CONCEPTUAL REVIEW OF MICROFINANCE AND WOMEN HOUSEHOLD, ECONOMIC, AND SOCIAL EMPOWERMENT OF MICROFINNACE BORROWERS.

[1] Sadasiv Dash,[2]Anita Das
[1,2]College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology.

Abstract

The majority of society ignores impoverished women, who lack prospects for self-sufficiency, lose their confidence, and are unable to sustain themselves. As a result, these women suffer from psychological, social, and mental health issues. In order to create a conceptual framework for microfinance and the household, economic, and social empowerment of women who borrow money from microfinance institutions worldwide, the study intends to conduct a thorough evaluation of the literature on women's empowerment. The current study made use of already-published materials and resources from reliable internet databases, including Web of Science Data Based, Google Scholar, Science Direct, and Scopus.

Introduction

The results of this study showed that poor women are disadvantaged, have few opportunities to become self-sufficient, and are dependent on welfare or charity. Not able to sustain oneself, impoverished. The study also discovered that fostering and enhancing self-sufficiency abilities can empower women. The survey also showed that loan availability was one of the main issues that the impoverished and those with lower incomes faced. It is nearly hard for them to get credit from official financial institutions because they have no credit history, no assets for collateral, and no financial records. Microfinance has been quickly developing in dismal and helpless communities as a result of the conclusion that it can be a powerful and effective tool for the poor to access financing. Lastly, based on the foregoing summary of findings, the current study created a conceptual framework for a practical investigation to further explore the relationship between women's household, economic, and social empowerment through microfinance.

Effect of Microfinance on Women Empowerment: A Case Study of Pakistan

[1] Sadasiv Dash,[2]Amrit,Rath
[1,2]College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology.

Abstract

Empowering women is a critical issue for emerging nations, especially those in Asia and Africa. Gender equality and zero poverty are the two standout SDGs from the UN. This study evaluates the effects of microfinance on poverty reduction and women's empowerment in Pakistan, taking into account the experimentally demonstrated influence of microfinance on women's empowerment in many parts of the world. Using superior empirical techniques (Ordinary Least Square, or OLS, and Propensity Score Matching, or PSM) and a bigger cross-sectional dataset of 670 respondents, this impact has been thoroughly examined. The Multidimensional Poverty Index (MPI) was created based on the values of the responses to evaluate the respondents' multidimensional poverty levels. The findings demonstrated that exposure to microfinance has a favorable effect on women's empowerment, the reduction of poverty,

Keywords: Sustainable Development Goals (SDGs), Microfinance, Poverty Alleviation, Women Empowerment,

Introduction

Among 1.3 billion poor people of the world, the majority are women and children. One of the main causes behind this is gender discrimination, which exists almost all over the world. Women face discrimination in society and family in almost all economic, social, and political affairs (Salia, Hussain, Tingbani, & Kolade, 2018). Females are treated unjustly and face many hurdles and difficulties in the routine course of life, which results in limiting their inner potential. Because of limited mobility, participation, and freedom women are unable to contribute effectively towards the betterment of household and development of the society at large. Due to lack of empowerment women are underproductive and therefore, unable to contribute significantly in economic development (United Nation, 2018).

Microfinance and Accounting's Support for Women's Empowerment Based on Family Resilience

[1] Sasmita Nayak, [2]Minati Das
[1,2]College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology.

Abstract:
Women provide value for businesses and are a catalyst for economic success. Despite making up between 40 and 50 percent of small businesses in developing nations, women own less than 20 percent of all land worldwide, and they frequently have less access to and control over resources than men do, especially income. Because of this, they are unable to actively promote productivity and economic growth throughout the supply chain. This study aims to comprehend the problem of women's empowerment by reaching out to AIM participants with the assistance of Amanah Ikhtiar Malaysia (AIM). The three primary components of this research are training, social capital, and the role of microfinance programs. Data from more than 375 participants was gathered via an AIM-specific survey in order to

Keywords: Involvement in Microfinance Program, Social Capital, Training, Location, Women's Empowerment

Introduction

Women make significant contributions to economic growth, innovation, and job creation (Brush, De Bruin, & Welter, 2009). There were over 163 million women who founded or managed new businesses in 74 different economies worldwide (Kelley, et al., 2017). We can observe the effects of women in business when 111 million additional women who already own their firms are included. These women are well-respected members of the business sector, occasionally employ members of their community, and provide for their families financially. However, there are considerable regional differences in the number of women who start their businesses. (Basaffar, Niehm, & Bosselman, 2018) Claim that the proportion of female business owners in Islamic nations ranges from 23% in Kuwait to 12% in Bahrain to 9% in Oman and further drops to a low of 7% in Qatar and Saudi Arabia. Women hold many administrative roles (Islam, Shrabani , & Mahfuzur , 2023), however, men outnumber them due to the emergence of new businesses. Only 20% of Malaysia's business visionaries are women (Basit, Hassan, & Sethu, 2020). Potential causes of this low number of female entrepreneurs are thought to be related to cultural norms and the preferences of financial experts.

Importance of operations management problems in service organizations

[1] Niranjan Nayak ,[2]Sonali Das

[1,2]College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology.

Abstract:

This article reports on the research to empirically determine which operations management problems are the most important to small service organizations. The authors asked managers of service organizations to rank a set of operations problems according to their relative importance using Q methodology. In this article, Q method is explained, significant factors are analyzed, and explanations are offered for the ranking of the operations problems. The results indicate that forecasting, quality management, and resource utilization are important operational issues for service organizations. However, the results also indicate that facility location and layout, waiting line systems, and distribution requirements planning were for the most part unimportant to the respondent service organizations.

Introduction:

A company's human resources are critical to its success. A company's management activities must function smoothly if it has staff who are well-trained and informed about the company's operations. The authors asked managers of service organizations to rank a set of operations problems according to their relative importance using Q methodology. In this article, Q method is explained, significant factors are analyzed, and explanations are offered for the ranking of the operations problems. The results indicate that forecasting, quality management, and resource utilization are important operational issues for service organizations. The output of a job or profession's functions or indications over a given period of time is known as performance [1]. The company's performance is also critical and beneficial. As a result, efforts to increase employee performance are a significant and serious management task, since the company's success and survival are directly tied to its human resources' performance. Employee performance is a translation of job performance, where in Indonesian terms, performance stands for kinetics of work energy.

Improvement of employee well-being by Work–life balancing

[1]**Sushant Mishra,**[2]**Pradeep Kumar Mohanty**
[1]**College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology**
[2]**Bhubaneswar Engineering College, Biju Pattanaik University of Technology.**

Abstract

Work–life balance supports provided by employers, often known as family-friendly practices or flexible working arrangements, are commonly thought to enable employees to better juggle the demands of domestic and other responsibilities, and perhaps reduce job demands. While this research, based on the 2011 Workplace Employment Relations Survey (2011 WERS), finds they do improve well-being, its novelty is in showing these are not the reasons why work–life balance supports improve well-being. They do so by increasing the job autonomy of those that use them and enhancing their perception that their management are supportive.

Introduction

Work–life balance supports provided by employers include flextime, job-sharing, moving from full-time to part-time working, compressing working hours, home-working, term-time-only working, and paid leave to care for dependants in an emergency. It is an unfortunate term, not least as it implies that work is not part of life. Nonetheless, it is now widely used and I will follow this convention. It has replaced family-friendly terminology as this leads to an overconcentration on reducing the burdens of childcare. Work–non-work supports is perhaps most accurate but rather clunky. The provision of work–life balance supports can have an effect on all employees, through showing the employer is concerned about their welfare, that is, regardless of their use by employees. Most studies have in fact concentrated on their availability.1 In contrast, the focus of this research is on the users of work–life balance supports and whether their well-being improved by using them. The theoretical lens through which I examine their effects is the job demands–resources theory, according to which employees' well-being and motivation decrease as their demands increase and the resources available to them decrease. Consequently, high demands and low resources, which include job autonomy and support from managers and peers, are associated with stress and ill-being.

New Age Management Trends and the Growth in Economy

[1] **Barsha Baishali Sahoo,**[2]**Bikram Nayak**
[1,2]**College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology.**

Abstract

At the present stage of socioeconomic development, the digital economy begins to play a dominant role in public life, having a significant impact on almost all of its components. According to the World Economic Forum (WEF), digitalization has great potential for business and society and over the next 10 years could bring more than $ 30 trillion in revenue to the global economy. This suggests that the development of information and communication technologies is one of the strategic directions of economic modernization. Moreover, investments in the development of digital technologies contribute to strengthening the strategic position of any country in the long term. World practice shows that the concepts of "digital economy" and "knowledge economy" are becoming inextricable and the role of science as an objective connecting link is growing.

Introduction

Currently, scientific and technological development – the transformation of science and technology into a key factor in the country's development and ensuring its ability to effectively respond to big challenges is considered as a strategic path for socio-economic transformation in Kazakhstan. The main resources of such development are the intellectual potential of the nation, fundamental science, technology and innovation, which are based on the latest knowledge about nature, man and society. The results obtained in the course of scientific research contribute to the development and dissemination of knowledge through the educational system and increasing the overall intellectual potential of society. The leading role of science requires appropriate approaches to forecasting and managing knowledge, including in terms of the necessary resource support.

The Art of High-Involvement Human Resources Practices on Real Use Cases

[1] Barsha Baishali Sahoo,[2]Manati Das
[1,2]College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology.

Abstract

This research is based on the theory of self-determination, and focuses on how high-involvement human resources practices can promote employee' proactive behavior. Through the analysis of 328 questionnaire data, the results show that high-involvement human resources practices promote proactive behavior, and this process is realized through the intermediary effect of thriving at work. This research broadens the theoretical research on the impact of high-involvement human resources practices, and explores the mechanism and practical significance of the organization's adoption of effective human resource practices to promote proactive behavior.

Introduction

With the increasing uncertainty of the external environment, the sustainable development of organizations is facing huge challenges. Due to the limited ability and energy of organization managers, companies will increasingly rely on employees to challenge the status quo, promote proactive behavior[1, 2]. Relying on the proactive behavior of employees can not only improve the productivity and efficiency of the organization, but also the fundamental guarantee for the survival and development of the organization. Proactive behavior refers to employees voluntarily making constructive efforts to initiate organizational functional changes in order to carry out work more effectively in their own positions, departments or organizational contexts.

A Comprehensive Analysis of India's Currency Revolution: The E-Rupee

[1]Purnachandra Pradhan.
[1]College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology.

Abstract:
The topic of cash has developed too many distinct scenarios in the context of the digital revolution and advancement. Over the past few decades, there has been a significant shift in our traditional form of cash, moving from coins to notes to plastic money to digital currency. In order to fulfill the economic settlement of exchange, man has devised a number of various ways, such as debit and credit cards (also known as plastic money), in the economic notion of going paperless and cashless. Unfortunately, the idea of plastic money cannot be a one-size-fits-all answer to the currency revolution initiatives because of the environmental commitment to reduce the utility of plastics and the centralization of chip production abilities to a few numbers of nations only. We in India had also successfully implemented the digitalization of our currency for the E-Rupees in an attempt to make Indian currency also adapt to this digital transition. E-Rupees have proven successful in India, but they are still in the pilot program and have not yet reached the point of full deployment. However, the crux of the issue is that India will soon be involved in the rupee market. Very soon, an E-Rupee will be in every pocket. The demonetization and digitization of 2016 have made E-Rupees the new currency in India. E-Rupees will soon be in everyone's possession. The important thing to remember is that we must all work hard to bring about this currency revolution.

Keywords: E-Rupees, Digital Rupees, eINR, Digital Currency, RBI, UPI, Currency Revolution, Digitalization, Cashless Economy, Crypto currency, Fiat Currency, E-Money and NPCI.

Introduction:

In the end, a boost to the startup ecosystem will benefit national businesses. A strong central government will stimulate the economy by implementing pro-business and pro-economic policies. At last, we had the money to close all of our business transactions, both physically and digitally. Being the nation with the strongest currency in the world is a type of privilege in and of itself. Any economy's currency that is fully convertible and accepted throughout the world facilitates payment settlement, which quickly expands the nation's trading network. To guarantee financial inclusion, convenience of payment, and transparency, the majority of the world's economies are racing to introduce their citizens to the digital form of their currency.

An Analysis of Credit Risk Management in Indian Commercial Banks

[1]Anurag Sahani,[2]Deeepak Nanda
[1]College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology.
[2]Krupajal Engineering College, Biju Pattanaik University of Technology.

Abstract:
In order to determine successful approaches and best practices for managing credit risk in the context of the Indian banking industry, this study will look at credit risk management procedures used by commercial banks in India. The scope of the study encompasses a number of credit risk management topics, such as macroeconomic considerations, customer satisfaction, regulatory compliance, risk assessment, monitoring, and mitigation. The report also looks at how regulatory changes and technology improvements have affected credit risk management procedures. The results of the study have the potential to enhance credit risk management procedures, encourage financial inclusion, and foster customer loyalty and confidence in commercial banks operating in India. In the end, sound credit risk management techniques can guarantee the commercial banks' long-term stability and profitability, which is essential for the expansion and advancement of the Indian economy as a whole.

Introduction:

A crucial component of banking operations is credit risk management, particularly for commercial banks that engage in lending. The main source of credit for people, companies, and other financial entities is commercial banks. For this reason, maintaining the financial stability of banks and the larger financial system depends on efficient credit risk management. Commercial banks are vital to India's economy since they lend money to a range of industries, including manufacturing, services, infrastructure, and agriculture. But recent years have seen a number of difficulties for the Indian banking industry, including a high percentage of non-performing assets (NPAs) and credit defaults, which have caused banks to suffer large losses.A number of initiatives have been put in place by the Reserve Bank of India (RBI) to address these issues and enhance credit risk management in commercial banks. Stricter lending guidelines, asset classification and provisioning guidelines and the implementation of the Insolvency and Bankruptcy Code (IBC) are some of these initiatives.

An Analysis of the Differences between the New and Old Tax Regimes

. [1]**Anurag Sahani,**[2]**Minati Das**
[1,2]**College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology.**

Abstract:

The budget for 2020–21 revealed a new tax system that individual taxpayers will need to pay their taxes under. The purpose of this research paper is to compare the previous and current tax regimes. We used secondary data that we gathered from a variety of books and journal articles. The article emphasizes how the previous tax system and the current tax system have changed for individuals. The modifications to tax exemptions and deductions are another major topic of the study.

Introduction:

The size of a nation's tax structure affects its economic development, as taxes are the primary source of funding for both the federal and state governments. A straightforward tax system eliminates the possibility of tax evasion and boosts economic growth in the nation. A new tax strategy was introduced by Indian Finance Minister Hon'ble Nirmala Sitaraman in the 2020 Budget. The primary distinction between this new tax and the previous one is the amount of tax included at a cheaper price. The majority of taxpayers requested that the tax rate on the current plates be lowered, which is why this scheme was implemented.People don't receive all the benefits they did under the previous tax system, which is another issue with the current tax policy.Tax: A tax is an obligatory payment or other financial obligation levied by the government on a person or an entity in order to gather funds for public works projects. There is legal repercussion for not paying taxes or refusing to make contributions.

Green Deposits Acceptance Framework Promoting an Ecosystem of Green Finance

[1]Purnachandra Pradhan,[2]Asit Kumar Mahapatra
[1,2]College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology.

Abstract:

Financing accessibility plays a critical role in driving the actions required to meet net zero targets and make a gradual shift to a low-carbon economy. The Framework for Acceptance of Green Deposits by the Reserve Bank of India has accelerated the growth of India's green finance sector. When it comes to providing funding to direct private investments toward the shift to a climate-resilient economy, banks can be crucial players. These regulations will aid in guaranteeing that monies are allocated towards the promotion of sustainability. The net zero targets will be more reachable with coordinated efforts by the government, regulators, financial institutions, corporations, and individuals to encourage participation in the green finance ecosystem. The background information in the study covers the impending climate challenges, regulatory actions, important aspects of the green deposits framework, and the ramifications for stakeholders.

Keywords: Green Deposits, Green Finance, Sustainability, Climate Change.

Introduction:

Green Swan Events, or tragedies linked to climate change, pose a serious risk to an economy's ability to run as efficiently as possible. The "Intergovernmental Panel on Climate Change Sixth Assessment Report" states that the effects of climate change pose the greatest threat to the world at this time. This has been acknowledged as one of the most significant issues facing the global economy. It is brought on by unhealthy human activities like excessive fossil fuel use, deforestation, and improper agricultural methods, on the one hand, and fast industrialization and urbanization, on the other. As a result, actions are being taken all across the world to counteract the hazards posed by climate change. The world economy would undergo a significant transformation as a result of these developments. A significant capital mobilization effort will be needed to respond to climate change. In order to assist emerging markets in achieving a net zero economy by 2060, approximately USD 94.8 trillion is required.

Artificial Intelligence(AI) and Leadership.

[1]Minati Das,[2]Anil Kumar Sahoo

[1,2]College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology.

Abstract

Artificial intelligence (AI) has been widely used in human life, especially in the field of governance, including Indonesia, which uses artificial intelligence to make bureaucracy active and efficient. One of the obstacles to implementing AI in Indonesia is management, especially in public services with complex service procedures that require innovation to solve human problems. The ability of managers is an important aspect to face the industrial revolution 4.0, where people cannot beat the machine, but people have a mind that separates the two; the manager must form a culture of a strong organizational and effective management system through the management style. Currently, CityofJambi Mayor DR is in the public spotlight with a new governance model. Syarif Fasha, who implements technology-based services to facilitate access to government services for the people of Jambi. Artificial intelligence research is mostly done in government services, but there is very little research that explains management styles when implementing artificial intelligence in government agencies. Thus, this study focuses on the influence of leadership style on government implementation of AI. This study used a descriptive qualitative method and data sources obtained through the government website and program, the mayor's social media, report document and press related to the research topic.

Introduction

The current development of information technology affects changes in communication and people's lifestyle (ICT) [1]. The well-known communication phenomenon has moved from personal face-to-face communication nailed to electronic and print media to online communication with the help of the all-encompassing Internet [2]. Indonesia is one of the largest users of social media in the world with 90 million active users [3]. The Association of Internet Service Providers (APJI) reports that Indonesia has the seventh highest number of users of social media such as Facebook, Instagram, Twitter, WhatsApp and LINE in 2015 [4] . Social media opens up public communication in cyberspace, so everyone should use social media, including as a government service provider, in the development of a country affected by communication to achieve fair development solutions [5].

A SATELLITE IMAGE COVER MAP USING DEEP LEARNING TECHNIQUES FOR LAND USE.

[1]Alka Rout,[2]Lipika Sahoo
[1,2]College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology.

Abstract

Land use land cover (LULC) usually alludes to the assortment and cataloging of certain activities carried out by humans together with the natural elements on the land. Sentinel satellite images are meant to obtain optical images at high spatial resolution say of about 10m. In this paper, LULC map generation approach using Sentinel satellite images is proposed. Our objective is to classify the entire sentinel image to generate LULC map, which can be further used for predictive analysis. Here, we have used three predominant bands namely NIR, Red and Green to classify the sentinel data with five classes namely Water, Forest, Vegetation, Urban and Open land of silicon city of India. For the proposed dataset, an inclusive exactness of 95% was achieved with neural networks and various deep convolutional neural network architectures.

Keywords: Sentinel images; deep learning Neural Networks; LULC; CNN.

Introduction

Remote sensing is a common technique for gathering data about the Earth's resources and patterns of use. Information is captured without having any physical contact by sensing and recording reflected or emitted energy. This reflected energy is then sent to remote centers and further processed and finally converted to images. The broad division of sensors include passive and Active. Passive Sensors do not have its own source of illumination, they use sunlight to generate energy. Hence they can capture data only during daytime. Unlike passive, active sensors have their own source of illumination like microwave, electromagnetic radiation and can be captured at any time. [1]. But Passive sensors are more feasible than active. The following Figure 1 shows how energy is generated by both active and passive sensors.

An Experimental Study on Improving Sandy Soil with Reinforced Granular Blanket and Single Stone Column.

[1]Salini Patra,[2]Subrat Pani

[1,2]College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology.

Abstract

Thus, the geogrid received fully mobilized and failed under load. In this work, the load-step characteristics were developed during the continuation of the load even after the rupture of the geogrid to the desired location. Parametric studies observed the effects of important factors such as cover thickness and geosynthetic sheet placement, including the number and location of geogrid layers within the granular cover. Reinforcing the deck with a geogrid, changing the conventional shape of the load settlement properties, had a significant effect on improving the load capacity and reducing settlement. It can be said that the use of stone column, granular cover or a combination of both techniques to increase the bearing capacity was more effective than to reduce the subsidence. However, the effect of single-layer and double-layer geogrid reinforcement in reducing subsidence depends on their placement within the granular cover. In addition, the effectiveness of improvement methods was better in looser bedding conditions. The best placement was to place one layer of geogrid near the top of the deck or two layers in the middle and near the top.

Introduction:

Land improvement techniques are widely used today. Knowledge of soil remediation techniques and their applications is essential for project safety and cost-effectiveness. These methods change the properties of the soil to improve its stability, strength and bearing capacity, which are essential for the construction of buildings, bridges and roads. Stone columns have been successfully used to improve the technical properties of different types of soil, such as soft clays, siltstones and siltstone sands. Despite the stone column and its advantages in improving soil behavior, it is still difficult to perform in soft or loose soil. In these soils, the surrounding soil may not be sufficient to develop adequate bearing capacity. As a result, the rock column expands and compresses the surrounding soil radially, reducing efficiency. Therefore, researches have tried to use different geosynthetic materials to strengthen the stone column and create a confining pressure around it, and to reduce the stress concentration at the top and tip of the column by installing a reinforced granular cover

MULTICLASS ARRHYTHMIA CLASSIFICATION USING GRASSHOPPER OPTIMIZATION ALGORITHM-OPTIMIZED SUPPORT VECTOR MACHINE

Bivas Ranjan Parida
College of Engineering Bhubaneswar, Biju Pattnaik University of Technology.

Abstract
Currently the requirement of data processing using container assisted cluster computing is gaining a high momentum and becoming mature now days. In scientific workloads scenarios, data processing needs high performance computing cluster to execute the applications. High performance computing aka cluster computing is configured with multiple system parallelism equivalents to provide supercomputing. Parallel cluster could build up with high speed interconnected computational systems to enhance the execution speed. The open source or community developed software could be used to build the cluster and to deploy the applications but the allocation and scheduling of computing resources is usually a matter of concern which must be done efficiently. This paper is proposing architecture to assign the computing resources at run time to address the challenge of high performance computing resources such as GPU, Storage, and CPU as cloud deployments. Results are captured as output of different deployment sizes in terms of computing infrastructure and the comparison of load and execution time with different configurations along with deployment of computing resources.

*Keywords***:** High Performance Computing, Computing Resources, Parallel Computing, Resource Scheduler, Cluster Computing, Virtualization, Torque, Slurm, X86, GPU

Introduction
There were 4.66 billion active internet users reported in January 2021 worldwide and generating huge amount of data every day which is estimated around 2.5 quintillion bytes per day. To solve the large computational problems in terms of application execution is always recommended in form of High Performance Computing from last few decades. Generally it uses Message Passing Interface (MPI) library to allocate the cluster computing resources to multiple parallel running job. Allocated infrastructure must be suffice to meet minimum computational requirement in terms of memory, CPU, GPU, network interconnect to hold cluster computing functionalities. A current resource manager for cluster computing like Torque is responsible for mapping of resources to the application execution with the proposed configurations and specified requirement. In case of updating or any changes required in terms of already defined computing resources, the complete job respective to application must reset and resubmit due to static behavior in configuration.

Theory and Applications of Evolvable Embedded Systems

[1]Anwesha Halder,[2]Sandeep Kumar Mishra
[1,2]College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology.

Abstract:- This paper represents the first attempt to formulate a concept of the evolvable embedded system as a specialized kind of evolvable (hardware) systems. The paper defines the class of evolvable embedded systems, describes a general framework for their modeling, introduces theoretical models, and reviews possible implementations and applications. As a typical example, evolutionary functional recovery of damaged median circuits is considered and simulated.

Introduction:- Embedded systems—in addition to their expected higher performance, lower cost and better dependability—will have to exhibit various new features in future, including adaptability at the first place. We can imagine that forthcoming embedded systems will be able to autonomously modify the function (at the level of hardware) that they perform, repair themselves in case of a faulty event or reduce energy consumption if needed. As genetic programming and evolvable hardware have shown in the recent years, the evolutionary approach is probably the most competitive method to perform this task . For the sake of clarity we have to mention two conceptual points. First, this paper primarily deals with evolvability and adaptation conducted directly at the hardware level. Second, evolvability is not considered as the ability to make system upgrades easily and consistently (as it is usual in the software domain in order to achieve code or service reuse). Here the evolvability is considered as the ability of a system to produce totally new solutions to a changing environment (specification) autonomously. This paper represents the first attempt to formulate a concept of the evolvable embedded system as a specialized kind of evolvable (hardware) systems. We will define the class of evolvable embedded systems, introduce a general framework for their modeling, introduce theoretical models, and review possible implementations and applications. Evolutionary algorithms enabled us designing adaptive computational machines. In our case the evolutionary algorithm will be an inherent part of a target (i.e. embedded) system and will autonomously produce computational machines according to requirements represented via a dynamic fitness function, which reflects a changing environment.

Application of Geosynthetics in subgrade and roads: A Comprehensive Review

[1]Srinivasan Kumar, [2]Ankit Mandal

[1]College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology.
[2]Krupajal Engineering College, Biju Pattanaik University of Technology.

Abstract:-

This study focused mostly on strengthening a building's foundation using geotextile, a geosynthetic membrane. pavement that is flexible. To ascertain the geotechnical characteristics of the samples, three soil samples were taken from the FUTA surrounds. Each sample was subjected to primary soil testing, including the California Bearing Ratio (CBR) test, sieve analysis, compaction, and natural moisture content. In order to complete the project, tested soil samples were used to build a flexible pavement model, and the geotextile material was included. The model's slope was 4% to provide camber and allow for adequate drainage. The average moisture content of the three soil samples used as sub-grades in the pavement model test for samples labeled A, B, and C were 25.7%, 20.4%, and 18.7% in the model with geotextile. Eight weeks of exposure to the same external weather conditions—rain and sunshine—resulted in a moisture content of 30.6% for control sample A, which did not have geotextile in the pavement model.

Keywords: Geotextile,Geosynthetics,FlexiblePavement, Compaction , California Bearing Ratio.

Introduction:-

The American Society for Testing and Materials (ASTM) Committee D35 on Geosynthetics defines geo synthetics as planar products made of polymeric materials. materials that are an essential component of a man-made project, building, or system along with dirt, rock, earth, or other materials linked to geotechnical engineering. A variety of polymeric compounds utilized in Civil Engineering construction projects are referred to as geosynthetics. Most people agree that the phrase refers to eight primary product groups. These consist of geotextiles, geocells, geogrids, geonets, geomembranes, geofoam, geosynthetic clay liners, and geocomposite. Geotextiles and geomembranes are the most widely utilized geosynthetics.

SECURITY IN EMBEDDED SYSTEMS

[1]Arpit Sourav Mohapatra,[2]Prasant Sethi
[1,2]College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology.

Abstract :-

Security has traditionally been a subject of intensive research in the area of computing and networking. However, security of embedded systems is often ignored during the design and development period of the product, thus leaving many devices vulnerable to attacks. The growing number of embedded systems today (mobile phones, pay-tv devices, household appliances, home automation products, industrial monitoring, control systems, etc.) is subjected to an increasing number of threats as the hacker community is starting to pay attention to these systems. On the other hand, the implementation of security measures is not easy due to the constraints on resources of this kind of devices.

Introduction:-

An embedded system is a special-purpose computer system, which is completely encapsulated in the device it controls. An embedded system has specific requirements and performs pre-defined tasks, unlike a generalpurpose personal computer. Examples of embedded systems are: mobile phones, network equipment, control devices for automobiles, household appliances, monitoring and control systems for industrial automation. The security of this type of systems is a pending subject and this can soon become a problem, even bigger than the lack of security of current desktop computers. One of the reasons for this lack of security is the constraints of the hardware devices when implementing security measures. Another reason is the cost of security; manufacturers try to reduce production costs to obtain a market advantage for price sensitive products. However, attacks and exploits on embedded systems are starting to get the attention of the hacker community. There are more and more exploits against PDAs and "mobile phone hacking tools" available on the net. There is also a reported mobile phone attack that would create a "Denial of Service" on 911 emergency service [1]. Today, due to the advances in technology, lower cost of products and easier access to the information on the net, attacks on embedded systems are becoming increasingly common.

Artificial Neural Networks For Controlling Chlorine And Coagulant Doses In A Water Treatment Plant

[1]Mamata Mohanty
[1]College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology.

Abstract:-

Coagulation and chlorination are complex water treatment plant (WTP) processes. Determining precipitation and chlorine dosage is time consuming. Often, Indian WTP operators estimate the approximate coagulant and chlorine dosage based on their experience, which may lead to overdose or underdosage. Therefore, it is necessary to develop predictive models to determine optimal chlorine and coagulant doses. This paper uses artificial neural networks (ANN) for prediction because of their ability to learn and model nonlinear and complex relationships. Separate ANN models using Radial Basis Neural Network (RBFNN), Feedforward Neural Network (FFNN), Cascade Feed Neural Network (CFNN) and Generalized Regression Neural Network (GRNN) are investigated for chlorine and coagulant dosage. For modeling purposes, daily water quality data for the past four years are collected from the WTP laboratory in Maharashtra, India. To improve performance, these models are built by changing input variables, hidden nodes, training functions, hash factor and epochs. The best models are selected based on a comparison of performance indicators. It is observed that the best performance of chlorine dose model using the specified statistics is RBFNN with R = 0.999. Similarly, the CFNN coagulation dose model with the training function of Bayesian regularity (BR) produced excellent estimates with the network architecture (2-40-1) and R = 0.947.

Keywords-artificial neural networks; chlorine dose; coagulant dose; water treatment, modelling

Introduction:-

Water treatment consists of many complex physical and chemical processes. The efficiency of these processes is achieved by examining the quality of the outlet water. Generally, water treatment plant operators in India take necessary remedial measures to improve water quality using only their own experience. This practice is inefficient and time-consuming in monitoring real-time responses by (Wu and Shang-Lien 2011 and O Bello et al. 2014). In a WTP,

coagulation and disinfection are important treatment processes as they ensure a safe and clear water supply.

THE WIRED SENSOR NETWORK-BASED COOPERATIVE FUZZY ARTIFICIAL IMMUNE SYSTEM

[1]Ashok Kumar Panda
[1]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology.

Abstract:
Wireless Sensor Networks are used in favour of a extensive diversity of data collecting and transmission applications using wireless networks. Because of the WSN's weaknesses nodes are exposed towards the majority of cyber attacks. A denial of service attacks is the for the most part typical kind of assail in addition with those IoT devices. Certain assault protection strategies be obliged to exist utilized to combat attacks. Readily available are several ways for combating DoS attacks in a sensible nodes. During this learning, an anti-dos innate immune assaults on wireless sensor network is presented, that also would enhance attack prevention exactness, reduce false alarm rates, and discriminate between distinct DoS attacks. A identification of incursions in the earlier system in Wireless Sensor Networks (WSNs) fail to identify such malicious activity because of the scattered scenery of DoS. The cooperative-based fuzzy artificial immune system (Co-FAIS) is used as a bio-inspired technique in this article. It's a modular-oriented defense approach based on the danger hypothesis of the innate immune.

Keywords: Dos Attack, Co-FAIS, WSN, DDOS

Introduction:
WSNs are versatile, straightforward, and simple to execute. They're getting progressively regular because of their minimal effort and viability. For information assortment and handling, it has a wide assortment of utilization in the military and medical services. Because of safety dangers and restricted asset energy, they are helpless against security dangers. As a result, effective protection measures are needed. Among the most serious risks to WSN is a denial-of service assault. Rather than compromising a service, the primary goal of DoS is to cause disruption by limiting access to the computer or service. This type of attack aims to disrupt a network unable to supply normal service by focusing on both the network's throughput and the network's security. The purpose of these attacks is to overwhelm a victim's connection or processing capacity with packets, preventing him from accessing his regular customers. Delicate figuring, game hypothesis, computerized reasoning, and multi-specialist strategies are utilized in most assault counteraction procedures. The fluffy Q-learning calculation, Decision tree, is utilized in delicate registering-based methodologies [1].

Requirements Patterns for Embedded Systems

[1]Asit Kumar Satapathy,[2]Sandeep Kumar Mishra
[1,2]College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology.

Abstract:-

In software engineering, design patterns propose solution skeletons for common design problems. The solution skeleton is described in such a way that the design can be used for other projects, where each application tailors the design to specific project constraints. This paper describes research into investigating how a similar approach to reuse can be applied to requirements specifications, which we term requirements patterns. Specifically, we explore how object-oriented modeling notations, such as the Unified Modeling Language (UML), can be used to represent common requirements patterns. Structural and behavioral information are captured as part of a requirements pattern. In order to maximize reuse, we focus on requirements patterns for embedded systems. This paper also describes case studies that illustrate how we have applied these general patterns to multiple embedded systems applications from the automotive industry.

Introduction:-

In recent years, many research and development efforts in software engineering have focused on the identification and use of design patterns. Given the detailed descriptions of commonly used design patterns captured by Gamma et al. [6], the software engineering community is becoming more aware of other types of patterns applicable to other parts of the software development process. Fowler [5] identified high-level analysis patterns that might be used to represent conceptual models of business processes, such as abstractions from accounting, trading, and organizational relationships. Geyer-Schulz and Hahsler add more structure to their descriptions of analysis patterns and focus on the domain of cooperative work and collaborative applications. Gross and Yu [8] discuss the relationship between non-functional requirements and design patterns, and Robertson [16] discusses the use of event/use case modeling to identify, define, and access requirements process patterns. Sutcliffe et al. [20] describe how scenarios of use cases can be investigated to identify generic requirements for different application classes. Others have attempted to identify software architecture patterns [18], database access patterns [11], fault-tolerant telecommunication system patterns [1], patterns for distributed systems [19], design patterns for avionics control systems [14], etc. This paper describesresearch into how an approach similar to design patterns can be applied to requirementsspecifications, which we term requirements patterns.

Assessing the Impact of Expanded Polystyrene from Shredded Waste on the Properties of Asphalt Concrete and Binder

[1]**M. Ramakoteiah**
[1]**College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology.**

Abstract:-

Large-scale garbage disposal, especially of non-decaying waste, is becoming a serious problem for both wealthy and developing nations. Recycling trash to create valuable things is one of the most environmentally friendly ways to solve this issue. One such waste product is expanded polystyrene, which is produced in vast quantities. is a substance that is used for packaging everything. Building supplies and domestic appliances. Expanded polystyrene (EPS) trash is required because of its biodegradability, but it also has a significant detrimental effect on the environment. The purpose of this study is to investigate the effects of shredded waste EPS on the properties of asphalt and asphalt concrete. To achieve this, four distinct serial asphalt concrete samples were created, each containing different percentages of asphalt (4.0, 4.5, 5.0, 5.5, and 6.0% by the weight of the total aggregate) and shredded expanded polystyrene trash (0.25, 0.50, 0.75, and 1% by the weight of the aggregate). 60/70 grade bitumen was employed in this investigation. The properties of modified asphalt concrete were analyzed and contrasted with those of the reference specimens. The inclusion of EPS plastic waste will affect the asphalt's repoint, ash point, penetration, ductility, and softening point. The typical specimen's ideal asphalt content was 5.1%, and various EPS and OAC percentages were used.

Introduction:-

It is now necessary to find strategies to prolong pavement service life while cutting maintenance costs due to the harsh weather and the increasing growth of traffic. Modified asphalt concrete (AC) combinations have drawn a lot of attention for use in road building due to their superior performance over conventional AC mixtures . The performance of asphalt mixtures can be enhanced by a number of additions, including polymers, latex, and other chemical additives . Polymers are among the most commonly utilized asphalt modifiers due to their potential to enhance the stiffness, viscoelastic behavior, and durability of AC mixtures at different temperatures . Binders modified with polymers have been demonstrated to raise features of adhesion and cohesion, routing resistance, fatigue loss, heat cracking, stripping, and temperature reduced life cycle and increased sensitivity .

BehaviorOf A Highly Expansive Clay During Wetting And Drying Cycles At Varying Initial Densities

[1]P.Adaikala Kumar

[1]College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology.

Abstract:-

The most common type of problematic soil in Southern Africa and many other regions of the world is expansive (or swelling) clays. Every year, large volume variations brought on by periodic wet and dry spells harm engineering infrastructure to the tune of millions of dollars. The behavior of soil-water retention depends onReliable infrastructure design may depend on factors like density and selecting the appropriate retention curve. Measurements were made of the shrinkage and soil-water retention curves for recompacted samples of an extremely expansive South African bentonite clay. Between 1200 and 1500 kg/m3 were the initial dry densities at which four samples were prepared.and put through a dewpoint hygrometer's whole suction testing procedure. By wetting and drying each sample, the water content was adjusted. Following each suction reading, the volume of the sample was measured, enabling the determination of correlations between the suction and void ratio, saturation level, and water content. Initial density had no discernible impact on the connection between suction and gravimetric water content. The degree of saturation varied considerably depending on the initial density at a given suction. Samples tended to a residual void ratio of 0.35 to 0.4, and volume reductions of 25% to 36% from saturated to residual conditions were noted. The swelling clay exhibited an erratic reaction between primary drying and wetting, as well as a tendency to retain high suctions (over 300 MPa at residual conditions).

Keywords:Expansive clay, Soil-water retentioncurve, shrinkage curve, Dewpoint hygrometer.

Introduction:-

The existence of expansive soils and the resulting effects at several locations on every continent demonstrate that these soils are a global issue. It is well known that sample density affects the soil-water retention curve (SWRC) . When it comes to swelling clays, where density is already veryrecompacted specimens make it difficult to precisely estimate the in-situ soil-water retention behavior because of their dependence on water content. Through this study, we hope to learn more about the volumetric and soil-water retention behavior of expansive clay whose initial density varies. The hysteresis between soaking and drying is specifically mentioned.

A SCIENTIFIC ANALYSIS OF THE GRAPH ALGORITHM WITH RESPECT TO REGULAR SUBGRAPH MINING ON THE GIRAPH SYSTEM

[1]BhimsenMoharana,[2]Alaka   Rout
[1,2]College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology.

Abstract
The Recurrent Sub graph Extraction plays a key role in the Graph Mining field when our data is distributed over networks. This paper emphasizes different types of graph mining algorithms with the Giraph Distributed System to get more desirable and valuable results than existing methods. We discuss how our proposed model Map Reduce Geometric Multi-way Advanced Optimized Frequent Subgraph Mining(MGMAOFSM) impacts different graph mining mechanisms for centralized and distributed systems. The comparison is done for different criteria such as memory requirement or execution time with real four datasets (Facebook Social Network, Corona virus (COVID-19) tweets, Google web graph, Patent Citation Network) with different threshold values. We implement various algorithms such as Triangle Closing,Shortest Path, Connected Components, and Page Rank algorithms, and find out our proposed algorithm that requires less memory with the Triangle closing algorithm whereas in the case of Page Rank is lowest with all threshold values.

Keywords: **Support count; Mapper and Reducer; Recurrent subgraph extraction; Graph Distribution.**

1. Introduction

The victorious approach of data mining is extremely noticeable in the area of citation graphs, social networks, chemical structure, and web data mining. With the expanding demand for graphical data, generating recurrent patterns can be applied to find out biological characteristics in the chemical dataset, which can be helped to reduce the cost and time required for manufacturing drugs. It can also be helpful in retail and shopping databases to attract customers based on demand items. Graph Mining is a part of Data Mining that extracts interesting information from graph datasets. The performance of such an algorithm purely depends on how we divide the whole dataset and load distribution so that we can execute sub graph extraction algorithms parallel to reduce time and space complexity. Rapid transposition of shape and structure inside the dataset leads to improvement in existing recurrent sub graph extraction [1]. The upgrade is also challenging due to its dependency on structural features for different applications such as link survey, synthetic blend classification, and VLSI back-pedal engineering. However, these

ROUTING ALGORITHM FOR VANET UNDER LOAD DISTRIBUTION IN A HYBRID NETWORK

[1]BivasRanjanParida,[2]Sasmita   Mishra
[1,2]College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology.

Abstract
This study presents the interconnected VANET and 4G mobile networks linked. Its benefit is the high speed transmission of VANET on the one hand and the massive 4G system on the other, which makes it a valuable resource. Furthermore, the advantages of this network outweigh the disadvantages of WiMAX and ad-hoc networks. Routing in heterogeneous networks has emerged as a prominent study subject in VANET to preserve the varied features of ITS (Intelligent Transport Systems) applications while maintaining their diverse characteristics. We offer a routing technique that includes no extra network cost for hybrid networks. The findings demonstrate that the suggested approach generates better results when varied simulation settings are considered. This technique maximized the average packet deliver ratio while simultaneously minimizing average latency, route length (including transmission time), and request block rate (as measured by the results).

Keywords: VANET, Ad-Hoc Network, Heterogeneous Network, Routing Algorithms

Introduction
The growing number of cars causes a traffic bottleneck, and traffic congestion is a big issue in the city. This has prompted academics to concentrate on VANET safety concerns, and this concern has had a significant influence on decreasing fatalities while providing safe, pleasant, and convenient road travel alternatives. In most cases, drivers are oblivious of road conditions [1]. They rely on sensors, radio communication devices, and computers to monitor the speed of each car on the road and determine whether or not there is a danger to their safety. Here are some of the distinctive characteristics of VANET: Nodes move quickly, resulting in a dynamic network topology that changes frequently. Patterns are constrained due to limited road space, and bandwidth is restricted due to a lack of central management to handle communication between nodes. Separation issues and point-to point communication are also issues. Signal fading is caused by things that create obstructions in the signal's path. One of the essential VANET competitions is determining an operating routing protocol for directing the packet forwarding process across the node. Therefore, it selects the next-hop to use to send the packet so that it may arrive at its final destination. As a result, VANET's solution offers a robust routing protocol. The routing protocol requires several novel parameters to enhance network performance and improve routing efficiency.

A SMART DRONE FOR ENSURING PRECISION AGRICULTURE WITH ARTIFICIAL NEURAL NETWORK

[1]C.Sunil
[1]College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology.

Abstract:-

The smartness in agriculture can be built through incorporating technologies like wireless sensor network, cloud computing, artificial intelligence, big data analytics and internet of things (IoT).Field/Crop management, irrigation control, water management and nutrient management are the few solutions that driving the smart farming. The unmanned aerial vehicles (UAVs) facilitate the field and crop monitoring solutions without any environmental disturbs. The drones in correlation with crop management and field analysis, estimates the factors like chlorophyll content, leaf variation index and vegetation index to make a decision about the healthiness of the plant as well as land. The proposed approach is planned to yield accurate, cost-effective and multipurpose drone into the place. The imaging techniques of camera and its efficiency are inherently analyzed and applied in design to make accurate and timely decision. Further the images received from the sensors are processed with artificial neural network models to optimize the performance of the system. By feeding intelligence, the spraying task of the drone can be automated. The efficiency of the proposed intelligent model is evaluated against most popular artificial neural network (ANN) algorithms experimented in existing works like naïve bayes, Knearest neighbor (KNN), support vector machine(SVM), decision tree and random forest.

*Keywords***: Agricultural Drones; Artificial Intelligence; Internet of Things (IoT); Precision Agriculture;Wireless Sensor Networks.**

 Introduction:-
Agriculture is one of the major element predicts the economy of the country. Recent internet survey stated that the contribution of agriculture in gross domestic product (GDP) is increased to 19.91% in the duration of 2020-2021. Also it is mentioned that the India's contribution in agriculture is higher than the world's average share in the domain. Though everyday technologies are booming, still our farmers in rural area depend on contemporary mechanisms. The major activities of farming like land preparation, seeding, fertilizing, irrigation and harvesting are highly demands forecasting of weather, healthiness of field and crop. The traditional setting requires manpower and machineries to carry out these tasks, in turn increases the cost of cultivation.

ARTIFICIAL NEURAL NETWORK AND FUZZY LOGIC TRUST MODEL FOR CLOUD AND GRID ENVIRONMENT

[1]Chandra KantaMallick,[2]Ranjit Sahu
[1,2]College of Engineering Bhubaneswar,BijuPattnaik University of Technology.

Abstract

Cloud Computing is a technology which offers various on-demand services such as software, platform, and infrastructure required by the clients. Grid Computing is a process of allotting the resources required to solve complex problems. In cloud or grid environment the service providers provides the services/resources to the clients. In this regard the service providers need to maintain and manage trust for further proceedings. This research article proposed a trust model using Fuzzy Logic and Artificial Neural Network (ANN) applicable for both cloud and grid environment. The Fuzzy Logic is used to remove the impreciseness of the data. The decision derived by using Fuzzy Logic lies between zero (0) to one (1) that represents the continuous values, where 0 is the lowest and 1 is the highest value in decision making. In this article Fuzzy Logic is used to generate the trust value based on the fuzzy rules by accepting the given inputs of six parameters namely reliability, response time, fault tolerance, security, elasticity, and service level agreement (SLA). Then based on the generated trust value the service provider is allotted to the clients. Artificial Neural Network is a prediction model used to predict the trustv value of the service provider based on the same six parameters mentioned as input for Fuzzy Logic. Basedon the predicted trust value the service provider is allotted to the client. This article shows the experiments and results based on the Fuzzy Logic Model and Artificial Neural Network Model for the process of service provider allottment.

*Keywords***: Cloud Computing; Grid Computing; Fuzzy Logic; ANN; Service Providers; SLA.**

Introduction

In the present era all the transactions are digitized and done online from various remote locations. The transactions done by the client may vary in size. There are many start-ups coming into the market and also the existing industries require the quality services at less cost. The cloud computing is such a technology where the services are offered on-demand and at less cost. The cloud computing process offers the services such as storage, software, hardware, execution platforms, operating systems, and many more through virtualization concept. The industries need not purchase very high-end systems for their tasks by investing a lot of cost. The industries can connect to the cloud for all varieties of services at any point of time throughout their subscription period

Composite Columns in Construction: An Analytical Investigation

[1]P.Adaikala Kumar,[2]Manish Singh

[1]College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology.
[2]Aryan Institute of Engineering and Technology,Biju Patnaik University of Technology

Abstract:-Steel-concrete column composites have a major influence on modern building. The use of steel-concrete composite in construction has become more popular due to its widespread attention worldwide.
more appealing than traditional designs made of reinforced cement concrete.An endless variety of columns has been introduced by many architectural cultures. The most popular kind is the concrete-encased column. These are the columns that have reinforced concrete covering steel. When these two materials are combined, the result is reduced cross-sectional area, increased rigidity, and enhanced lateral resistance. There are, however, some obvious construction challenges. The work emphasizes a thorough review of the current state of the art regarding the evolution of composite columns in building structures, based on experimental numerical and analytical studies. Additionally, it is advised to replace concrete with a variety of materials, including as fly ash, limestone, cement aggregates, and industrial waste, in order to reduce the high cost of construction.

Introduction:-

The foundation for creating the contemporary construction methods that engineers suggest is construction history. The writers have shown a number of studies and suggestions to simplify and improve construction across the globe. Composite columns are constructed by combining several cement and steel mixtures to take advantage of each material's advantageous qualities. The composite segment is an integrative and interaction behavior of the basic steel components and the concrete. very stiff, reasonably priced, with superior ductility, making it a generally useful component in construction and bridge developments. It is said that steel and concrete composite bodies are utilized extensively around the world. But its usage is rather minimal. in developing nations across the world because of its high price. Particularly in high-rise buildings, the concrete and steel composite compositions play a major role in the financial side of the construction industry.

Automated Evaluation of Android Tasks Using Cloud-native Technologies

[1]**Manas Kumar Satapathy,**[2] **Sanjay Kumar Sarangi**

[1,2]**College Of Engineering Bhubaneswar, Biju Pattanaik University of Technology, Odisha.**

ABSTRACT

The increased functionality of mobile applications, which sometimes requires connecting with external services, and their complicated graphical user interface make them extremely difficult to test. Because of these characteristics, student evaluation in courses on mobile application development typically depends on tasks or projects that are graded by teaching assistants manually. Especially for online courses, this strategy obviously does not translate to huge classrooms. This article describes a novel method that uses cloud-native technology to automatically grade Android exercises. The suggested solution, which deviates from the state of the art, makes use of an industry-wide mobile app testing framework rather than specialized libraries. Additionally, the device uses software containers and scales in accordance with the resources available in a data center—a crucial component of supportive open online courses. The system is designed and implemented in detail, and the results are made available for deployment in a 120-student master's course.

Introduction.

In recent years, online learning has grown significantly. Its focus is generally university-level, ranging from professional training to distant education. Reduced delivery costs, increased student engagement flexibility, and ease of scaling to a high number of enrollments are some benefits of online learning.In addition, more and more traditional (i.e., nonvirtual) colleges are using online learning to supplement in-person classes and boost student involvement outside of the classroom. The development of mobile applications is a significant topic in computer science education because of the widespread availability of gadgets like smart phones and their popularity in accessing a range of Internet-based services .Additionally, businesses are in increasing need of associated talents, particularly for varied operational areas that are seeing rapid growth.

Sliding mode of second order Management of DFIG-Powered Wind Turbines

[1]**Ranjan Kishore Mohanty,**[2]**Padmini Rout**
[1] **College of Engineering Bhubaneswar, Biju Pattnaik University of Technology**
[2]**Aryan Institute Of Technology And Management Biju Pattnaik University of Technology**

Abstract: Traditional vector control techniques have shortcomings such weak robustness, complex parameter adjustment, and poor dynamic performances. For wind turbine-driven DFIGs, these schemes include proportional-integral (PI) controllers. This work therefore discusses a non-linear control method based on 2-SMC based on the examination of the mathematical model of the DFIG-based wind turbines. To regulate the grid side converter (GSC) and rotor side converter (RSC) at a set switching frequency, the supertwisting method is used. Moreover, the RSC and the GSC use single power (or voltage) control loops rather than cascaded current and power (or voltage) control loops, which simplifies the controller architectural design. The suggested control strategy exhibits higher resilience and excellent dynamic performance, as demonstrated by the simulation results.

INTRODUCTION

For RSC and GSC, standard vector control schemes—which usually consist of PI-based cascaded current and power (or voltage) control loops—are frequently employed to meet the control objectives [1-2]. On the other hand, the PI controller's parameter adjustment is challenging. Furthermore, when there are changes in the system parameters or outside disturbances, the PI controller's transient performance deteriorates [3, 4]. A unique kind of nonlinear control, sliding-mode control (SMC) is easy to set up and resilient to outside disruptions and changes in parameters [5]. For DFIGs, numerous SMC techniques have been put out. A direct power control (DPC) based on 1-SMC is presented in reference [4], while a vector control based on first-order SMC (1-SMC) is proposed in reference [6]. Both of them achieve exceptional robustness to system disruption and ensure the decoupled control of DFIG active and reactive powers.

Communication technologies used in wireless sensor networks

[1]Salil Kumar Malla, [2]Anwesha Halder
[1,2] College of Engineering Bhubaneswar, Biju Pattnaik University of Technology,Odisha,India

Abstract:

 The main purpose of this article is to cover maximum numbers of wireless technologies and standards used in the wireless sensor networks (WSN), to specify their areas of use, to study and summarize their parameters and to make comparison between them and other wireless communication technologies wide used. Another task of this article, as part of a larger research project, is to select the most appropriate technology or combination of technologies to be implemented in our further research in wireless sensor networks. Finally, based on the entire literary analysis, a comprehensive summarize table and conclusions are made. Keywords: wireless communication technologies, wireless sensor networks, automatic control and monitoring

Introduction:

Wireless technologies become increasingly popular alternative in networks. Usually a "wireless" network is not built entirely without a cable, but includes wireless devices that communicate with a traditional wired network. Transceivers, referred as "access points" are used for transfer of data between the wireless device or devices, and the wired network. Wireless communications [3, 4] are connected without cables covering everywhere. It is much easier and faster to get devices communicated without cables. Wireless can be used into communication where cables are not suitable, like some historical buildings and coaches. The cost of running and maintaining a radio based communications solution is minimal compared to wired ones. WSN [4, 23, 24] can operate in a wide range of environments and provide advantages in cost, size, power, flexibility and distributed intelligence, compared to wired ones. Bus architectures reduce wiring and required communication bandwidth. Wireless sensors further decrease wiring needs. For fieldbus architecture, the risk of cutting the bus that connects all the sensors persists. WSN [25, 26, 27] eliminates all the problems arising from wires in the system. This is the most important advantage of using such technology for monitoring.

An intelligent tutoring system's learner profiling using a graph-based approach

[1] Prasant Sethi [2]SambasivaRaoPedapudi
[1] College of engineering, Biju Pattnaik University of Technology,
[2]Krupajal Engineering Collge ,Biju Pattnaik University of Technology.

Abstract

Learner profiling lays the foundations of the personalization that happens in adaptive educational applications and Intelligent Tutoring Systems (ITS). A learner's level of knowledge on a topic is estimated from their performance on certain activities related to the topic. For this, researchers have devised many model extensions throughout the years that incorporate specific cognitive features into student profiling. In this paper, a new graph-based algorithm for learner profiling has been proposed that is able to adapt the course to the current knowledge level of the learner using the topic dependencies fed in by the subject experts and the past response data of learners who have taken this course in the past. This results in learner profiling with minimum number of assessment activities in the best case.

Keywords: **Learner Profiling; Student Profiling; Adaptive Learning; Intelligent Tutoring Systems.**

Introduction

Following the invention of computers there have been countless endeavors at using them to enhance the noble industry of tutoring. Facilitating the job of teaching with the use of electronic technologies falls under the huge umbrella of e-learning, which is a far-reaching discipline that covers the analysis of all conjunctions of technology and education. A more appropriate definition by researchers in [1] states "Educational technology is the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources". In state-of-the-art e-learning applications, the learner exercises a great deal of interaction with the application. In the brick-and-mortar model of teaching-learning, a teacher, besides delivering a lecture, communicates with the students quite significantly.

The Future of Mobile Wireless Communication

[1]Sandeep Kumar Mishra [2] Dillep Bhadra
[1,2] College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology

Abstract:

The future of mobile wireless communication networks will be experienced several generations as which have been experienced. This kind of development will drive the researches of information technology in industrial area. In this paper' we predict the future generations of

mobile wireless communication networks including 4th, 5th, 6th and 7th generafions. The

main objective of this paper is to propose a technical frame for industry in the future.

Introduction

Mobile communication networks have been experienced three generations of change The first generation (1G)wireless mobile communication network was analog system which was used for public voice service with the speed up t0 2. 4kbps f11. 111e second generation(2G)is based on

digital technology and network infrastructure As compared to the first generation, the second generation Call support text messaging Its success and the growth of demand for online information via the internet prompted the development of cellular wireless system with improved data connectivity which ultimately lead to the third generation systems(3G)。 3G systems refer to the developing technology standards for the next generation of mobile communications systems

.

USING OPTIMAL CLASSIFIERS, KNOWLEDGE DATA ANALYSIS ON MIGRAINE HEADACHES

[1]Sasmita Mishra, [2] Prasanth kar
[1]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology,
[2] Aryan Institute Of Technology And Management Biju Pattnaik University of Technology,

Abstract
Machine learning (ML) is largely used to develop automatic predictors in migraine classification but automatic predictors for medication overuse (MO) in migraine are still in their infancy. This research work finds Naïve Bayes and Naïve Bayes Updateable classifier of statistical learning are producing an efficient results compare with functional learning models. In Statistical learning Naïve Bayes and Naïve Bayes Updateable algorithms are having same as well as highest efficient outcome which is 93.50% of accuracy; In Functional learning, Quadratic Discriminant Analysis is having 93% of accuracy which is highest efficient outcome compare with other functional models. In Statistical learning Naïve Bayes and Naïve Bayes Updateable algorithms are having same as well as highest efficient outcome which is 0.93 of PPV; In Functional learning, Quadratic Discriminant Analysis is having highest PPV which is 0.93 of PPV. In Statistical learning Naïve Bayes and Naïve Bayes Updateable algorithms are having same as well as highest efficient outcome which is 0.94 of TPR.

Keywords: Migraine, Functional Learning, Headache, Statistical learning, KDD

Introduction

Migraine is a primary form of headache characterized by recurrent episodes of debilitating headache, sometimes preceded by transient neurological symptoms named aura.[1] Its at hophysiology recognizes a unique mixture ofbio-psycho-social aspects, which may all trigger the attack in susceptible individuals, unveiling a biological predisposition of a dysexcitable brain to convert non-painful stimulation into headache pain. This ultimately leads to impressive disability, significant productivity loss, huge economic burden and healthcare resource use. Current validated diagnostic criteria, in fact, distinguish migraine according to the attack frequency (episodic or chronic)or to the presence/absence of aura [2,3,4], but do not disentangle he different endo phenotypes of this highly heterogeneous headache disorder[4].

Maximum power point tracking of photovoltaic system using artificial neural network control

[1]Sibasish Panda [2] Epsita Srinath
[1] College of Engineering Bhubaneswar, Biju Pattnaik University of Technology,
[2] Aryan Institute of Technology And Management Biju Pattnaik University of Technology,

Abstract:
An MPPT controller, or maximum power point tracking, is a crucial component of solar water pumping systems. PV generators' maximum power point fluctuates with solar insolation due to their nonlinear I-V characteristics. As a result, the MPPT controller maximizes the conversion of solar energy by guaranteeing that the PV generator operates at its peak power under various lighting circumstances. This research proposes a new searching technique for maximum power point tracking (MPPT) based on artificial neural networks (ANNs). The system consists of a permanent magnet DC motor-driven centrifugal pump load, buck converter, and solar array. The speed of the DC motor and the PV generator's output power are the input signals used by the suggested ANN controller.

INTRODUCTION

The last 20 years have seen a rise in interest in freestanding photovoltaic (PV) water pumping systems due to continuous cost decreases in PV arrays. To maximize the PV system's efficiency, the energy conversion systems must be operated at or close to the MPP. There is non-linearity in the PV array. The PV array's operating terminal voltage determines both its output current and power. Furthermore, variations in solar radiation and ambient temperature affect the PV array's output power. Consequently, the PV array is operated far from the MPP by the DC motor and pump for the majority of the time under various irradiation levels. Numerous methods have been devised to offer maximum PV power in order to address these issues. These differ in terms of convergence speed, popularity, hardware implementation, complexity, computing load, and other factors [1] and [2]. Because it's so simple to use, the perturb and observe (P&O) algorithm is the most popular one. Nevertheless, during steady state operation, the (P&O) algorithm oscillates about the MPP, wasting some available energy and resulting in low system accuracy [2].

Real-time surveillance videos with a crowd detection and classification model enabled by intelligent deep learning

[1]**Sivaraman.G** [2] **Arpit Maharana**
[1,2]**College of Engineering,Bhubaneswar, BijuPattnaik University of Technology.**

Abstract

Recently, security surveillance applications exploited the computer vision based detection and tracking approaches to improve the safety and comfort of humans. A major concern in real time surveillance video tracking is the process of identifying the human crowd behavior and classifying them. It finds useful to alert the crow in case of any disasters and unpredicted events. The investigation of human behavior in crowded surveillance videos is an essential and crucial area of research. The recent advances in Artificial Intelligence (AI) and deep learning (DL) models can be employed for determining the crowd behavior analysis in surveillance videos. With this motivation, this article focuses on the design of intelligent deep learning enabled crowd behavior detection and classification (IDL-CBDC) model in real time surveillance videos. The goal of the IDL-CBDC technique is to detect the crowd and classify it into four classes namely marriage, political, school, and college.

Keywords: **Video surveillance, Real time videos, Deep learning, Object detection, Crowd detection , Parameter tuning.**

Introduction

In recent times, security surveillance system has employed visual-based tracking and detection technologies for enhancing safety and convenience for human beings [1]. Human tracking and detection systems are important

topics in a surveillance scheme. Moving object extraction and Human recognition are the two major parts of human detection method. Human recognition detects an object as human or nonhuman, and object is extracted from the background through moving object extraction that defines the relevant position and size of the objects in an image [2]. The tracking method is capable of predicting the position after and during occlusion since the tracked human or object is occluded probably by other objects while tracked. Typically, Surveillance systems used two types of cameras: active cameras and fixed cameras [3].

A COMPLETE ENERGY MINIMIZATION ALGORITHM USING GRAVITATIONAL SEARCH AND COLONY ALGORITHM FOR WIRELESS SENSOR NETWORKS

[1]SK. Moulali [2] Deparpita Jena
[1,]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology,
[2] Aryan Institute Of Technology And Management Biju Pattnaik University of Technology.

Abstract

Real-time traffic configuration is critical for networking planning and development in the technology industry, especially for mobile or wireless network performance evaluation. A wireless sensor network (WSN) is made up of a vast quantity of devices that are uniformly spread around a particular location. In this research study, a Gravitational Search Algorithm (GSA) based model is proposed to improve CH selection. To improve the energy efficiency further, a modified GSA is proposed for routing to the base station. This research focuses on a network to lifetime maximization using proposed algorithms. They perceive the world within their respective ranges and relay the information to one another using a cellular method and multiple hops techniques. The current conventional techniques were analyzed and the analysis was interpreted to find the errors and make the network's energy. To ensure WSN nodes still have current and making progress toward that goal, we place requirements on the current and total counts, with the objective of balancing energy use across all domains. This would cause a large reduction in electrical demand and also experiment of this proposed model is compared with the artificial bee colony (ABC) procedure**.**

Introduction

A WSN is made up of sensors placed at variance or by hand to detect natural environment or structural incident sand transmit the data gathered to a ground station. In isolated places, a vast number of cheap, lightweight, and best routes are typically installed haphazardly. The routing protocols used in WSNs are designed to save power and therefore extend the channel's life span. The contemporary need is for the growth of multipurpose, relatively low, and low-power sensors [Andreea A, Corici, (2020)]. Data rates ranging from 64 kbps to 120 Mbps are accepted. All the data is compressed and then sent over the selected medium at the proper time, with the help of an Expand Accelerator (similar to a Compressor/expander). Three distinct components comprise the GSM network [Buscheck TA et al., (2019)].

6G Wireless Communication Systems

[1]Snehasis Dey [2] Salil Das
[1,2]College Of Engineering Bhubaneswar ,Biju Pattnaik University of Technology.

Abstract:

The demand for wireless connectivity has grown exponentially over the last few decades. Fifth-generation (5G) communications, with far more features than fourth-generation communications, will soon be deployed worldwide. A new paradigm of wireless communication, the sixth-generation (6G) system, with the full support of artificial intelligence, is expected to be implemented between 2027 and 2030. Beyond 5G, some fundamental issues that need to be addressed are higher system capacity, higher data rate, lower latency, higher security, and improved quality of service (QoS) compared to the 5G system. This paper presents the vision of future 6G wireless communication and its network architecture. This article describes emerging technologies such as artificial intelligence, terahertz communications, wireless optical technology, free-space optical network, blockchain, three-dimensional networking, quantum communications, unmanned aerial vehicles, cell-free communications, integration of wireless information and energy transfer, integrated sensing and communication, integrated access-backhaul networks, dynamic network slicing, holographic beamforming, backscatter communication, intelligent reflecting surface, proactive caching, and big data analytics that can assist the 6G architecture development in guaranteeing the QoS. Besides, expected applications with 6G communication requirements and possible technologies are

INTRODUCTION

The rapid development of various emerging applications, such as artificial intelligence (AI), virtual reality (VR), three-dimensional (3D) media, and the internet of everything (IoE), has led to a massive volume of traffic [1]. The global mobile traffic volume was 7.462 EB/month in 2010, and this traffic is predicted to be 5016 EB/month in 2030 [2]. This statistic shows the importance of improving communication systems. We are heading toward a society of fully automated remote management systems. Autonomous systems are becoming popular in all areas of society, including industry, health, roads, oceans, and space. In this regard, millions of sensors are integrated into cities, vehicles, homes, industries, food, toys, and other environments to provide a smart life and automated systems. Hence, a high- data-rate with reliable connectivity will be required to support these applications. In certain parts of the world, fifth- generation (5G) wireless networks have already been deployed. By 2020, 5G is expected to be fully used worldwide.

Study on Stone Column Behaviour in Soils with Predominant Settlement

[1] **V. Dinesh Kumar** [2] **Dilip Ghosh**

[1]**College Of Engineering Bhubaneswar , Biju Pattnaik University of Technology**
[2] **Aryan Institute of Engineering and Technology, Biju Pattnaik University of Technology**

ABSTRACT

Stone columns are now more effective and efficient for treating soil instability and enhancing the weak soils' ability to support loads due to recent advancements. The goal of this study is to demonstrate that the majority of the load imparted to the earth may be supported by the behavior of stone columns. Recent research has demonstrated that using novel materials—like recycled glass, plastic, or tyre shreds—instead of conventional stone fill can have positive effects on both cost and sustainability. Modern numerical modeling methods, including finite element analysis, have made it possible for engineers to better understand how stone columns behave and tailor their designs to particular soil types.To comprehend the capacity of stone columns, the load-displacement characteristics are thought to be governing criteria. The results of the study show that the stone column method, which may overcome this soil behavior, greatly boosts strength when concrete waste or destroyed trash is used instead of stone aggregate. Furthermore, when conventional stabilization methods fail, stone columns can assist in stabilizing the soil in places with high water tables.

Key words: Stone column, Numerical Modeling, CBR value, ground improvement technique, recycled construction waste, sustainable stabilization

INTRODUCTION

Stone columns, also known as stone piles or stone pillars, are a type of ground improvement technique that can be used to strengthen compressive soils. In general, these soils are prone to settling when large structures or objects are erected on them. The results of the soft soils missing stone columns are differential settlement (with cracks), tipping settlement (frequently without cracks), and differential settlement with no fractures. When compared to other ground improvement methods, stone columns provide several advantages. When compared to alternative techniques like deep soil mixing or replacement, they are comparatively less expensive. They are also a quicker form of ground improvement because the installation can be finished rapidly and with little disturbance to the site. In addition, cohesive and non-cohesive soils can both be used for the installation of stone columns. Nevertheless, there are certain restrictions when it comes to using stone columns.

Hybrid energy system interactions with the power grid using an industrial enterprise

[1] **T C Manjunath** [2] **Anand Kumar**
[1,2]**College Of Engineering Bhubaneswar ,Biju Pattnaik University of Technology,**

Abstract:

The increasing use of distributed energy generation and storage units, the integration of electric vehicles, the coupling of thermal and electrical energy systems (hybrid energy systems, heat pumps, HVAC), and the increased use of information and communications technology (ICT) in networks and at the consumer/prosumer level have all presented new challenges for low- and medium-voltage networks. Systems that integrate various energy sources, supply networks, energy distribution networks, and energy storage networks into a small unit are known as hybrid energy systems. Understanding how the system's components interact and depend on one another is the cornerstone of an ideal and energy-efficient system. Systems in the past were primarily created using empirical data from non-hybrid systems.

INTRODUCTION

Smart control strategies are created and then validated in simulations and on an actual industrial hybrid energy system using ICT techniques and expert knowledge. Furthermore, an assessment is conducted on the results' applicability to alternative hybrid energy systems. The results of an optimizing hybrid energy management model, which was constructed by co-simulating the electrical and thermal systems using MATLAB and TRNSYS software, are presented in this contribution. A total of four heat pumps (HP/TRNSYS Type 5803), each with an installed power of 75.5 kW at B0/W35, make up the center portion of the heating system. Their source of heat energy is a geothermal field (TRNSYS Type 451) that is made up of 42 depth probes, each of which has a drilling depth of 147 meters. Heat pumps provide the heat to the thermal energy storages (TRNSYS Type 8893) in the EP and FA buildings. These storage volumes are 7500 l and twice 8000 l. Additionally, each of the EP and FA buildings has a 127.5 m2 solar thermal collector field (ST/TRNSYS Type 832). The corresponding thermal energy storage(s) receives direct heat input from the thermal collectors. The geothermal probe field is regenerated using the excess production from the solar thermal collector fields, particularly during the summer, serving as a sort of massive long-term energy storage.

CLUSTER HEAD SELECTION AWARENESS IN A DEEPER NEURAL NETWORK USING META-HEURISTIC BASED TRUST

[1]T.StephenThangaraj [2] T.Niroja
[1] College of Engineering Bhubaneswar, Biju Pattnaik University of Technology,
[2] Aryan Institute of Technology And Management Biju Pattnaik University of Technology,

Abstract
The advanced progressions in Wireless Sensor Network (WSN) made this network an effective one in a huge range of applications. Though, the WSN environment suffers from security and energy complexities.WSN has several benefits and still, it has a few challenges. These complexities help the attackers for analyzing the network security and then, they may destroy entire networks. Hence, this work addresses the energy and security issue and adopts the deep learning and meta-heuristic-based trust-aware cluster head selection protocol in WSN. Here, Whale Optimization Algorithm (WOA) is used to select the optimal cluster head using the multi-objective function using constraints like the distance, energy, delay, and trust of nodes. Here, the security management in terms of node trust is determined by the artificial intelligent model termed Deep Neural Network (DNN) for maintaining the security in routing. Through the performance analysis, the performance evaluation has shown that the designed architecture offers reliable and feasible performance in WSN.

Keywords: **Wireless Sensor Network; Cluster Head Selection; Whale Optimization Algorithm.**

Introduction

Owing to the advanced progressions of WSNs, it has been utilized in several areas [1], like hospitals, military tracking, fire monitoring, etc as it influences the short-range sensors, which are utilized in environments like monitoring [12]. The implementation of sensor nodes is done through several constraints like storage capacities, energy factors, limited computation and so, the measurement can be performed by the collaboration of the sensors among them [11]. In general, the operation of WSNs with the sensor nodes is practically based on battery, and hence, WSN considers the major constraint as energy since the network lifetime is mainly performed with the help of battery-operated sensors [12]. Clustering is one of the eminent techniques in WSNs, which is used for forming the cluster of nodes with the factor of energy consumption of the sensor nodes that are known as cluster[16].

MEASUREMENT OF LEVEL USING NON-INTERACTING TANKS LEVEL IMAGES AS THE BASIS FOR FEATURE SELECTION IN THE GABOR FILTER

[1]Tanmaya Kumar Das [2] Dilip Singh

[1] College of Engineering Bhubaneswar, Biju Pattnaik University of Technology,

[2] Aryan Institute of Engineering and Technology ,Biju Pattnaik University of Technology,

Abstract

Level measurement models using image-based classifiers (pixel-based datasets) are used for estimation purposes. Preprocessing is thought-provoking in proceeding out the image filter technique and classifying the level. The level scenario of a two non-interacting tank system plays a vital role in predicting the level. Level monitoring is done using the supervised learning method using instance-based filters (Gabor Filter) and selected base classifiers for level measurements. The main scope of this case study is to improve the level measurements from the two non-interacting tank scenarios using Artificial Intelligent algorithms. The suggested article includes the finest feature selection process to increase the accuracy performance attained by the designated classifiers like IBK Instance base classifier for different neighborhood values and Tree category algorithm like Random Forest. The performance accuracy in level prediction obtained is 81.356%, the weighted Average of Receiver operator characteristics of (ROC) 0.931 are obtained by Random Forest Tree Category Classifier.

Key words: Level Monitoring, Gabor filter, machine learning, KNN, Random Forest, ROC

Introduction

The Level prediction is carried out in 3 unique classes and provides the corresponding output with the given input image. In this Level Scenario is the enter given to the modeled machine in which its degree prediction the output system gaining knowledge of algorithms. However, in the enterprise, there can be a wonderful call for measuring the extent in order that the controlling venture is carried out in a completely unique way making use of this novel approach. This article level image is the input given to the modeled system where in the level prediction is the output using machine learning algorithms. Nevertheless in industries there is a great demand in measuring the level so that the controlling task can be done in a faster rate by applying this novel approach. The applicable framework of studies in this article goes a long in the following steps first the novel Metrics has been used to analyze the measurement of level and its accuracy is checked. Level measurement performance is evaluated over a wide range of scenarios.

Technologies for Recycling Asphalt: An Overview of the Drawbacks and Advantages

[1]Loknath sarangi, [2] Arpit Mahapatra

[1,2] College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT

The 1970s saw a rise in the recycling of asphalt pavements as a result of the bitumen supply being depleted and oil prices rising quickly. The potential to use non-renewable resources is the primary motivation for this technology's development at the moment, but there are other factors as well. Only when all of the available reclaimed asphalt pavement (RAP) material is used in the new building can the sustainability of asphalt pavement construction be guaranteed. The mutual benefit of utilizing RAP in addition to warm mix asphalt (WMA) is another possible benefit. Because of the lower mixing and compaction temperatures and the reduced compaction effort needed for these mixes, significant energy savings can be achieved. The many strategies that can be used to increase the amount of RAP material in asphalt mixtures are summarized in this research. Furthermore, the industry's present recycling processes are examined in order to determine the primary cause of the lack of confidence surrounding the use of high RAP content in mixes. There is also discussion of the financial and environmental advantages of a high recycling rate.

Introduction:-

Due to the skyrocketing cost of paving materials and growing public awareness of environmental harm, researchers have developed more affordable and environmentally friendly pavement construction techniques. Reusing the materials used to build roads was one strategy used to address the aforementioned problems. Pavement recycling lowers the amount of virgin material used, which lowers the expense and energy involved in building pavement. Furthermore, recycling will allow us to avoid using up precious landfill space that would otherwise be needed to dispose of the materials from these destroyed pavements. Since the invention of this technology, the sector has been continuously searching for new approaches to raise the percentage of RAP material in asphalt mixes and enhance the quality of recycled mixes. 99% of the asphalt mixture that is currently recovered from old asphalt pavements in the United States is used in new pavements .

The Long-Term And Short-Term Performance Of High-RAP Mixtures With Waste Cooking Oil As A Recycling Agent

[1] Dileep Bhadra [2] Salil Dash

[1] College of Engineering Bhubaneswar, BijuPattnaik University of Technology,
[2] Aryan Institute of Engineering and Technology, BijuPattnaik University of Technology,

ABSTRACT

In recent years, recycling asphalt pavements has drawn a lot of interest due to its advantages for the environment and economy. Reusing a significant amount of recovered asphalt pavement (RAP) is essential to lowering the price and environmental impact of asphalt pavements due to the rising cost of energy carriers and raw materials. Because RAP binder is more stiff than other binder, high-RAP mixtures are more likely to shatter at low temperatures and have poor mixture workability. Among the chemicals used to improve these inadequacies are recycling agents. The ideal amount of recycling agent to ensure that recycled asphalt pavement performs properly throughout its service life remains uncertain though.In order to address the aforementioned issues, the current study used 60% and 100% fractionated RAP along with crumb rubber and spent cooking oil as a recycling agent.

Keywords: Recover Asphalt Pavement, workability, binder, recycling agent

INTRODUCTION

The application of RAP in hot-mix asphalt (HMA) lowers construction costs, lowers the cost of material transportation, and fosters sustainability. As a consequence of milling, RAP has more fine aggregate than the initial HMA. The RAP can be divided into several sizes in order to solve this issue. According to Buttlar et al., 2018a; Majidifard et al., 2019, mixes with poor low temperature (LT) cracking and workability properties are produced by the stiffer aged binder in RAP. Researchers and practitioners have experimented with different approaches to address these shortcomings, including the use of warm mix asphalt (WMA) additives, foamed bitumen, softer fresh bitumen, and recycling agents (Buttlar et al., 2018b; Jahangiri et al., 2019). A laboratory test revealed that while moisture damage and rutting resistance decreased, the workability and low-temperature performance of the high-RAP mixes were enhanced by adding more recycling agent

The Ultimate Bearing Capacity of E-shaped footing resting on Layered Sand

[1] Arpit Sourav Mahapatra[2] Jaganath Rout
[1,2]College Of Engineering Bhubaneswar ,Biju Pattnaik University of Technology.

Abstract:

The goal of this study is to use the finite element method to determine the ultimate bearing capacity of the E-shaped footing resting on two layers of sand. The ABACUS program was used to implement the solution. Finite element analysis was used to perform a numerical examination of the E-shaped footing rest's ultimate bearing capacity when it was plate on layered surfaces and was subject to a vertical load. The layered sand consisted of a lower layer that was thought to be solid sand with an infinite depth and an upper layer that was loose sand with a thickness of H. The factors that varied were the thickness (0.5B, 2B, and 4B) of the upper layer and the friction angle of the upper (30° to 34°) and bottom (42° to 46°) layers of soil. The results show that, for all parameter combinations, the dimensionless ultimate bearing capacity decreased as the H/B ratio grew. At an upper loose sand friction angle of 34° and a lower dense sand friction angle of 46°, the dimensionless ultimate bearing capacity reached its maximum. Furthermore, the results show that, on layered sand (loose over dense), the dimensionless bearing capacity of the E-shaped footing was greater than that of the square footing. The range of 109.35% to 152.24%, 0.44% to 7.63%, and 0.63% to 18.97% showed an improvement in the final bearing capacity for the E-shaped footing, with corresponding H/B ratios of 0.5, 2, and 4, respectively.

Introduction:-

Conventional footing shapes, such square, rectangle, strip, circular, or ring, have long been utilized in foundation design. Architectural needs are driving up the popularity of asymmetric plan-shaped multi-story buildings. The norms of practice do not include any methodologies for calculating bearing capacity for these kinds of footings. Therefore, researchers have to utilize experimental or computational approaches to predict the bearing capacity of various sorts of footings. Because they contain more than four edges and are designed to transfer load from an asymmetrical structure to the underlying soils in a safe and cost-effective manner, these footings are referred to as multi-edge footings.

HYBRID DEEPER LEARNING TECHNIQUE BASED ON DATA AGGREGATION FOR IDENTIFYING UNCERTAINTIES AND ACCURATE OBJECT DETECTION

[1] Ashok Kumar Panda ,[2] Anindita Das
[1] College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology
[2] Aryan Institute Of Engineering and Technology,Biju Pattnaik University of Technology

Abstract

The deep learning concept for performing object detection plans to minimize the labeling cost by identifying the samples which increase the detection into the unlabeled pool. According to the object detection than the classification process as the designing and selection of procedure is very essential. The related works have been implemented the aggregation data process of several outputs and batch box process for improving the performance evaluation. The class imbalance problem has been solved using the background class in every group of sample images. The loss related weight algorithm for training group is proposed in this paper utilizing the batch boxes, aggregating data and also the enhancements are addressed to solve the class imbalance problem. Additionally, a sampling process is used for identifying the uncertainty and enhancing the object detection process. The performance results illustrate that the proposed framework generates good performance than the relevant technique and it will be used for real time applications in an efficient manner.

Introduction

The object detection is a complex task in computer vision field that several techniques have been implemented to achieve the object detection more accurately. The objects in satellite images are very different than the natural objects that achieves very difficult in accurate object detection [1]. The current works have the rotation related detectors for detecting the arbitrary related objects in satellite images, these kinds of detectors are initially completed during the preprocessing with a huge number of prior boxes for aligning the ground truth of the objects[2]. The samples have been segregated as the positive and negative samples due to complete the regression of the bounding box with the Intersection over Union $\Box IoU \Box$ concept [3]. The entire procedure is demonstrated as the label assignment, according to the real fact as the objects n, the satellite images have huge number of variations like shape, orientation, bounding boxes, and shape which requires forcing the matching of objects. Hence, the dense related training sample identification technique is demonstrated as the dense assignment of labels.

A Keynote Study on Literature, Language and Communication

[1]Mrutyunjaya Padhi ,[2] Anima Das
[1] College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology
[2] Aryan Institute Of Engineering and Technology,Biju Pattnaik University of Technology

ABSTRACT

The article surveys various views about English as a lingua franca. There has been resistance to its dominant position in international communication and its association with globalization. Yet its worldwide spread and the multiplicity of its varieties have had the effect of undermining the traditional view of English as a monolithic set of rules and norms. Users of International English are appropriating it for their own purposes, creating off-the-cuff micro-cultures, which can be studied as new forms of discourse. Although the norms of the standard language should not be abandoned in the classroom, it is recommended that teaching be increasingly oriented to learners' future engagement in lingua franca interaction. Keywords: globalization, international English, language pedagogy, lingua franca, micro-cultures.

INTRODUCTION-

This study examines the critiques of the global spread of English, that is, criticisms of the socio-political and linguistic impact of English spread, and investigates their theoretical, sociolinguistic, and pedagogical implications for non-English speaking countries. Firstly, it inspects Phillipson (1992) theory of linguistic imperialism and the key issues in his account: the spread of English in relation to cultural imperialism, inequality, and the ELT industry. Then, it further discusses the critique of the effect of English on language death and language change. The third section assesses the notion of English as a so-called killer language & while Section Four explores the development of New English and the concept of the ownership of English claimed by non-native English users.

Teaching English Literature in English as a Foreign Language (EFL) Classrooms

[1]Ananta Charan Mishra,[2] Ashok Das
[1] College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology
[2] Aryan Institute Of Engineering and Technology,Biju Pattnaik University of Technology

ABSTRACT

The aim of this article is to consider the use of English Literature in the process of teaching-learning English as a Foreign Language (EFL). In relation to current language teaching, it was not until the 1980's that this field of study has been of interest among teachers of EFL. Since literature provides us with a suitable source of content for a course in a foreign language several reasons should be considered. First, reading is the most autonomous ability in language work, and literature is a widely-appealing source of material for reading. Second, literature will not conflict with the claims of other subjects in the curriculum. Third, materials are readily available. This study aims to provide Spanish EFL teachers with a series of suggestions and tips on the wide range of activities that can be used to take advantage of the richness of English literature.

INTRODUCTION

According to Brumfit (1985: 106), "a true literature syllabus will not be simply the use of literary texts for advanced language purposes, but an attempt to develop or extend literary competence." The criteria for the selection and use of literary texts should consider the needs of specific groups of students. Thus, Culler (1975:114) writes: anyone wholly unacquainted with literature and unfamiliar with literature and unfamiliar with the conventions by which fictions are read, would be quite baffled if presented with a poem. His knowledge of the language would enable him to understand phrases and sentences, but he would not know, quite literally, what to make of this strange concatenation of phrases.

Defying Convention: Evidence for Differential Evaluation in Physics

[1]Suchismita Samantray, [2]Ashima Nanda
[1] College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology
[2] Aryan Institute Of Engineering and Technology,Biju Pattnaik University of Technology

ABSTRACT

An outline of an alternate methodology for evaluating students' introductory physics learning will be given in this presentation. There will be a summary of how assessment techniques might be improved to more accurately reflect what students are learning. This overview will cover assessment in general, assessment techniques, and the "language of assessment." This summary will be followed by a discussion of one non-traditional assessment model. Student writing is used as a tool for learning assessment in the assessment paradigm that is discussed. The context for this work is a second-level physics course at American University called Physics for a New Millennium (PNM)

INTRODUCTION

The curriculum for the course will be described, and then the writing assignment's unique format will be explained in relation to the course's learning objectives. A description of the methods employed to discover student learning will be provided once the course-specific learning outcomes are presented. With the use of these tactics, numerous assessment "snapshots" can be taken at different stages of the learning process. These techniques can be applied in place of or in addition to more conventional exams, quizzes, and homework assignments that are completed on paper. Alternative assessment techniques can offer a better and more accurate means of capturing what pupils are truly learning, whether they are utilized alone or in conjunction with more conventional assessments.

Research Method and Its Respective Studies

[1]G.S.S Rao, [2]Alok Khatua
[1] College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology
[2] Aryan Institute Of Engineering and Technology,Biju Pattnaik University of Technology

ABSTRACT

The use of conference proceedings by postgraduate students at the master's and doctorate levels at the Cape Peninsula University of Technology (CPUT) over a ten-year period in the subject of information technology and systems is examined in this study. The investigation includes examining the numerous references listed in master's theses and doctorate dissertations that the Department of Information Technology filed and put into the online institutional repository. After journal articles, books, and online sources, conference papers rank fourth in theses and dissertations according to the study's findings.

INTRODUCTION

The conferences that are mentioned are relevant to the topic that the theses or dissertations are investigating. The conference proceedings that are quoted are from a variety of regional and worldwide conferences that CPUT instructors and students have regularly presented at. The trends and patterns of conference proceedings citations in theses and dissertations are furthered by this study. Additionally, this study adds to our understanding of how postgraduate students in the computer sciences and information systems at the master's and doctorate levels use conference proceedings. It offers a methodology for analysis that library managers can utilize to help postgraduate students' information demands for research while developing collections. This study aims to examine the citation practices of conference proceedings used in research by Cape Peninsula University of Technology (CPUT) master's and doctorate students studying information systems.

Nanotechnology and its application in green chemical processes for natural products

[1]Prasant Sethi,
[1] College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT

It has been argued that nanotechnology, which is already demonstrating significant promise for use in environmental protection, may be able to offer environmentally friendly and practical substitutes for the control of insect pests in agriculture and post-harvest procedures. This is an attempt to lessen the potentially harmful impact that previously utilized non-biodegradable compounds have on both the environment and people. In this paper, novel photodegradable insecticide utilizing nano particles and emerging nanotechnologies in antifeedant and pesticide formulations from natural products will be discussed.

INTRODUCTION

The manipulation of atom-by-atom interactions in nature, which can participate in chemical and biological activities and processes, is known as nanotechnology. As green chemistry is incorporated into nanotechnology, the subject is rapidly evolving. Because of their inherent chemical and physical properties, materials effective at the nanoscale, such gold and silver, are used in the current methodology. The physical, chemical, and biological properties of inorganic nanoparticles are well-adapted; nevertheless, their specific qualities may differ in size depending on factors such as pH and temperature. Atom-to-atom interaction is used in the production of nanoscale metal oxides, such as TiO_2, ZnO, and Al_2O_3 dendrimers, which are nanosized polymers made from branching components. Applications for nanotechnology are numerous and include food production and storage in agriculture, enhancements to nanoporous zeolites for effective dosing and release of necessary amounts of water and fertilizer in plants, nano capsules for herbicide delivery and vector and pest management, and nanosensors for pest detection.

The Future of probiotics

[1]M.Pavan Kumar, [2]Ranjita Kumari
[1] College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology
[2] Aryan Institute Of Engineering and Technology,Biju Pattnaik University of Technology

ABSTRACT

The market for probiotic-based health products has expanded dramatically in the last several years. Numerous investigations suggested that the probiotic bacteria in these products are not very successful in surviving. Furthermore, there is doubt about these bacteria's ability to survive in the human gastrointestinal tract. Thus, it is currently of great interest to provide probiotic live cells with a physical barrier against unfavorable environmental circumstances. The biotechnology industry's immobilized cell culture technique gave rise to the probiotic bacterial cell microencapsulation technique. Over the past few years, there has been a noticeable growth in the use of encapsulated substances. Numerous causes have contributed to this increase, but the main one is that the food industry is now more aware of the true benefits provided by packed ingredients.

INTRODUCTION

While this is not the case for enclosed material, there are numerous techniques accessible for the creation of materials that are encased. Few are co-encapsulated spontaneously; exo-polysaccharides are produced by spray-growing bacteria that undergo extrusion and drying to form capsules. Their own secretions serve as processing media for the microbial cooling, matrix trapping, gel formation, and fluid bed cells. All of these techniques can be used to reduce the contents in food, other materials, or a protective structure or capsule. a large range of material permeability via the capsule, making materials less susceptible to harmful environmental conditions such as fats, waxes, and glycerides available.

Interaction and Isolation Constant Thickness Assessment using Photo-thermal Methods

[1]**Suchismita Samantaray,**[2]**Subash Acharya,**
[1,2] **College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology**

ABSTRACT

Photothermal (PT) techniques have found widespread application in the non-destructive examination of various solid materials, primarily under steady-state conditions (i.e., no changes throughout the acquisition process). If not, the published research, which suggests an ongoing analysis of a dynamic system, returns to the basic task of calculating the PT signal as a function of time. This work examines the theoretical aspects of using contact and noncontact frequency scanning measurements to derive PT depth profiles of the system under investigation while the layer thickness of a solid is continuously changing. Thus, it is possible to extract the continuous variation of a homogeneous solid layer with variable thickness buried in the system under investigation by employing a fitting technique.

INTRODUCTION

The basis of photothermal (PT) calorimetric techniques is the measurement of the effects of modulated light absorption-induced local heat generation. These methods, which are often non-destructive, enable measurements to be taken by using low-amplitude thermal waves to probe the system under investigation. A particular sensor is used to assess the impacts of local heat generation quantitatively. The PT method is a contact method if the sensor is a layer within the system under investigation. The method is noncontact unless the sensor is a component of the measurement system. The majority of PT calorimetric techniques rely on the theoretical modeling and experimental investigation of heat diffusion processes inside multilayered systems.

Mental Health and Respective Solution for anxieties.

[1]**Abhaya Mohanty,**[2]**Purna Chandra Pradhan,**
[1,2] **College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology**

ABSTRACT-

An unsettling rise in mental illness has resulted in a global upsurge in violent crimes, suicide, intentional self-harm, and disruption of societal cohesion. This is especially true in Pakistan, a developing nation with the ninth-highest population in the world. The first international conference on mental health was held on March 29–30, 2012, by the Department of Psychology, Faculty of Social Sciences and International Islamic University. With the theme "Violence, psychological trauma, and possible acute and post-traumatic interventions in general and particularly in Pakistani society," the conference aimed to help academic and intellectual circles gain a thorough understanding of mental health issues and develop evidence-based strategies for the treatment of psychological ailments.

INTRODUCTION-

Three sessions comprised the conference program, with talks within each session taking place in three different rooms. Every session began with a keynote address by clinical opinion leaders and academics from throughout the country (Ashiq Ali Shah, Canada; Grace Clark, US; Inam-ul-Haq, Ireland) and abroad (Murad Musa Khan, Aga Khan Medical University).Practitioners, academics, graduate, postgraduate, and doctoral students, as well as experts and scholars from other fields, made up the delegation. The subject of "Challenges of suicide prevention in Pakistan" was covered by Musa Mura Khan. In addition to thanking Muhammad Tahir Khalily for his wonderful support of the 13th National Conference of the Pakistan Psychological Association, which was held in Peshawar, Pakistan on November 25–26, 2011, International Islamic University of Psychology also organized this event. As a thank you to the organizers, the main invited guest gave shields as a final gesture.

Research and Basic Technique of Researching

[1]Abhaya Mohanty,[2]Asha Bikash Mohapatra
[1,2] College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT

Posters are a typical technique for participants in state, national, and worldwide medical conferences to present their research. Presenting their study via an academic poster is a hurdle that many students or young researchers will inevitably encounter. This editorial's goal is to offer direction and ideas/suggestions for creating more effective scientific posters. Medical professionals and students are not trained in the process of compiling data for a poster presentation at a scientific conference or writing abstracts. A checklist of items and recommendations for conference abstracts to improve their placement in research conferences was recently released by the STROBE (Strengthening the Reporting of Observational Research in Epidemiology) initiative.

INTRODUCTION

The majority of conferences offer the chance to present the study findings orally or through a poster. Every one of them has unique benefits. An oral presentation has time limits; in contrast, a poster presentation might draw a bigger audience and allow for lengthier conversations. Visitors with skill or interest in that specific field are drawn to the poster presentation. This increases the presenter's interest and challenge. While the study effort itself is the most significant component of any poster, other elements that contribute to its visual appeal are well-chosen photos, clear graphs, and little writing. The first step in poster preparation is to check the conference website for the poster session specifications and guidelines. The poster instructions should be strictly adhered to in terms of word count, size, etc. Poster templates included in both portrait and landscape orientations.

Sustainability, Biomedical Engineering, and Healthcare

[1]**Asha Bikash Mohapatra,**[2]**Niranjan Nayak**
[1,2] **College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology**

ABSTRACT

Thanks to recent advancements in computing, networking technology, big data, and artificial intelligence, the healthcare industry has experienced a shift. In addition to becoming preventive and individualized instead of reactive and hospital-centered, healthcare is also shifting from being disease-focused to well-being-focused. Biomedical engineering is making healthcare systems smarter and enabling research in fundamental medicine. Furthermore, healthcare delivery could result in greater effectiveness, better quality, and cheaper costs with the use of cutting edge sensors and computer technologies.

INTRODUCTION

It is anticipated that outstanding papers on the subject of sustainability presented at IEEE ECBIOS 2019 will be chosen for the Conference on Biomedical Engineering, Healthcare, and Sustainability .The environmental, cultural, economic, and social sustainability of humans will be linked with other disciplines, offering a cutting-edge setting for research on sustainability and sustainable development. In order to support scientific forecasts and impact analyses of global change and development, our goal is to encourage scientists to publish their experimental and theoretical studies pertaining to the natural sciences, social sciences, and humanities in as much detail as possible. It connects a number of fields, such as human sustainability in the environmental, cultural, economic, and social spheres, to offer a cutting-edge setting for research on sustainability and sustainable development.

The field of biomedical engineering: its role and impact from the perspective of developing countries

[1]**Debarchana Jena,**[2]**Anwesha Halder**
[1,2] **College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology**

ABSTRACT

It is quite challenging to use current technology to tackle all healthcare-related problems in a developing, densely populated nation with the necessary precision and at a reasonable cost. Furthermore, it is typically quite costly to do biomedical research and design in order to enhance biomedical devices, equipment, and maintenance. For research purposes, it is therefore necessary and feasible to some extent to use indigenous technologies and raw materials in order to design and develop long-term biomedical equipment and devices, artificial organs and tissue, prosthetics and implants, imaging modalities, and software related to healthcare at a reasonable cost. Therefore, in order to comprehend the function and significance of biomedical engineering as a field, research and study in this area need to advance.

INTRODUCTION

The multidisciplinary, open, developing, and difficult discipline of biomedical engineering (BME) is currently undergoing a notable period of growth and recognition. The development of artificial kidneys, enhanced medical imaging and nanotechnology for cancer diagnosis and treatment, surgical tiny robots for artery clearing, and sophisticated algorithm development for disease diagnosis are just a few examples of the successful recent cutting-edge research projects. The methods and procedures for internal visual representation of organs or tissues used in clinical analysis and technical intervention are referred to as biomedical imaging. It also includes the technologies needed for diagnosis. The precision with which diseases can now be detected thanks to diagnostic tools enhances the standard of medical care.

Machine Learning in Additive Manufacturing

[1]**G.S.S Rao**, [2]**Dilleep Kumar Bhadra**
[1] College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology
[2] Aryan Institute Of Engineering and Technology,Biju Pattnaik University of Technology

ABSTRACT

These days, artificial intelligence is used in a wide range of application areas. Machine learning is one area that has shown promise for the business world since it uses a variety of techniques and algorithms to address complicated problems. This article provides an example of machine learning using EBM, a more contemporary technology in additive manufacturing. A number of algorithms are tested during the part's manufacturing process to see which outcomes best extrapolate the deformation risks in relation to the part's quality. In order to verify the validity of the algorithm, a few support structure parameters are found and changed in this example.

INTRODUCTION

A number of design modifications are necessary when using powder bed additive manufacturing technologies to manufacture items. As was already indicated, one of the primary adaptations is the establishment of support networks. It is yet unclear how support structures affect the part physically. Nonetheless, they must at the very least support the portion that has overhanging surfaces. While it is debatable whether they release heat from the melting zone as suggested by, it is agreed upon that they provide a mechanical reinforcement that stops the part from warping as suggested by. One undesirable consequence of additive manufacturing is warping. The reason for this is the high temperature gradient that the part experiences during the production process. In the case of complex events, machine learning appears to be a useful technique to identify relationships between parameters and outcomes. This is particularly true for additive manufacturing, where complicated simulations and measurements are used. This behavior has been simulated numerically for both laser and electron beam melting.

Applications and Difficulties of Machine Learning Techniques for Smart Manufacturing in Industry 4.0

[1]Sankar.G, [2]Arup Dash
[1] College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology
[2] Aryan Institute Of Engineering and Technology,Biju Pattnaik University of Technology

ABSTRACT

With the advent of Industry 4.0, conventional manufacturing is being transformed into smart manufacturing, opening up new possibilities, and allowing machines to comprehend processes, communicate with their surroundings, and intelligently adjust their behavior. Artificial intelligence (AI) and big data make industrial production machines smarter than they were previously, answering the challenge of how to create computers that learn on their own. AI's machine learning (ML) branch has emerged as the primary force behind these developments in the industrial sectors, offering the chance to improve decision-making and expedite discovery procedures even more. However, machine learning (ML) algorithms are able to make crucial decisions by drawing generalizations from the instances, data, and experience that they learn directly from them.

INTRODUCTION

The foundation of Industry 4.0 is the expansion of the data sets that are available. Large, complicated data sets that are readily available—also referred to as "big data"—cannot be processed by the current generation of traditional technologies. It is necessary to employ cutting-edge techniques, tools, software, and algorithms in order to gather and extract data from the industrial environment. Big data modifies how decisions are made in manufacturing settings using information from several scientific fields, including computer science, mathematics, and sophisticated statistics. Machine learning (ML) is the field that brings together all of these fields. Machine learning (ML) is quickly taking the lead as the most significant technique for identifying and categorizing the complexity of problem-solving within production systems. Increased processing capacity and a variety of software tools are used by machine learning (ML) to extract valuable knowledge and information from large amounts of environmental data. Moreover, ML may learn from these data sets by obtaining artificial or computational intelligence.

Applying hybrid design patterns, resilient micro services architecture developed for cloud-based applications in Agile approach

Jagdish Kumar KB

College of Engineering Bhubaneswar, Biju Pattnaik University of Technology, Odisha, India.

Abstract

Micro services is a notion that claims to enable the creation of large, complicated systems that must operate in an unpredictable environment. Microservices should therefore promote resiliency. This paper provides possible solutions on fault tolerant of microservices and solve the problem of frequent shutdown or restart of services through advance research on hybrid design patterns based on Agile – Iterative and Incremental approach through a process called dynamic fusion. Fusion of objects Micro services during runtime will ensure that there is no need for system restart. Though currently there are many techniques to achieve binding, still it is widely found that the microservice needs to be restarted whenever there is a new increment or iteration. This area of research is to find out all possible and feasible options of dynamic binding via a deep study on object-oriented analysis and design techniques which come out with various possible technical solutions. This study is based on "SOLID" software design concepts in general and how they are applied to microservices difficulties specifically to dynamic fusion of atomic micro services in a complex micro services architecture on cloud.

Introduction

There has been minimal study into a thorough evaluation of dynamic binding systems, notably in terms of system failure and dependability, because previous research has concentrated on the design and implementation of dynamic binding processes. Microservices is a phrase that has been around for a while. Dr. Peter Rodgers invented the term "micro web services based on Simple Object Access Protocol (SOAP). Microservices design helps huge systems to avoid monolithic applications. It allows for flexible coupling between cooperating systems that operate independently in diverse settings while maintaining tight cohesion. The deployment, development, and ongoing maintenance of web applications have all changed significantly with the introduction of micro service architecture. The micro service method decays the application into numerous independently executable software components or units that coherently interoperate to deliver specific application functionality, as opposed to the traditional monolithic application architecture, which builds the entire application as a single unified system. Microservice designs handles nonfunctional features such as scalability and fault tolerance for high availability. As a result of adopting microservices, programs must be built in such a way that they can withstand the failure of individual services.

Different mobility models' performance evaluation in a vehicle-delay-tolerant network (VDTN) using VNETs,IEEE 802.11P Standard

JVN Ramesh
College of Engineering Bhubaneswar, Biju Pattnaik University of Technology, Odisha, India.

Abstract

Vehicular Delay-Tolerant Networks (VDTN) is a spatial sort of Delay-Tolerant Network (DTN) for nextgeneration vehicle communication. However, limited resources in terms of delivery ratio while higher overhead are the key challenges. Therefore, a reliable with satisfying quality of service (QoS) of delay tolerable dynamic communication is required for vehicular ad-hoc networks (VANETs). This paper evaluates the varying number of mobile vehicles/nodes and two different types of Mobility Models; Traced based Mobility and Random based Mobility Model. The above scenarios were investigated based on Epidemic routing, PRoPHET routing, and SprayAndWait flooding routing. The performances were evaluated using Network Simulator (NS-3.29) with VANETs or IEEE 802.11p standard. Finally, three QoS metrics were considered: Delivery Ratio, Overhead, and Average Delay. The simulation result shows that the RWayPoint Mobility has recorded better performance metrics for all routing protocols in both (lower and higher) density vehicle scenarios. Hence the QoS are improved.

Keywords: IEEE 802.11p/1609.4; DSRC; OBU; MANETs; Epidemic; PROPHET; SprayAndWait

Introduction

Annually, millions of human lives are lost due to roadside accidents (Nearly 1.3 million), and over 3000 deaths are recorded daily. In the present situation, roadside accidents are alarmingly high because of increasing vehicle density. Statistically, the annual increase in the number of vehicles density is estimated at fifty million [Sharma *et al.*, (2016)], which is mainly attributed to a lack of driver assistance and awareness. In the last decades, different technical organizations (Such as ITs, ETSI ITs-G5, ASTM, FCC, IEEE 802.11p/1609.x) attempted to develop VANETs communication to reduce the rate of roadside accidents. RFID framework will guarantee successful activity control amid crest periods to maintain a strategic distance from crashes, spare time and assets, and as well spare our planet [Matthews *et al*., (2017)]. The Intelligent Transportation Systems (ITs) are considered two types of vehicle communication for Vehicular Ad hoc networks: vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) [Venkatesh *et al*., (2014).

SMART SECURITY CONTROLS FOR DYNAMIC COMPUTING MODELS

[1]K.Venkata Ramana, [2]Kamal Khatua

College of Engineering Bhubaneswar, Biju Pattnaik University of Technology, Odisha, India.

Abstract

Organizations are making use of Access and Identity Management systems in order to manage identity of consumers and access privileges. Such systems are acting as a significant source of identity and to fetch data. Process of protecting and safety of sensitive data from suspicious intruders and cyber assaults are useful for important tasks. A well-defined authorization process is required to ensure that appropriate people have access to appropriate data at appropriate time and with the appropriate rights. However there have been several Identity and Access mechanism to provide authentication and authorization in order to allow secure access. But previous models have their own limitations. Considering the issues of previous access model, this research work has proposed an integrated security mechanism for the safely of web application and Content delivery Networks. The authorization model is being studied in order to create safe and user-friendly web-based applications that use OTP, encryption, and the block chain concept. Several access control models, as well as their properties, have been compared to a proposed security model in research. Proposed work has used OTP to provide security during transactional operations; encryption is protecting content from being decoded by unauthentic person. The blockchain mechanism has been applied in order to secure identity. The integration of OTP, encryption and blockchain is going to play significant role in identity and access management.
Keywords: Block chain, Security, Authorization, Web Applications, Access control, OTP, Authentication.

Introduction

Proposed research has focused on the access control mechanism by making use of one time password. Research is also considering applicability of cryptography in order to secure the user password. On other hand blockchain mechanism has been integrated in order to enhance the security during identity management. The blockchain mechanism has been applied in order to secure identity. The integration of OTP, encryption and blockchain is going to play significant role in identity and access management.

Load-induced Permanent Deformation behaviour of Cold Recycled Asphalt

SachiKanta Pradhan

College of Engineering Bhubaneswar, Biju Pattnaik University of Technology, Odisha, India

ABSTRACT

This study's goal was to assess how four cold recycled asphalt mixtures stabilized with foamed asphalt and asphalt emulsion behaved in terms of permanent deformation. Three flow number test procedures that were modified for use with cold recycled mixtures were taken into consideration during the analysis: (i) ABNT NBR 16505 (method A); (ii) FN test adaptation for CRAM using Kim and Lee's method (method B); and (iii) 3D-Move analysis software simulation of pavement structures to address the stress magnitude for the FN test (method C). The impact of the curing process on the materials' performance was also confirmed. An extensive database of computed pavement responses from the four different experimentally loaded asphalt pavement structures was employed in this work.The FN results, which were obtained using technique C and the 3D-Move data, showed that the cold recycled mixtures, when exposed to temperature and axial stress, exhibited good mechanical behavior in terms of permanent deformation. The efficacy of technique B, as suggested by Kim and Lee, in analyzing the CRAMs examined in this study was found to be low.

INTRODUCTION

A growing trend in the intervention, upkeep, and rehabilitation of damaged asphalt pavements is cold recycling. The primary benefits of this approach are reduced transit interruption and quicker interventions due to its positive effects on the economy and environment. Reclaimed asphalt pavement (RAP), which is typically produced by pavement milling, is added to a fresh mixture during the recycling process by means of asphalt binder addition (stabilization). The aggregate gradation of the mixture can also be modified by adding virgin aggregates. The behaviour of the recycled asphalt mixtures can be evaluated in the lab using several permanent deformation test techniques. Repeated load triaxial testing, typically with a frequency of 1 Hz to 5 Hz and several cycles ranging from 10,000 to 1,000,000, are used to create permanent deformation prediction models for CRAMs exhibiting mechanical behaviour like to that of granular materials.

ARTIFICIAL NEURAL NETWORK TECHNIQUES FOR HEALTHCARE SYSTEMS ON HEART ATTACK BY INCLUDING CORONAVIRUS VACCINE AND INFECTED WITH CORONAVIRUS

M. Pavan Kumar
College of Engineering Bhubaneswar, Biju Pattnaik University of Technology, Odisha, India.

Abstract

Artificial neural networks have revolutionized data-driven applications in the medical area. Machine learning is a type of artificial intelligence that is used to solve a variety of data science challenges. The prediction of a result based on existing data is a typical use of machine learning. Diagnosing heart disease is a difficult process that takes a great deal of expertise and knowledge. Traditional methods of forecasting heart illness include hospital examination or a variety of medicinal checks. The health-care business has a massive amount of health-care data, much of which are buried. This concealed knowledge can help you make better decisions. For the best outcomes, computer-based data are combined with modern data mining techniques. The neural network is a widely utilized tool for predicting the diagnosis of heart disease. There is no evidence that the COVID-19 vaccination increases the risk of heart attack. However, it is being used as "proof" that the vaccine kills in social media posts. As a result, we investigated this issue by incorporating 'infected with coronavirus' and 'coronavirus vaccine' as additional criteria for improved accuracy. This study describes a proposed artificial neural network model to predict a heart attack. The technology makes predictions based on eight medical characteristics.

Keywords: **Medical diagnosis; Feed-forward back propagation network; Decision support systems.**

Introduction

Heart problems are currently the leading cause of death throughout the world. The World Health Organization (WHO) estimates that 12 million people worldwide die each year from heart disease. Heart disease claimed the lives of 17.3 million people in 2008 and it is responsible for almost 80% of all fatalities worldwide. According to the WHO, heart disease will have claimed the lives of roughly 23.6 million people by 2030. ANNs are a valuable tool that may help physicians in a number of medical contexts analyze, model, and make connections between different clinical data. The vast majority of ANN applications in medicine are classifying tasks, in which the goal is to assign a patient to one of a small number of classes based on measurable data [1]. In [2], the authors suggested a multilayer, probabilistic, learning vector optimization, and generalized regression technique for comparative chest ailment diagnosis. Using SAS

enterprise miner 5.2., [3] developed a neural network ensemble-based approach for detecting heart disease.

Biometric authentication systems for facial recognition using deep learning-based challenge response liveliness matching for presentation attack detection

[1]**M. Pavan Kumar**, [2]**Arpit Rath**
[1,2]**College of Engineering Bhubaneswar,Biju Pattnaik University of Technology,Odisha,India**

Abstract
Face recognition based biometric authentication systems are being widely adopted but they are vulnerable to presentation attacks. Detecting presentation attack is important to enhance the security level of face recognition biometric systems. Many presentation attack detection systems (PAD) have been proposed based on comparison of real and presentation image features. But these solutions can be deceived easily by creating the exact replica of real face. To solve this problem, this work proposes a liveliness approach which solves PAD as a challenge response problem. The response of face to a challenge is measured and analyzed to detect PAD. The challenge response matching is realized using a novel Face action unit biased convolutional neural network which selectively skips feature learning in non action unit areas. This novel deep learning model speeds up the challenge response face matching, increases the accuracy of liveliness matching and robust against environmental distortionss**.**

*Keywords***: Face recognition, Spoofing, PADS, liveliness detection, Deep learning, CNN, Emotions mapping.**

Introduction
Biometric features have become the most widely adopted secure and reliable authentication systems due to various advantages like difficult to steal, uniqueness, high recognition accuracy and convenience. Biometric authentication systems were found to provide stronger security compared to token based methods (cards, keys etc) and knowledge based methods (username/password), but this is getting challenged recently. Various technological advancements make it easy to generate fake biometric samples with close resemblance to real samples. Though the fake samples can be created for any biometric features like face, iris, fingerprint etc, this work address the problem of faking in face based biometrics. Face recognition based biometric authentication issued in various applications like Smartphone/computer login, passport control, premises access control. In spite of various challenges in illumination and pose variations, it is still being used in biometric authentication systems. Users face presented in front of cameras are captured.

An Optimal Prediction of Software Faults through Sampling-based Software Prone Technique.

Naba Kumar Rath
College of Engineering Bhubaneswar,Biju Pattnaik University of Technology,Odisha,India

Abstract
Finding faults in software modules is an emerging issue in software reliability systems and the assessment of the fault is performed by software fault prediction systems (SFPS). An identification process of fault prone of software modules is the most prioritized before initiating the testing process of the same modules. The SFPS helps to improve the quality of software within the specified time and cost values. Early fault prediction in SFPS for the different software components showed significant results concerning the cost and time parameters. According to the state-of-the-art of SFPS, ensemble-based classifiers were performed as the best and most cost-effective when compared to other classifier methods. An ensemble random forest with adaptive synthetic sampling (E-RF-ADASYN) is developed recently is tested on a sample of PROMISE datasets and shows the cost-effective classifier results. Our proposed work is focused on the development of another sampling method, say, Multi-Distinguished-Features Sampling (MDFS) for obtaining the best sample illustration for representing the entire dataset. The experiments are conducted on bench-marked PROMISE datasets for demonstrating the efficiency of the proposed MDFS-E-RF compared to other
traditional methods.

Keywords: **Software Reliability; Software Faults; Software Fault Predictions Systems; Ensemble Classifiers Sampling;**

Introduction

Assessment of software quality is the most important estimation of working reliability factor for the software products. Fault prediction in various components of software products is the primary scenario of the software quality assessment. It can be determined in early software development stages to reduce time and space requirements values. The fault prediction in software is commonly known as software fault prediction (SFP). The SFP is still facing some obstacles like fault density prediction due to software entity identification problems. Determining appropriate naming conventions is required and it is possible with the best representation of samples of data entities. Advances in software and its technologies are wildly used in fabulous social and real-life applications, such as air-traffic systems, space control systems, anonymous identification systems, defense systems, etc.

Requirements Patterns for Embedded Systems

[1]Asit Kumar Satapathy
College Of Engineering Bhubaneswar Biju Pattnaik University of Technology

Abstract

In software engineering, design patterns propose solution skeletons for common design problems. The solution skeleton is described in such a way that the design can be used for other projects, where each application tailors the design to specific project constraints. This paper describes research into investigating how a similar approach to reuse can be applied to requirements specifications, which we term requirements patterns. Specifically, we explore how object-oriented modeling notations, such as the Unified Modeling Language (UML), can be used to represent common requirements patterns. Structural and behavioral information are captured as part of a requirements pattern. In order to maximize reuse, we focus on requirements patterns for embedded systems. This paper also describes case studies that illustrate how we have applied these general patterns to multiple embedded systems applications from the automotive industry.

Introduction

In recent years, many research and development efforts in software engineering have focused on the identification and use of design patterns. Given the detailed descriptions of commonly used design patterns captured by Gamma et al. [6], the software engineering community is becoming more aware of other types of patterns applicable to other parts of the software development process. Fowler [5] identified high-level analysis patterns that might be used to represent conceptual models of business processes, such as abstractions from accounting, trading, and organizational relationships. Geyer-Schulz and Hahsler add more structure to their descriptions of analysis patterns and focus on the domain of cooperative work and collaborative applications. Gross and Yu [8] discuss the relationship between non-functional requirements and design patterns, and Robertson [16] discusses the use of event/use case modeling to identify, define, and access requirements process patterns. requirements patterns. Specifically, we explore how object-oriented modeling notations, such as the Unified Modeling Language (UML), can be used to represent common requirements patterns. Structural and behavioral information are captured as part of a requirements pattern. We use a slight variation of the patterns template developed by Gamma et al. [6],

Assessing the Impact of Expanded Polystyrene from Shredded Waste on the Properties of Asphalt Concrete and Binder

[1] **M. Ramakoteiah**

[1]College of Engineering Bhubaneswar Biju Pattnaik University of Technology

Abstract

Large-scale garbage disposal, especially of non-decaying waste, is becoming a serious problem for both wealthy and developing nations. Recycling trash to create valuable things is one of the most environmentally friendly ways to solve this issue. One such waste product is expanded polystyrene, which is produced in vast quantities. is a substance that is used for packaging everything. Building supplies and domestic appliances. Expanded polystyrene (EPS) trash is required because of its biodegradability, but it also has a significant detrimental effect on the environment. The purpose of this study is to investigate the effects of shredded waste EPS on the properties of asphalt and asphalt concrete. To achieve this, four distinct serial asphalt concrete samples were created, each containing different percentages of asphalt (4.0, 4.5, 5.0, 5.5, and 6.0% by the weight of the total aggregate) and shredded expanded polystyrene trash (0.25, 0.50, 0.75, and 1% by the weight of the aggregate). 60/70 grade bitumen was employed in this investigation. The properties of modified asphalt concrete were analyzed and contrasted with those of the reference specimens.

Introduction

It is now necessary to find strategies to prolong pavement service life while cutting maintenance costs due to the harsh weather and the increasing growth of traffic. Modified asphalt concrete (AC) combinations have drawn a lot of attention for use in road building due to their superior performance over conventional AC mixtures . The performance of asphalt mixtures can be enhanced by a number of additions, including polymers, latex, and other chemical additives . Polymers are among the most commonly utilized asphalt modifiers due to their potential to enhance the stiffness, viscoelastic behavior, and durability of AC mixtures at different temperatures . Binders modified with polymers have been demonstrated to raise features of adhesion and cohesion, routing resistance, fatigue loss, heat cracking, stripping, and temperature reduced life cycle and increased sensitivity . The compatibility and storage durability of modified asphalt binders may be enhanced by chemically altering bitumen with poly dimethyl siloxane (PDMS)-silicone oil, according to research by (Lushinga et al)., as reported in . The efficient and sustainable management of plastic waste is a modern international concern. Since the 1940s, when plastic was first produced , the amount of solid trash made by plastic has been steadily rising .

Behavior of A Highly Expansive Clay During Wetting And Drying Cycles At Varying Initial Densities

[1]P.Adaikala Kumar

[1]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

Abstract:-

The most common type of problematic soil in Southern Africa and many other regions of the world is expansive (or swelling) clays. Every year, large volume variations brought on by periodic wet and dry spells harm engineering infrastructure to the tune of millions of dollars. The behavior of soil-water retention depends on Reliable infrastructure design may depend on factors like density and selecting the appropriate retention curve. Measurements were made of the shrinkage and soil-water retention curves for recompacted samples of an extremely expansive South African bentonite clay. Between 1200 and 1500 kg/m3 were the initial dry densities at which four samples were prepared.and put through a dewpoint hygrometer's whole suction testing procedure. By wetting and drying each sample, the water content was adjusted. Following each suction reading, the volume of the sample was measured, enabling the determination of correlations between the suction and void ratio, saturation level, and water content. Initial density had no discernible impact on the connection between suction and gravimetric water content. The degree of saturation varied considerably depending on the initial density at a given suction. Samples tended to a residual void ratio of 0.35 to 0.4, and volume reductions of 25% to 36% from saturated to residual conditions were noted.

Introduction:-

The existence of expansive soils and the resulting effects at several locations on every continent demonstrate that these soils are a global issue. It is well known that sample density affects the soil-water retention curve (SWRC) . When it comes to swelling clays, where density is already veryrecompacted specimens make it difficult to precisely estimate the in-situ soil-water retention behavior because of their dependence on water content. Through this study, we hope to learn more about the volumetric and soil-water retention behavior of expansive clay whose initial density varies. The hysteresis between soaking and drying is specifically mentioned. Vast clays show significant volume variations in response to variations in water content, which could be problematic for nearby or aboveground infrastructure. The dynamic clay The majority of minerals are alumino silicates belonging to the smectite group, like montmorillonite .

A SCIENTIFIC ANALYSIS OF THE GRAPH ALGORITHM WITH RESPECT TO REGULAR SUBGRAPH MINING ON THE GIRAPH SYSTEM

[1]BhimsenMoharana
[1]College of Engineering Bhubaneswar,Biju Pattnaik University of Technology

Abstract
The Recurrent Sub graph Extraction plays a key role in the Graph Mining field when our data is distributed over networks. This paper emphasizes different types of graph mining algorithms with the Giraph Distributed System to get more desirable and valuable results than existing methods. We discuss how our proposed model Map Reduce Geometric Multi-way Advanced Optimized Frequent Sub graph Mining(MGMAOFSM) impacts different graph mining mechanisms for centralized and distributed systems. The comparison is done for different criteria such as memory requirement or execution time with real four datasets (Facebook Social Network, Coronavirus (COVID-19) tweets, Google web graph, Patent Citation Network) with different threshold values. We implement various algorithms such as Triangle Closing, Shortest Path, Connected Components, and Page Rank algorithms, and find out our proposed algorithm that requires less memory with the Triangle closing algorithm whereas in the case of Page Rank is lowest with all threshold values.

Keywords: Support count; Mapper and Reducer; Recurrent subgraph extraction; Graph Distribution.

Introduction

The victorious approach of data mining is extremely noticeable in the area of citation graphs, social networks, chemical structure, and web data mining. With the expanding demand for graphical data, generating recurrent patterns can be applied to find out biological characteristics in the chemical dataset, which can be helped to reduce the cost and time required for manufacturing drugs. It can also be helpful in retail and shopping databases to attract customers based on demand items. Graph Mining is a part of Data Mining that extracts interesting information from graph datasets. The performance of such an algorithm purely depends on how we divide the whole dataset and load distribution so that we can execute sub graph extraction algorithms parallel to reduce time and space complexity. Rapid transposition of shape and structure inside the dataset leads to improvement in existing recurrent sub graph extraction [1]. The upgrade is also challenging due to its dependency on structural features for different applications such as link survey, synthetic blend classification, and VLSI back-pedal engineering.

ROUTING ALGORITHM FOR VANET UNDER LOAD DISTRIBUTION IN A HYBRID NETWORK

[1]Bivas Ranjan Parida
[1]College of Engineering Bhubaneswar,Biju Pattnaik University of Technology

Abstract
This study presents the interconnected VANET and 4G mobile networks linked. Its benefit is the high speed transmission of VANET on the one hand and the massive 4G system on the other, which makes it avaliable resource. Furthermore, the advantages of this network outweigh the disadvantages of WiMAXand ad-hoc networks. Routing in heterogeneous networks has emerged as a prominent study subject inVANET to preserve the varied features of ITS (Intelligent Transport Systems) applications while maintaining their diverse characteristics. We offer a routing technique that includes no extra network cost for hybrid networks. The findings demonstrate that the suggested approach generates better results when varied simulation settings are considered. This technique maximized the average packet deliver ratio while simultaneously minimizing average latency, route length (including transmission time), and request block rate (as measured by the results).

Keywords: VANET, Ad-Hoc Network, Heterogeneous Network, Routing Algorithms

Introduction
The growing number of cars causes a traffic bottleneck, and traffic congestion is a big issue in the city. This has prompted academics to concentrate on VANET safety concerns, and this concern has had a significant influence on decreasing fatalities while providing safe, pleasant, and convenient road travel alternatives. In most cases, drivers are oblivious of road conditions [1]. They rely on sensors, radio communication devices, and computers to monitor the speed of each car on the road and determine whether or not there is a danger to their safety. Here are some of the distinctive characteristics of VANET: Nodes move quickly, resulting in a dynamic network topology that changes frequently. Patterns are constrained due to limited road space, and bandwidth is restricted due to a lack of central management to handle communication between nodes. Separation issues and point-to point communication are also issues. Signal fading is caused by things that create obstructions in the signal's path. One of the essential VANET competitions is determining an operating routing protocol for directing the packet forwarding process across the node. Therefore, it selects the next-hop to use to send the packet so that it may arrive at its final destination. As a result, VANET's solution offers a robust routing protocol. The routing protocol requires several novel parameters to enhance network performance and improve routing efficiency.

A SMART DRONE FOR ENSURING PRECISION AGRICULTURE WITH ARTIFICIAL NEURAL NETWORK

[1]C.Sunil,[2]Ramesh Nayak
[1,2]College of Engineering Bhubaneswar,Biju Pattnaik University of Technology

Abstract
The smartness in agriculture can be built through incorporating technologies like wireless sensor network, cloud computing, artificial intelligence, big data analytics and internet of things (IoT).Field/Crop management, irrigation control, water management and nutrient management are the few solutions that driving the smart farming. The unmanned aerial vehicles (UAVs) facilitate the field and crop monitoring solutions without any environmental disturbs. The drones in correlation with crop management and field analysis, estimates the factors like chlorophyll content, leaf variation index and vegetation index to make a decision about the healthiness of the plant as well as land. The proposed approach is planned to yield accurate, cost-effective and multipurpose drone into the place. The imaging techniques of camera and its efficiency are inherently analyzed and applied in design to make accurate and timely decision. Further the images received from the sensors are processed with artificial neural network models to optimize the performance of the system. By feeding intelligence, the spraying task of the drone can be automated. The efficiency of the proposed intelligent model is evaluated against most popular artificial neural network (ANN) algorithms experimented in existing works like naïve bayes, K-nearest neighbor (KNN), support vector machine(SVM), decision tree and random forest.

***Keywords*: Agricultural Drones; Artificial Intelligence; Internet of Things (IoT); Precision Agriculture;Wireless Sensor Networks.**

Introduction
Agriculture is one of the major element predicts the economy of the country. Recent internet survey stated that the contribution of agriculture in gross domestic product (GDP) is increased to 19.91% in the duration of 2020-2021. Also it is mentioned that the India's contribution in agriculture is higher than the world's average share in the domain. Though everyday technologies are booming, still our farmers in rural area depend on contemporary mechanisms. The major activities of farming like land preparation, seeding, fertilizing, irrigation and harvesting are highly demands forecasting of weather, healthiness of field and crop. The traditional setting requires manpower and machineries to carry out these tasks, in turn increases the cost of cultivation.

Carbon fiber-reinforced smart cement-based composites: Recent Advances and Applications

Pradeepta Kishore Dehury

College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT:

In low carbon and environmental protection strategies, the promotion of green technological innovations to achieve carbon neutrality in the construction industry has become a universal goal. As the most consumed building material, concrete gradually began to become a versatile and intelligent product. Therefore, the study of carbon fiber reinforced cement-based composites (CFRC) is relatively interesting. It mainly uses carbon fiber (CF) with high elasticity, strength and conductivity uniformly distributed in concrete as a functional filler, which achieves intelligent integration of concrete structures and works innovatively. In addition, the electrical conductivity of CFRC is not only related to the concentration and environmental factors of CFs, but also largely depends on the uniform dispersion of CFs and the interfacial bonding strength in the cement paste. This work provides a systematic overview of the current research status of CFRC improvement and modification mechanism and CF dispersion evaluation methods. In addition, the improvement effect of different strengthening mechanisms on CFRC mechanical properties, durability and smart properties (thermoelectric effect, electrothermal effect, stress-sensing effect) as well as real-time structural operability of CFRC are further discussed. health monitoring, thermal energy harvesting, intelligent deformation control and other fields.

INTRODUCTION:

With the continuous development of strong and high-performance technologies in civil engineering, concrete has been widely used in large-scale structures and infrastructure design due to its low cost and stable performance. However, the problems of traditional concrete (one-dimensional, low tensile strength and easy breakage) are being emphasized more and more, which seriously limits the development of concrete materials. In addition, under the influence of adverse factors such as environmental changes, external loads and construction, concrete structures will inevitably cause damage accumulation and resistance damping damage, and even catastrophic accidents. Therefore, the vulnerable parts of the structure should have many functions (real-time health monitoring, self-regulation, self-protection etc so that the structure can show early warning as a results in before major disasters, which are also the focus of research by scientists around the world.

ARTIFICIAL NEURAL NETWORK AND FUZZY LOGIC TRUST MODEL FOR CLOUD AND GRID ENVIRONMENT

Chandra KantaMallick
College of Engineering Bhubaneswar, Biju Pattnaik University of Technology,

Abstract
Cloud Computing is a technology which offers various on-demand services such as software, platform ,and infrastructure required by the clients. Grid Computing is a process of allotting the resources required to solve complex problems. In cloud or grid environment the service providers provides the services/resources to the clients. In this regard the service providers need to maintain and manage trust for further proceedings. This research article proposed a trust model using Fuzzy Logic and Artificial Neural Network (ANN) applicable for both cloud and grid environment. The Fuzzy Logic is used to remove the impreciseness of the data. The decision derived by using Fuzzy Logic lies between zero (0) to one (1) that represents the continuous values, where 0 is the lowest and 1 is the highest value in decision making. In this article Fuzzy Logic is used to generate the trust value based on the fuzzy rules by accepting the given inputs of six parameters namely reliability, response time, fault tolerance, security, elasticity, and service level agreement (SLA). Then based on the generated trust value the service provider is allotted to the clients. Artificial Neural Network is a prediction model used to predict the trust value of the service provider based on the same six parameters mentioned as input for Fuzzy Logic. Based on the predicted trust value the service provider is allotted to the client.

*Keywords***: Cloud Computing; Grid Computing; Fuzzy Logic; ANN; Service Providers; SLA.**

Introduction
In the present era all the transactions are digitized and done online from various remote locations. The transactions done by the client may vary in size. There are many start-ups coming into the market and also the existing industries require the quality services at less cost. The cloud computing is such a technology where the services are offered on-demand and at less cost. The cloud computing process offers the services such as storage, software, hardware, execution platforms, operating systems, and many more through virtualization concept. The industries need not purchase very high-end systems for their tasks by investing a lot of cost. The industries can connect to the cloud for all varieties of services at any point of time throughout their subscription period. The cloud computing possess the characteristics such as multi-tenancy, service-oriented, universal access, self-organizing, dynamic resource provisioning, pricing based on utility consumption, resource pooling ,etc. The cloud holds the service models such as IaaS (Infrastructure as a Service), PaaS (Platform as a Service),and SaaS (Software as a Service). The IaaS basically works through Severs, Virtual Machines, Storage,

Characterization and the mix designs of Waste Clay bricks-based Geo-polymer Concrete suitable for rigid pavement construction

[1]Nibedita Sahoo,[2]Arijit Nanda

[1,2]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

Abstract:

(GPC) was developed using single-component binders made from a mixture of waste cement powder (WCB), fly ash and slag in the raw material. Its suitability in rigid pavement constructions was evaluated based on fresh properties, curing properties and durability properties. The effects of curing in closed and open environments and WCB particle size on GPC strength were also investigated. Curing in a compacted environment significantly increased the strength of GPC, and longer compaction times resulted in stronger concrete. Sealing prevented water loss from the specimens and reduced carbonation, which protected the concrete from microcracks caused by drying. The GPC produced in this study met the basic strength requirements for rigid pavement applications, with a 28-day compressive strength greater than 40 MPa and a flexural strength greater than 4.5 MPa. The water absorption of all GPC samples was above 5%, with a maximum of 7.4%. The apparent volume of permeable voids was less than 14%, which is the maximum allowable value for 40 MPa pavement grade concrete. GPC was resistant to abrasion and cyclic wetting and drying, with only a slight decrease in compressive strength after these cycles. There were no significant differences in the wear depth of the upper and lower surfaces of the plates, which indicated better compaction and homogeneity of the mixture.

KeywordsWasteclaybrick·Geopolymer·Flyash·Slag·Pavement·Strength·Durability·Curing

uction:

The peak of urbanization is expected in the coming decades due to the rapid growth of the world population. This requires continuous improvement of the city's infrastructure, especially in the construction and transport sectors. The addition of concrete pavements to the road system is a favorable alternative due to faster construction, better durability, lower maintenance costs and thus a shorter service life compared to asphalt pavements.The concrete pavement consists of base and subsurface layers, usually made of ordinary portland cement (OPC)-based concrete. Although OPC makes up only about 10% of a typical paving concrete mix, it accounts for nearly 70% of the emissions associated with concrete production [1]. In fact, cement production accounts for 36% of the carbon dioxide emissions of the construction industry and approximately 8% of the world's annual anthropogenic CO_2 emissions. Therefore, the introduction of low-carbon alternatives to OPC in pavement construction can significantly reduce man-made environmental impacts.

Composite Columns in Construction: An Analytical Investigation

P.Adaikala Kumar

College of Engineering Bhubaneswar Biju Pattnaik University of Technology

Abstract:-

Steel-concrete column composites have a major influence on modern building. The use of steel-concrete composite in construction has become more popular due to its widespread attention worldwide.
more appealing than traditional designs made of reinforced cement concrete.An endless variety of columns has been introduced by many architectural cultures. The most popular kind is the concrete-encased column. These are the columns that have reinforced concrete covering steel. When these two materials are combined, the result is reduced cross-sectional area, increased rigidity, and enhanced lateral resistance. There are, however, some obvious construction challenges. The work emphasizes a thorough review of the current state of the art regarding the evolution of composite columns in building structures, based on experimental numerical and analytical studies. Additionally, it is advised to replace concrete with a variety of materials, including as fly ash, limestone, cement aggregates, and industrial waste, in order to reduce the high cost of construction.

Keywords: Composite Columns,Concrete Encased;Concrete filled,Concrete Structure Behaviour, Partial replacement of cement,Reinforced concrete.

Introduction:-

The foundation for creating the contemporary construction methods that engineers suggest is construction history. The writers have shown a number of studies and suggestions to simplify and improve construction across the globe. Composite columns are constructed by combining several cement and steel mixtures to take advantage of each material's advantageous qualities. The composite segment is an integrative and interaction behavior of the basic steel components and the concrete. very stiff, reasonably priced, with superior ductility, making it a generally useful component in construction and bridge developments. It is said that steel and concrete composite bodies are utilized extensively around the world. But its usage is rather minimal. in developing nations across the world because of its high price. Particularly in high-rise buildings, the concrete and steel composite compositions play a major role in the financial side of the construction industry. The slower rate of erection in steel-concrete composite constructions adds to its viability.

IoT Based Home Automation System with Customizable GUI and Low Cost Embedded System

Dibyalekha Nayak

College of Engineering Bhubaneswar Biju Pattnaik University of Technology

Abstract

This paper presents a customizable GUI and an inexpensive embedded system with internet connectivity for monitoring and controlling several devices and home appliances remotely, using android-based smart phone application or computer-based application. The system consists of a customizable GUI that facilitates the users' demand; micro-controller helps convey the user input to the system; wireless connection to the devices under the system. This study explains the overall design of a low cost Home Automation System (HAS) with wireless (WiFi) system (Internet). This HAS is designed to assist and provide support in order to fulfill the needs of children, elderly people and common disabled individuals in their home. In addition, the smart home concept based on IoT improves the standard of living at home. The main control system implements a client server relationship to provide remote access from smart phone through wireless Internet technology. The switches of the electrical appliances are synchronized with the entire control systems in a way that every user interface displays the real time status of the existing switches. Using EEPROM, the last status is preserved and in case of power cut, the system will retain the last-known reading when it recovers from a sudden calamity. The novelty of the system is it gives permission to multiple users at the same time to access the system and change their priority. This system is designed with customizable GUI, inexpensive embedded system, and it is easy to install, control and monitor with an array of electronic devices widely used in everyday home chores. Index Terms—Inexpensive Embedded System, IoT, Home Automation, Customizable GUI, Home Appliances Control and monitoring.

INTRODUCTION

The use of various sensors to collect uninterrupted data, then based on the collected data, it is possible to remotely control and monitor devices. The whole concept of centralizing elements to the Internet is known as IoT [1]. With growing technology, most of the homes use electronic appliances such as fan, light, air conditioner, and so on. Smartphones are very common for everyone nowadays. IoT creates a bridge between these home appliances and Smartphones through wireless connectivity [2].

Biomedical Systems and Biomedical Signal Processing Techniques

[1]Dilleep Kumar Bhadra,[2]Sibani Nath
[1]College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology ,
[2]Krupajala Engineering College, Biju Pattnaik University of Technology.

Abstract:

With the help of biomedical signal processing techniques Combining with state of the art technology, we can produce sophisticated systems that can improve the treatment facilities available to a patient and can extend the capabilities of the disabled person, such as life support systems, health monitoring systems, ECG, MRI and electroencephalogram. In this paper, a thorough review, of biomedical systems and biomedical signal processing methods and techniques, is done. AT the end of the paper, future trends in biomedical systems and processing techniques are discussed.

Introduction:

Till few years ago, processing of biomedical signal was mainly concentrating on studying and improving the biosignals like removing noise and power lines interference; spectral analysis and modeling of these signals for feature representation and parameterization. But nowadays, biomedical signal processing is not confining itself to signal study but expanding to a wide range of application, from the construction of artificial limbs and aids for disabilities to the development of sophisticated medical imaging systems such as ultrasound scanners[1]. Today scenario is towards quantitative or objective analysis of physiological systems via signal analysis. Analysis of these signals using computers has provide greater strength to diagnose, using powerful algorithm for biomedical signal analysis. Various techniques for analysis of biosignals are used, such as: filtering, adaptive noise cancellation, pattern recognition, medical image registration etc. Medical image processing, using techniques such as Xray, MRI and ultrasound scanners, can be viewed as multidimensional signal processing.

A Robotic Method for Cloud Performance Benchmarking

Bhramarabara Biswal, Sanjay Kumar Sarangi,

College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT

Cloud infrastructure has been made available as a non-demand service by several different providers for the past few years. Concrete performance data are not published, however hardware specifications are for the various instance kinds. Virtual machine benchmarking is one way to compare and contrast the various services provided by multiple vendors. To compare the cost of these services, this study proposes a technology that enables the automated collecting of cloud infrastructure performance data.

Keywords: Concrete performance, Virtual machine benchmarking, automated collecting, cloud infrastructure

INTRODUCTION

Over the past few decades, there has been a significant increase in the reliance on cloud computing. User expectations rise in tandem with advancements in technology and faster connection speeds. In order to sustainably deliver their offerings, numerous organizations supplying diverse services necessitate the utilization of supplementary computing resources. People who work in a variety of scientific sectors also need to use these systems in order for some huge computations to be finished in a reasonable amount of time. Provisioning of the necessary resources, however, can happen in a number of ways, each with costs and advantages of its own.It is poorly understood how cloud computing environments perform. It is challenging to forecast how workloads will proceed because of a variety of circumstances. Task-oriented computers are usually virtualized, meaning that the end user is not aware of the full potential of the underlying hardware. Some examples might perform noticeably better than others. This could have an immediate influence on scheduling decisions to make the most use of available time, which could lead to cost savings.

Unsupervised Machine Learning Algorithms for Early Fault Detection in Predictive Maintenance.

[1]G Ramprabu, [2]Sandeep Kumar Mishra
[1,2]College Of Engineering Bhubaneswar, BijuPattnaik University of Technology

Abstract

The area of predictive maintenance has taken a lot of prominence in the last couple of years due to various reasons. With new algorithms and methodologies growing across different learning methods, it has remained a challenge for industries to adopt which method is fit, robust and provide most accurate detection. Fault detection is one of the critical components of predictive maintenance; it is very much needed for industries to detect faults early and accurately. In a production environment, to minimize the cost of maintenance, sometimes it is required to build a model with minimal or no historical data. In such cases, unsupervised learning would be a better option model building. In this paper, we have chosen a simple vibration data collected from an exhaust fan, and have fit different unsupervised learning algorithms such as PCA T2 statistic, Hierarchical clustering, K-Means, Fuzzy C-Means clustering and model-based clustering to test its accuracy, performance, and robustness. In the end, we have proposed a methodology to benchmark different algorithms and choosing the final model.

INTRODUCTION:

The concept of predictive maintenance (PdM) was proposed a few decades ago. PdM is also a subset of planned maintenance. PdM did not gain prominence until the recent decade. This rapid advance is mainly due to emerging internet technologies, connected sensors, systems capable of handling big data sets and realizing the need to use these techniques. The abrupt growth can also be theorized due to the demand for high-quality products, at the least cost and with shortest lead time. Every year, it is estimated that U.S. industry spends $200 billion on maintenance of plant equipment and facilities and the result of ineffective maintenance leads to a loss of more than $60 billion [1]. In food and beverage industry it was estimated that failures and downtime accounted for 18% of OEE [2]. Over the years, different architecture, algorithms, and methodologies have been proposed.

An efficient toolkit for biomedical signal processing

K.Murali Babu
College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology

Abstract

Healthcare monitoring applications requires the measurement and the analysis of multiple physiological data. In the field of biomedical research, these data are issued from different devices involving data centralization and synchronization difficulties. On the other hand, the analysis of the acquired data requires high level digital signal processing tools. In this paper we describe a real time toolkit for biomedical data acquisition, centralization, processing and visualization. This toolkit, composed of both hardware and software modules, allows users to model, test and perform all kind of digital signal processing algorithms for all kind of biomedical signals. These highly efficient hardware and software modules have been developed and tested especially for biomedical studies and used in a large number of clinical investigations. So, for developers, using such a toolkit will reduce the development time while increasing the application performances.

INTRODUCTION

Clinical or experimental biomedical research generally requires the measurement and the analysis of physiological parameters such as ECG signal, arterial blood pressure (ABP), respiratory parameters and so on. Usually, these parameters are given by medical devices equipped with specific sensors. However, these devices, personalized for the clinical diagnostic, perform special signal processing to obtain filtered and averaged parameters such as, for example, the mean heart rate value issued from the ECG signal. Therefore, such devices are not suitable to get primary signals which are essential in biomedical research. Furthermore, the large number of collected information involves data centralization and synchronization difficulties. On the other hand, the constant need of new monitoring devices [1] for clinical or education applications implies the emergence of new data acquisition and digital signal processing (DSP) methods for biomedical signals. Therefore, prototyping and developing new efficient monitoring applications become more and more complicated. However, all these complex DSP methods can be considered as a modular implementation of simplest and well known ones [2].

A Wavelet Based Method for Denoising of Biomedical Signal

[1]L.N.Sarangi, [2]Salil Kumar Malla
[1,2]College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology

Abstract

Noise removal of Electrocardiogram has always been a subject of wide research. ECG signals change their statistical properties over time. Wavelet transform is the most powerful tool for analyzing the non-stationary signals. This paper shows that how it is useful in denoising non-stationary signals e.g. The ECG signals. We considered two types of ECG signal, without additional noise and corrupted by power-line interference and we realized the signal's denoising using wavelet filtering. The ECG data is taken from standard MIT-BIH Arrhythmia database, while noise signal is generated and added to the original signal using instructions in MATLAB environment. In this paper, we present Daubechies wavelet analysis method with a decomposition tree of level 5 for analysis of noisy ECG signals. The implementation includes the procedures of signal decomposition and reconstruction with hard and soft thresholding. Furthermore quantitative study of result evaluation has been done based on Signal to Noise Ratio (SNR). The results show that, on contrast with traditional methods wavelet method can achieve optimal denoising of ECG signal.

INTRODUCTION:

In recent years the trend toward automated analysis of ECG has gained momentum. All of the applications require a relatively noise-free digitized ECG. In a clinical environment the ECG signal is usually degrade by power line interference, muscle contraction noise, poor electrode contact, patient movement, and baseline wandering due to respiration and many others [1,2]. Therefore the denoising system has to work properly. The filter must be chosen to reflect the trade-off between noise reduction and loss of high-frequency details .Since ECG is mostly contaminated with noise, so extraction of pure cardio logical indices from noisy measurements has been one of the major concerns of biomedical signal processing and needs reliable signal processing techniques to preserve the diagnostic information of the recorded signal. For example the S-T segment in ECG signal is used for diagnosing ischemia, myocardial infarction and indicating an imbalance of myocardial oxygen supply .

A Systematic Review of the Chain of Things beyond Bitcoin

[1]**Parimal Giri,**[2]**Sandip Kumar Bala,**
[1,2]**College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology**

ABSTRACT

The digital ecosystem of many internet-connected gadgets is known as the Internet of Things (IoT). It makes the real and digital worlds more intimate, which opens up new possibilities for services and applications. The advent of distributed ledger technology, or blockchain, offers one potential way to maintain confidence in decentralized systems. Building confidence in the Internet of Things may be aided by the distributed ledger's immutability, verifiability, and trust that blockchain offers to a decentralized network.IoT and blockchain integration is not without its difficulties, though. IoT blockchain application is a very new and rapidly developing field. Therefore, in order to comprehend what has been suggested on the topic, a comprehensive literature review is required. Recently, work has offered a methodical analysis with a focus on Bitcoin. With a wider focus on Blockchain platforms than just Bitcoin, we give a systematic overview of more recent work on blockchain and the Internet of Things in this paper. Our research offers a summary of the current state of blockchain and Internet of Things usage.

Keywords: IoT, Blockchain, bitcoin

INTRODUCTION

Systems comprising physical objects and computing platforms connected over the Internet are referred to as the Internet of Things (IoT).Although the Internet component of the Internet of Things is evident, the Things also comprise hardware like sensors, actuators, computers, mobile phones, and users who communicate with other devices (i.e., humans or devices).Blockchain is a disruptive technology that keeps a distributed, decentralized ledger of all transactions. Blockchain guarantees that every data is verifiable and that the ledger cannot be tampered with. The automation of physical operations amongst decentralized devices in a verifiable and trustworthy manner can be made possible by the combination of Blockchain with IoT.

Techniques for facial expression feature extraction and classification: a surety

[1]Parimal Girl,[2]Sanjay Kumar Sarangi,
College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT

One of the non-verbal forms of human-computer connection and a key component of affective computing is facial expression. In recent years, the topic of automatically recognizing human effects has grown increasingly interesting and complex. One important characteristic that helps identify human emotions in day-to-day interactions is facial expression. Applications such as human affect analysis, health care assessment, remote learning, driver tiredness monitoring, and human-computer interaction can be built with the help of facial expression recognition systems, or FERS. In essence, there are three key elements needed to identify a human face expression. These are expression categorization, feature extraction from face images, and face or face component detection. The study suggested feature extraction and classification techniques for FER.

Keywords: facial Expression, classification, facial expression recognition systems, human affect analysis, health care assessment, remote learning

INTRODUCTION

Facial expression recognition (FER) is an intriguing and difficult task in the artificial intelligence era, with issues including limited datasets, diverse surroundings, position, occlusion, person variance, etc. Numerous systems, including games, surveillance, clinical monitoring, human-computer interface (HCI), and data-driven animation, have used FER systems. US psychologists Ekman and Friesen identified six universal facial expressions: happiness, fear, anger, disgust, surprise, and sadness. They also investigated the use of the Action Units-based facial action coding system (FACS) to characterize the aspects of expressions on the face. Nonverbal communication cues conveyed by facial expressions are important in interpersonal relationships. Neutral disdain, and several compound facial emotions are added to other emotions in some literary works. While some researchers worked with manually created characteristics that were extracted using algorithms, others worked with complex features that were extracted using deep learning techniques.

The Fifth International Conference on Machine Learning:

[1]**R.Siva Kumar**
College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology

Abstract:

. Three invited talks were included that reviewed important subfields of machine learning: genetic algorithms, connectionist learning, and formal models of learning. The conference also featured discussion sessions on topics of particular interest to subgroups of the attendees. The discussion topics covered empirical approaches to learning, the sharing of machine-learning data and programs, explanation-based learning, and genetic algorithms. In addition, two receptions were held to provide further opportunity for interaction among conference attendees. The conference was supported by registration fees and grants from the Office of Naval Research (ONR) Computer Sciences Division, the ONR Cognitive Science Program, and the American Association for Artificial Intelligence. Papers and Invited Speakers The 49 accepted papers covered a wide spectrum of machine-learning subfields. The areas included empirical, genetic, connectionist, explanation-based, and case-based learning. Some papers represented hybrid approaches incorporating more than Over the last eight years, four workshops on machine learning have been held. Participation in these workshops was by invitation only. In response to the rapid growth in the number of researchers active in machine learning, it was decided that the fifth meeting should be a conference with open attendance and full review for presented papers. Thus, the first open conference on machine learning took place 12 to 14 June 1988 at The University of Michigan at Ann Arbor. 0738-4602/89/$3.50 © 1989 AAAI.

 Introduction:

Programs that induce concepts from examples have become a mainstay of machine-learning research. Because of its low computational cost and its prior successes, Quinlan's (1986) ID3 program for inducing decision trees is one of the most popular approaches to concept learning from examples. Wirth and Catlett presented a study of the effect of windowing on ID3 performance. Typically, in the presence of large numbers of training examples, one can consider feeding only a reasonably sized data subset to the learner to reduce the algorithm's run time. Given a window size, a decision tree consistent with examples in the window is induced. The resulting tree is then tested on examples outside the window. If the tree fails to classify some examples, the window is expanded (typically to include the exceptions), and the process is iterated. Wirth and Catlett conducted an empirical study of windowing over eight different domains.

Machine Learning Solutions to Denial-of Services Attacks in Wireless Sensor Networks:

Subrat Kumar Mohanty
College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology

Abstract

Wireless sensor networks (WSNs) are used in various fields where remote data collection is necessary, such as environment and habitat monitoring, military applications, smart homes, traffic control, and health monitoring etc. Since WSNs play a crucial role in various domains and the sensors are constrained by resources, they are vulnerable to different types of attacks. One of the main attack types that threaten WSNs is Denial-of-Service (DoS) attacks. DoS attacks can be carried out at various layers of the network architecture. In this paper, we review the DoS attacks at each layer of TCP/IP protocol stack. Among them we focus on the network layer attacks because they are more diverse than other layer attacks. We review a number of studies proposing machine learning solutions pertaining to network layer DoS attacks in WSNs. We also provide some comparative conclusions to aid researchers studying in this field.

INTRODUCTION :

Wireless sensor network (WSN) is a group of sensor nodes distributed over a geographical area and transferring sensed data to each other via a wireless environment [1, 2]. In a WSN, sensors communicate with not only each other, but also the base station that analyzes the collected data. As the demand for wireless remote monitoring and control in various fields increases, WSNs have become more popular. Today, WSNs are used in many areas including military applications, detection of environmental disasters, wildlife monitoring, health monitoring, etc. [3]. The primary aim of WSNs is to collect meaningful data in the environment where they are settled [4]. Providing and protecting the security of this data is an important issue as there are various attacks threatening the existence of these networks. These attacks can be classified as: communication, denial-of-service (DoS), node compromise, impersonation, and protocol-specific attacks [5].

Demand response and storage systems for optimal operation of a low voltage public network using renewable distributed generation

Eepsita Sridevi
College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

Abstract:
In order to flatten the voltage profile, improve the power factor at MV supplying busbars, minimize overall power losses, and ultimately lower operating costs, this paper will analyze potential strategies for control and management of the LV network (integrating a supervisor control and data acquisition system with future internet potentialities). Specifically, the response of the LV network will be analyzed over a period of 8 months, with a time rate of 4 snap-shot per hour (i.e. 23,232) and referring to all different possible scenarios (each of which compatible with the pilot plant control system and power management). Based on simulation results (carried out by power flow, PF, and optimal power flow, OPF).

INTRODUCTION

Many of the fundamental presumptions that underpin the design and operation of MV/LV distribution networks are being challenged by the significant and quickly growing number of distributed generating and renewable energy sources. The development of intelligent distribution automation solutions is necessary to provide electricity grid security, dependability, and efficiency. The Italian Regulatory Authority for Electricity and Gas (AEEG) has released a tender for supporting and funding creative ideas connected to the evolution of traditional MV/LV distribution networks toward "smart grids," in accordance with the rules published by the European Union [1,2]. Following the selection process, the Authority sponsored the top eight projects that Italian utilities submitted. In addition to emphasizing the financial and technological advantages that pilot plants could achieve, these initiatives also needed to suggest novel approaches that other distribution system operators (DSOs) could easily implement. This study only looks at one of the topics covered in the "Pilot project - Smart Grids" [4,5,6] that A.S.M. Terni S.p.A. (the second of eight projects that qualify for financing) produced. That topic is the best way to operate the LV public network.

Flexibility markets offering new revenue streams for customers and efficient distribution system operation

[1]**Eepsita Sridevi,**[2]**Pranati Sahoo**
[1,2]**College of Engineering Bhubaneswar,Biju Pattnaik University of Technology**

Abstract:
In order to become a distribution system operator (DSO), UK Power Networks is working with its clients to define the future of local flexibility, opening up markets and allowing advantages for the entire system, and utilizing technology improvements in the design and management of distribution networks. The suggested switch to a DSO depends heavily on flexibility services since they make it possible to operate and manage the network using creative, adaptable, and clever methods that minimize consumer costs. Because of UK Power Networks' dedication to a "flexibility first" strategy, flexibility solutions can offer a cost-effective substitute for conventional network reinforcement, permit the participation of disruptive and evolving solutions, and generate new revenue streams for flexibility providers.

INTRODUCTION

One of the main factors facilitating UK Power Networks' shift from distribution network operator to distribution system operator (DSO) is the company's flexibility program. As a developing distribution system operator (DSO), UK Power Networks is implementing clever, adaptable, and creative methods to facilitate effective network planning and operations. This is done to guarantee output delivery and minimize consumer cost impact while controlling the unpredictability of a constantly changing energy system. Our ability to manage and operate our network, as well as to become more efficient and open up new opportunities for distributed energy resources (DERs), will need to change in order to facilitate the energy transition brought about by the rapid deployment of renewable generation, the emergence of storage facilities, the changing patterns of consumption, and the anticipated surge of electric vehicles (EVs). Our future smart consultation [1] on our DSO strategy and vision was introduced in July 2017. In order to deliver a high-quality service and enable a significant change in the way energy networks function, UK Power Networks has outlined in this consultation document the transition it will undertake over the next few years.

Demand response and storage systems for optimal operation of a low voltage public network using renewable distributed generation

Gopal Krishna Mohanty
College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

Abstract:

In order to flatten the voltage profile, improve the power factor at MV supplying busbars, minimize overall power losses, and ultimately lower operating costs, this paper will analyze potential strategies for control and management of the LV network (integrating a supervisor control and data acquisition system with future internet potentialities). Specifically, the response of the LV network will be analyzed over a period of 8 months, with a time rate of 4 snap-shot per hour (i.e. 23,232) and referring to all different possible scenarios (each of which compatible with the pilot plant control system and power management). Based on simulation results (carried out by power flow, PF, and optimal power flow, OPF).

INTRODUCTION

Many of the fundamental presumptions that underpin the design and operation of MV/LV distribution networks are being challenged by the significant and quickly growing number of distributed generating and renewable energy sources. The development of intelligent distribution automation solutions is necessary to provide electricity grid security, dependability, and efficiency. The Italian Regulatory Authority for Electricity and Gas (AEEG) has released a tender for supporting and funding creative ideas connected to the evolution of traditional MV/LV distribution networks toward "smart grids," in accordance with the rules published by the European Union [1,2]. Following the selection process, the Authority sponsored the top eight projects that Italian utilities submitted. In addition to emphasizing the financial and technological advantages that pilot plants could achieve, these initiatives also needed to suggest novel approaches that other distribution system operators (DSOs) could easily implement. This study only looks at one of the topics covered in the "Pilot project - Smart Grids" [4,5,6] that A.S.M. Terni S.p.A. (the second of eight projects that qualify for financing) produced. That topic is the best way to operate the LV public network.

Effect of Adding Cement Kiln Dust And Granulated Blast-Furnace Slagon The CBR Of Gypsum Subgrade Soil.

H. Vijay Kumar
College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

Abstract

One issue that most construction projects deal with is the high gypsum content of the soil. In order to eliminate the undesirable effects of gypsum, which include the dissolution of gypsum in the presence of water and the settling of road subsurface and building foundations, the researchers employed a variety of materials that can be added to the soil to enhance its load-bearing capacity. The impact of adding ground-granulated blast-furnace slag (GGBS) and cement kiln dust (CKD) on the California Bearing ratio (CBR) of gypsum sandy soil is examined in this study. CBR tests were run on both soaked and dry samples, and the percentages of additives by the weight of the soil sample were recorded at 2.5, 5, 7.5, and 10%. The primary findings indicated that a moist condition requires a CKD ratio of 7.5%, whereas a dry one requires a ratio of 5%. Moreover, CBR marginally rises in both wet and dry conditions as the GGBS proportion approaches 10%. When GGBS is used, CBR increases; this increase is approximately 1.6 times in a dry state and 4 times in a drenched state.

INTRODUCTION

Structure on gypsum soil are susceptible to total or differential settlement, mostly as a result of water intrusion. This article examines the impact of adding ground-granulated blast slag (GGBS) and cement kiln dust (CKD) independently to see if doing so can raise the soil's strength by increasing the California Bearing ratio (CBR). An experimental investigation examining the effects of ceramic dust (CD) and chronic kidney disease (CKD) on soil extensibility was conducted by Muthumari et al. [3]. The findings demonstrated that when CKD and CD percentage increased, so did the liquid limit, plasticity index, optimum moisture content, and free swell index.The optimal CBR of gypsum sandy soil in a dry state is enhanced by a CKD ratio of 5%.When gypsum sandy soil is soaked, its CBR improves most when it is combined with a CKD at a 7.5% ratio.

Effect of Lime and Coir Fibre-Activated Carbon on mechanical properties of stabilized lateritic subgrade soil

Sachi Kanta Pradhan

College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT

The stability of the subgrade layer has a significant impact on pavement systems' long-term performance. In order to stabilise lateritic subgrade soil, this study examines the effects of activated carbon with coir fibre (ACF) as a waste product and an environmentally acceptable binder, as well as lime, a conventional stabiliser. The geotechnical characteristics of stabilised soil in different proportions of additives—3%, 6%, 9%, and 12% lime and 1%, 2%, and 3% ACF—have been investigated through experiments, which include one-dimensional consolidation and unconfined compressive strength (UCS) tests.The findings show that adding 12% lime and 3% ACF to the stabilized soil can greatly increase its strength metrics while lowering its permeability and void ratio. Moreover, microstructural analysis was carried out for optimal content both before and after stabilization. The microstructural investigation demonstrates how soil gaps are filled with lime and AC particles, and how gel formation holds soil particles together in the stabilized soil matrix. The findings demonstrate that in terms of UCS value and declining void ratio, 3% ACF stabilised soil is equal to 12% lime.

INTRODUCTION

In geotechnical engineering, the use of chemical admixtures to stabilise soil has grown in popularity recently. The benefits of lime as stabilisation materials include increased elasticity and robust modulus, strength properties, decreased plasticity index, permeability, decreased swelling potential and volume instability, deformation and settlement, and better durability. Using low lime concentration to improve the mechanical properties of soil is ineffective in areas with soaking and drying cycles because the soil's ability to swell is not much reduced.Because lime reduces the soil's flexibility, it is useful to apply lime to expansive clay soils, such black cotton soil. In certain situations where the soil's hydraulic conductivity, density, and bearing capacity are insufficient, the application of lime as a stabilising agent is ineffective]. Lime stabilisers improve soil strength, durability, and compressibility while having differing impacts on permeability. Furthermore, employing lime to stabilise soil has drawbacks related to sulphate attack, carbonation, and environmental impact.

Experimental and finite element modelling to evaluate the self-sensing properties of carbon fibre cement composites for structural health monitoring

M. Ramakoteiah

College of Engineering Bhubaneswar,Biju Pattnaik University of Technology

Abstract

A new field of study called structural health monitoring (SHM) studies the process of putting a damage detection plan into action. The first stage in putting a SHM system into practice is to include the material's structural self-sensing capabilities to achieve the steadiness throughout the long run and dependability. Fiber optic sensors and self-diagnosing fiber reinforced composites are two key components of smart sensing technologies that are used to monitor a variety of physical or chemical parameters in order to extend the service life of structures. Because carbon fiber has electrical qualities, it can be used to concrete composites to create smart sensing composites that can detect structural flaws without causing damage. In order to achieve the piezoresistive qualities of the composite, carbon fibers (CFs) are added to cement composite in this paper. This fiber made of carbon is incorporated into the composite by creating a tube that serves as a conducting element. Later, this sensor is subjected to an electro-mechanical test by being placed in structural components that are in to assess the self-sensing properties, use the beam and column. Utilizing a scanning electron microscope allows one to comprehend the sample's morphology.

Keywords:Carbon fibre Composite Sensor, Electrical properties, Self-Sensing Material,ANSYS Modelling

Introduction

Recently, self-sensing smart composites have gained popularity because they may improve the performance and safety of civil engineering constructions. Because these self-sensing smart composites can detect changes in electrical resistivity in response to applied stress and strain, Their unique characteristics render them valuable for applications involving the monitoring of structural health. The ability of a material to detect on its own when exposed to external elements like stress, strain, heat, corrosion, etc. is what defines its self-sensing feature.

Geotechnical Investigation On Failure Mode Of Gabion Walls

Mamata Mohanty

College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

Abstract:

Gabion retaining walls are very popular today, due to the simplicity of the structure, quick construction, flexibility, release of water pressure from the cavities in the stones of the gabion wall, and environmental friendliness.Although the gabion wall is famous, some defects are also observed in gabion walls. To date, there is very little literature on gabion wall damage. Failure analysis is a very important tool to identify the causes of failure, which is useful for any Gabio wall modification, not only to avoid Gabio wall, but also to avoid human life and cost.This paper presents a survey of eleven existing Gabion Wall sites in the Pune region of India. This article describes the different types of failures and the causes of gabion wall failures. To avoid such defects, it is also recommended to change the wall of the gabion.

Keywords: field investigation, failures, Gabion wall, modification.

Introduction:

Several researchers have already reported a wide range of applications for gabion walls, including energy dissipation Gabion stepping dams (Wüthrich and Chanson, 2014), Gabion stepping dams stream bank stabilization (Brunet &Shuey, 2005), landfill embankment for landfill (Vashi et al. 2011), acoustic performance (Koussa et al. 2012), flood protection works (Jayswal et al. 2014), gabion mattress to prevent channel erosion, landing structure, The failure of advanced retaining walls such as MSE, geotextile walls, etc. has been highlighted in the reported case reports and field studies due to its poor performance, defects and failures. Kenneth et al. al reported the need for strict quality control during construction to avoid financial and human losses using a case study on structural failure during construction and emphasized (Carper,1987). Little literature is available on gabion wall failure. Edward et al. to reported use of poor quality backfill soil and flooding resulted in the instability of the Gabion Wall as a result of a geotechnical investigation. In this study, a rigorous field survey will be conducted to determine the current condition of existing gabion walls and the necessary modifications to other similar structures. Several gabion walls have been observed to be on the verge of failure and many of them report anomalies in its operation.

Power flow prediction for data pre-processing and time-series-based planning using artificial neural networks

Gopal Krishna Mohanty
College of Engineering Bhubaneswar ,Biju Pattnaik University of Technology

Abstract

Long simulation timeframes are necessary for time-series-based power system analysis if the annual simulation of N–1 cases is to be examined. To reduce these simulation times, artificial neural networks can be taught to forecast line loadings and bus voltage magnitudes. The authors of this work demonstrate how to utilize several data pre-processing approaches, such as feature selection strategies, scaling techniques, and sample methods, to reduce prediction mistakes. Results are displayed for four benchmark grids that are realistic. The authors demonstrate how applying pre-processing techniques can lower the maximum prediction error by more than thirty percent.

Introduction

Power system time-series-based planning enables the inclusion of operational flexibility in the process, such as the reduction of renewable generation or storage systems. The conventional high-generation and high-load scenarios do not adequately take this flexibility into account. However, time-series-based techniques lead to significantly longer simulation periods. If many years, various control techniques, or contingency policies have to be taken into consideration, millions of power flow computations are required. For instance, when the single contingency policy criterion is taken into consideration, $NT \cdot N$ line power flow computations are required to simulate a grid with N line lines for one year at 15 minutes resolution (NT = 35040 time steps). Therefore, in order to minimize the total computation time, a quick prediction of the power flow results is required. As demonstrated in artificial neural networks (ANNs) are a quick regression technique for the prediction of branch loadings and bus voltages. This makes it possible to quickly pinpoint crucial circumstances from the fictitious era. 10% of all time steps were utilized as training inputs in our earlier work ,where the training data was chosen at random. The majority of the simulation time is devoted to calculating this training set. It is our assumption that various data-pre-processing techniques can improve prediction accuracy without requiring additional training data.

SCRUTINIZATION, ESTIMATION, AND SELECTION OF CLOUD SERVICES CSESF FRAMEWORK USING KNN-COSINE METRICS

[1]GSS.Rao, [2]Animesh Pradhan
[1,2]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology,

Abstract

Cloud Service Selection is still one of the critical decisions that have the highest impact on any association.Making a decision scrutinizing them with estimation is always a complicated task. This paper implementeda three-step process in service selection: Cloud Service Scrutinization, Assessment, and SelectionFramework (CSESF) using K Nearest Neighbor – cosine metrics. In this method, all the decision-maker'srequirements are initially identified and listed. All the parameters and service providers are listed. Analgorithm for scrutinizing is developed. Weights are calculated for preferences given by the decisionmakers.KNN with cosine metrics works on choosing the service with the smallest for the positive bestsolution and harmful for the far solution. The results show that CSESF is robust, practical, and suitablefor choosing the service.

Keywords: **Cloud Service Selection, KNN Cosine Metrics**

Introduction

The solution to store the data, in coming generation is Cloud. The core concept of the Cloud is Virtualization.This enables to share interconnect and manage the computers in a distributed network. For decision-makers, oneof the biggest challenges is to provide dynamic services to the user based on their requirements. Over the internet,identifying the accurate and effective service has become a most significant challenge. This leads to attract boththe industry and academia. Many studies were conducted to educate users to make wise decisions.Most of the studies try to solve problems of two types. 1. Developing the standard interface to develop a solutionto this problem, a platform that helps users choose the displayed services. 2. One the basis of decision-makingmethods is selecting suitable cloud services. This paper focuses on cloud service selection.We found exciting details in the literature about the MCDM methods used for service selection. The AHP is themost commonly used MCDM method than any other method. The use of assessment methods and targeted cloudservice layers, where most of the selection techniques are applied to all platforms and different methodologies arefocused on individual cloud service layers. Based on their use in standard service selection, the QoS parametersconsidered for service evaluation are exhibited. We thought the top five QoS parameters for service evaluation,except for security parameters.If the number of alternative services and their QOS criteria are finite, it is better to evaluate these servicesconcerning QoS by the MCDM methods. The Analytical Hierarchy Process (AHP) is a common MCDM methodfor solving the problem of cloud service selection (Saaty, 1990). The summary of Mcdm methods used to solve.

DISCOVERY OF KNOWLEDGE IN PROSTATE CANCER DATA USING ENTSEMBLE LEARNING

[1]Hiren Kumar Praharaj,[2]Ravindra Sharma
[1,2]College of Engineering Bhubaneswar,BijuPattnaik University of Technology

Abstract
AI to help researchers in analyzing larger data sets and providing faster and more accurate diagnoses ofprostate cancer lesions. This research work finds AdaBoost M1 model gives an optimal results. This researchwork finds Ada Boost M1 of ensemble model gives an optimal results. The highest accuracy value is 89% ofaccuracy which is produced by Filtered Classifier. The least accuracy value is 83% of accuracy which is producedby Iterative Classifier Optimizer algorithm. The highest positive predictive value is 0.90 of positive predictivevalue which is produced by Filtered Classifier. The least positive predictive value is 0.83 of positive predictivevalue which is produced by Iterative Classifier Optimizer algorithm. The highest true positive rate value is 0.89of true positive rate which is produced by Filtered Classifier. The least true positive rate is 0.83 of true positiverate which is produced by Iterative Classifier Optimizer algorithm. The highest F1-Score value is 0.89 of F1-Scorevalue which is produced by Filtered Classifier.
Key words: Ensemble, Meta, Ada Boost M1 and DCCN and ANN
Introduction
Computers gather experience in learning and a human does not need to pre-specify all the data to thecomputer. AI algorithms have shown promise for grading prostate cancer,specifically in prostatectomysamples [4,5] and biopsies[6-9] and by assistingpathologists in the microscopic reviews[10-12]. However, AIalgorithms are susceptible to various biases in their development and validation [13]. This can result in algorithmsthat perform poorly outside the cohorts used for their development. Moreover, shortcomings in validating thealgorithms' performance on additional cohorts may lead to such deficiencies in generalization going unnoticed.In this research work, section 2 contains related works; in section 3 has materials and methods; in section4 presents results and discussions and finally section 5 presents conclusion of this research work.

Influence of temperature and moisture on the design of pile foundations in expansive soil

[1]Sipra Mallick, [2]Shalini Patra

[1,2]College of Engineering Bhubaneswar, BijuPattnaik University of Technology

Abstract

The most commonly used construction material for various civil infrastructures is naturally available, compacted or modified soil. The behavior of these soils is significantly influenced by environmental factors such as precipitation, evaporation, and fluctuations associated with natural groundwater levels. Stability and deformation behavior are the two main criteria that guide the design of these infrastructures. Soil is a complex material with different phases of frozen and unfrozen. The water content of unfrozen and frozen soil is affected by various negative and positive temperatures. Soils can be frozen or thawed, saturated or unsaturated, or combinations of these due to variations in temperature and water content. *Keywords:Soil,Watercontent,Temperature,Wetting-Drying,Freezing-Thawing*

Introduction

The most frequently used material in the construction of various technical infrastructures is soil in its natural, compact or modified form. For example, soil is compacted to form dams, canals, roads and railways, and waste retention structures such as topsoil and liners. Built infrastructure is usually in an unsaturated state during its lifetime. Fluctuations in ground water content significantly affect the operation of these infrastructures. Pore water in unfrozen unsaturated soil usually has a lower free energy than free water due to interactions between soil particles, pore water and pore air. The soil-water characteristic curve (SWCC) defines the relationship between the free energy of pore water (or soil suction) and its amount in unsaturated soil. The amount of pore water can be presented either gravimetrically or as a volume with water content or degree of saturation. SWCC is a conceptual and interpretive tool for understanding the behavior of unsaturated soils. Environmental effects on soil behavior would be incomplete if only the effects of variation in water content were considered. This is because changes in the pore water phase due to soil freezing and thawing (from liquid to solid or vice versa) are not significantly taken into account for different soil properties.

Power and control system for grid-connected small-scale wind turbines

[1]**Jagatjyoti Ranjan Das,** [2]**Aditya Sharma**
[1,2]**College of Engineering Bhubaneswar BijuPattnaik University of Technology**

Abstract

Since low power wind systems are clean, sustainable, renewable, and alternative sources of electricity, they are currently a hot research issue with significant socioeconomic appeal. Low power wind systems can provide electricity profitably over time in a variety of settings, including houses, schools, telecommunications towers, oil rigs, and rural hospitals. However, innovative approaches to create straightforward, reliable, and affordable systems are necessary for the low-scale popularization of renewable energy. With this scenario in mind, this study suggests a system based on a push-pull inverter, DC-DC buck converter, and passive rectifier that allows small wind turbines to be connected to the mains. A 1kW tiny wind turbine was used in the analysis, design, and verification of the suggested system.

Introduction

Because of its advancements in research, publications, products, and, most importantly, practical applications over the past few decades, wind energy may already be regarded as a consolidated renewable source to produce electrical energy. In actuality, the installation of massive wind farms—which have processed hundreds of megabytes—is what has caused this consolidation. Nonetheless, a lot of research is being done right now to create technologies that will allow small wind turbines to produce power more frequently
The ability to use small wind turbines in cities, where the wind is more turbulent and moves more slowly, is one of their many benefits . Typically, low-power wind turbines are either directly connected to the electrical grid or to battery banks. The overall volume of the system is one of the main obstacles to connecting a wind generator to battery banks, frequently making this kind of connection impractical. As a result, linking tiny wind turbines to the electrical grid has drawn a lot of attention from academics .

Control of voltage and reactive power to optimize a GW-sized EHVAC offshore wind farm link

[1]Jagatjyoti Ranjan Das, [2]Arpit Mohapatra
College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

Abstract

This work addresses the steady-state performance of a radial HVAC cable transmission system with variable shunt correction and various power injection locations, such as offshore wind farms. A power flow-based method is used to estimate the generator voltages and variable compensation settings, with the goal of symmetrical current magnitude profiles along individual cable lines (CLs). This suggested operation enhances cable line (CL) utilization while minimizing Joule losses. Constraints on the reactive power exchanged with the bulk power system due to network codes are also taken into account. A successful implementation to a fictitious 199 km long, 400 kV-50 Hz cable system is described, gathering up to 2 GW from several OWFs. This indicates that the suggested operation guarantees near-unity generator power factor values and at least 97% transmission efficiency at full load.

Introduction

The continuous sizing of offshore wind turbines (8 MW units are entering service) is driving the overall capacity of individual offshore wind farms (OWFs) towards the GW level in favorable regions like the North Sea. Consequently, at a distance of more than 100 km from shore, the combined capacity of an aggregation of big OWFs can reach several GW . The use of HVDC or EHVAC connections is required due to the quantity of electricity that needs to be evacuated as well as the transmission distance. Although HVDC systems are becoming more and more popular, EHVAC solutions have a lot of promise since XLPE insulated 400 kV–50 Hz undersea cables have recently become available. The development of intelligent distribution automation solutions is necessary to provide electricity grid security, dependability, and efficiency. The Italian Regulatory Authority for Electricity and Gas (AEEG) has released a tender for supporting and funding creative ideas connected to the evolution of traditional MV/LV distribution networks toward "smart grids," in accordance with the rules published by the European Union. Following the selection process, the Authority sponsored the top eight projects that Italian utilities submitted.

FRAMEWORK FOR SOFTWARE BUG PREDICTION BASED ON AGGLOMERATION FOR EXTRACTING INFORMATIVE FEATURES

[1] Jagdish Kumar KB, [2] Rakesh Pradhan
[1,2]College of Engineering Bhubaneswar,Biju Pattnaik University of Technology

Abstract

Growing reliance on software products in the world has put high demand on quality software. Software Bug Predictionis an exercise in enhancing the quality of software by identifying potential bugs or faults in software constructs duringthe pre-deployment testing phase. Various Machine Learning models have been built to predict faults based on metricsderived from the software. Feature selection and feature reduction (extraction) are two strategies to weed-out redundant and non-useful features thereby reducing the dimensionality of features. The present research study aimsto devise an ML model to effectively reduce the dimensionality of the feature-set of data by using a combination ofGenetic Algorithm (feature selection) and Feature Agglomeration (feature reduction) without significantly affectingmodel performance.

*Keywords***: Software fault prediction; Dimensionality reduction; Genetic Algorithm; Kruskal Wallis H test.**

Introduction

The ever-increasing automation in day-to-day life has led to an exponential rise in highly complex and innovative software products. Efficient testing before deployment of such software systems is mandatory to prevent failures(faults or bugs) and to save precious and already constrained resources. Testing of software for potential fault sand their rectification ensures adequate software quality. Comprehensive testing of a newly developed software is resource-intensive and further, it is not to test all possible cases for probable bugs. The goal of software engineers is to optimize the cost and time of software development. Here, Software Fault Prediction (SBP) helpsin achieving these goals by predicting code defects during the testing phase itself. SBP can prioritize resources towards the probable faulty software modules and save practitioners from exhaustive testing. SBP can be realized by utilizing Machine Learning (ML) models. Fault prediction models involve data from previous versions for Intra project SBP and historical data from a similar project for inter-project SBP. For prediction purposes, previous studies employed a vast number of classification or supervised methods (labeled data) and unsupervised

AN EFFECTIVE WEBSERVICES DISCOVERY APPROACH BASED ON DENSITY

[1]JVN Ramesh, [2]Salil ku. Malla
[1,2]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology,

Abstract

A huge number of Web Services accessible on the Internet has made service discovery a challenging task .Efficient way to minimize the search space is by organizing Web Services into similar clusters. This paper presents an efficient Web Service Discovery approach based on Density Based (DB) clustering algorithm. Word frequency-based similarity calculation method in word score calculation is proposed. Clusters are formed using k-means and redefined using DB algorithm. The results obtained from DB are high accurate clusters of WSDL. The performance of the proposed DB approach is evaluated by comparing the accuracy of the service discovery with the existing results and found that DB outperforms than the others.

Keywords: **Web based Services; XML; Clustering; Word frequency matrix; Service discovery**.

Introduction

Web services are self-describing services designed by different vendors. They are software components that cater certain business functionalities can be used in various suitable applications dynamically. The components such as XML (extended Markup Language), SOAP (Simple Object Access Protocol), WSDL (Web Services Description Language), and DDI(Universal Description and Discovery Integration) are highly preferred because they have more interoperability among various Web Services.XML describes the data in a meticulous way using custom defined tags for transmitting data and the information among various systems. Web Service Management System is a comprehensive framework for managing web service lifecycle which covers the development, deployment, publishing, discovery, composition, monitoring and optimizing access to web services. As web services are being extensively deployed for business applications, the reliability of the services provided becomes an important criterion to enable the usage of such services. Internet users are increasing day by day, network requirement also increases to obtain good performance. Therefore, many online services demand a very large bandwidth and network performance .

HYBRID META-HEURISTIC AOMDVACOPSO OPTIMIZATION ROUTING PROTOCOL IN MANET

[1]**K.VenkataRamana, [2]Dillip ku. Bhadra**
[1,2]**College of Engineering Bhubaneswar, Biju Pattnaik University of Technology**

ABSTRACT

MANETs are made up of nodes that uses routing protocols to transfer a packet from source to sink through store-and-forward method. These packets are sent through each intermediate nodes therefore transferring the data packets from source to sink is very expensive process. Traditional protocols also ignore energy usage in nodes when choosing route from source to sink node. Therefore, the need for an optimized path for communication amongst node has attracted the use of approaches like Ant-Colony Optimization (ACO)and Particle Swarm Optimization (PSO). In this research work, we are proposing a hybrid nature-inspired optimization technique based on ACO and PSO named as AOMDV-ACOPSO to enhance the performance of MANET routing. AOMDV is used to find the multiple data transfer paths from source to destination, where as hybrid ACO-PSO technique is used to select the best or optimum path from the multiple routes generated by the AOMDV.

Keywords: ACO,E2E delay, Energy Consumption, MANET, NS 2.35, Optimization, PDR, PSO, Routing

INTRODUCTION

MANET is a network made up of wireless mobile hosts that creates a temporary network without the need for a specialized infrastructure or centralized control . Nodes in the network are mobile, they self-organize and configure themselves. There are two types of communication approaches for wireless mobile nodes that are infrastructure-oriented and infrastructure-less. In an infrastructure-oriented structure, devices communicate with a base station that is connected to a fixed infrastructure, but in an infrastructure-less structure, nodes communicate without relying on any pre-existing network infrastructure. As the nodes in MANET are battery operated, a lot of the power gets exhausted because of the movement of nodes from one location to another which tends to the reduction of network lifespan .

Long-Term Performance of Steel-Concrete Composite Structures

[1]Edara Krishan Reddy, [2]Vishal Krishnan

[1,2]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT

Most residential buildings are designed and built using reinforced concrete; this is contingent upon the availability of the component materials, the caliber of the building expertise required, and the practicality of the design guidelines. R.C.C. is no longer cost-effective due to its increased dead weight and dangerous formwork. However, composite construction is a relatively new concept in the building sector. These days, steel-concrete composite structures are quite common since they have a number of benefits over traditional concrete and steel constructions. In contrast to composite buildings, which combine the best qualities of steel and concrete to minimize costs and promote speedy construction while providing fire protection and other benefits, concrete structures are heavier and can withstand more seismic weight and deflection. By using new, contemporary composite constructions, which can make it economically unfeasible to build each story slowly while casting RCC columns, high-rise structural framework construction can proceed quickly. However, composite beam columns have a long history of high earthquake resistance in Japan, where they are frequently utilized in buildings.

Keywords: Composite Structure, Steel Structure, RCC, Etabs Software, Seismic, ComparisonAspects.ResponseSpectrumAnalysis, Seismic Responses, Time History Analysis

INTRODUCTION

Transferring structural load efficiently is the main goal of all engineering construction employed in the building design area. Dead load, imposed load, and snow load are the most frequent loads that arise from the effects of gravity. Structures are subjected to horizontal wave, explosion, or earthquake loads in addition to these vertical loads. Therefore, it is crucial that the system have both enough rigidity to withstand lateral stresses and enough resistance against vertical loads (In 2013, Pathiya and Nimodiya). A R.C.C. Frame structure is created by arranging several components, such as slabs, beams, and columns, each of which contributes in a different way to the structure's upkeep. In order

Automated Evaluation of Android Tasks Using Cloud-native Technologies

Manas Kumar Satapathy

College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT

The increased functionality of mobile applications, which sometimes requires connecting with external services, and their complicated graphical user interface make them extremely difficult to test. Because of these characteristics, student evaluation in courses on mobile application development typically depends on tasks or projects that are graded by teaching assistants manually. Especially for online courses, this strategy obviously does not translate to huge classrooms. This article describes a novel method that uses cloud-native technology to automatically grade Android exercises. The suggested solution, which deviates from the state of the art, makes use of an industry-wide mobile app testing framework rather than specialized libraries. **Keywords**: Android; mobile application development; online learning; industry-wide mobile app testing framework

INTRODUCTION

In recent years, online learning has grown significantly. Its focus is generally university-level, ranging from professional training to distant education. Reduced delivery costs, increased student engagement flexibility, and ease of scaling to a high number of enrollments are some benefits of online learning. In addition, more and more traditional (i.e., non virtual) colleges are using online learning to supplement in-person classes and boost student involvement outside of the classroom.. Additionally, the device uses software containers and scales in accordance with the resources available in a data center—a crucial component of supportive open online courses. The system is designed and implemented in detail, and the results are made available for deployment in a 120-student master's course. Feedback indicates that the suggested approach worked well since it gave informative comments and encouraged autonomous learning about developing mobile applications.

Polynomial Coding Techniques For Image Compression: A Recap

[1]**Manoj Kumar Behera**, [2]**Asit Satpathy**
[1,2]**College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology**

ABSTRACT

Compression effectively addresses the two major problems of size and transmission. A number of standard techniques, including GIF, JPEG, MPEG, and MP3, are available; these techniques combine speed, efficiency, and ease of use with the capacity to meet a wide range of requirements. Nevertheless, there is always a need for new and creative techniques to advance the digital world. One of the most straightforward and promising modeling base compression techniques is polynomial coding, which uses probabilistic residuals and deterministic coefficients to compactly represent image information. Several models have been developed to enhance the performance of this technique, whereby the efforts of researchers to compress color and grayscale images utilizing lossless and lossy linear and non-linear approaches were the main focus of this paper review.

Keywords: compression, Polynomial coding, Lossy/lossless, Coefficients,residual, linear approaches

INTRODUCTION

Since COVID 19 and the massive revolution in computers, mobile phone technology, and communication—where the image is the backbone of this communication—people's online presence in instant messaging, e-learning, and social media has become essential. Unfortunately, the image comes with a large size in bytes exhausted due to redundancy overburden. The core of image compression is image data redundancy. Different techniques are used depending on how redundancy is removed: lossy techniques use psycho-visual redundancy either alone or in conjunction with statistical re-encoding, while lossless techniques—also referred to as information-preserving or error-free techniques—rely only on statistical redundancy without losing any information.For grayscale images, there are two categories (interpixel (spatial) and coding) while for color images, there are three types (spectral, interpixel, and coding) of statistical redundancy . Using compression classification approaches, depicts the primary types of redundancy found in photos.

Secure Message Transmission Using Multiple CLMM Keys

[1]Prasanna Kumar Mishra,[2]Puspita Ray
[1,2]College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT

Message cryptography will be explained in a straightforward, adaptable, and effective manner. Using one or more rounds for encryption-decryption, the approach can accommodate messages of any length. An intricate structure that is impenetrable by hackers will characterize the PK key. In the encryption and decryption stages, the generated CLKs will be transformed to induce keys, which will be utilized as lockup tables. The PK will include information about chaotic parameters, which will be used to execute CLMMs and generate the required number of CLKs. When utilizing a different PK during the decryption process, the created key will become sensitive to even the slightest changes in the PK, resulting in a decrypted message that is damaged.

Keywords: *Cryptography, PK, CLMM, CLK, lockup table, throughput*

INTRODUCTION

Information can be transformed into a secret code that conceals its actual meaning through the process of encryption. Cryptography is the study of information coding and decoding. Unencrypted data is sometimes referred to as common text in computers, while encrypted data is known as cipher text. Cipher algorithms, often known as ciphers, are the mathematical formulas used to encrypt and decrypt messages. An algorithm for encryption must include a variable for it to work. The variable—also referred to as the key—is what distinguishes the output of the code. When an unauthorized party intercepts an encrypted message, the hacker must determine who sent the message, what the encryption keys were, and which variables were used. The technique will be put into practice, and the throughput of the procedure will be determined using the outcomes. To demonstrate how the suggested method speeds up the message cryptography process, the acquired throughputs will be compared with the throughput of the DES method.

Improved Authentication Protocol for Internet of Things: A Novel Approach

[1]Manas Kumar Satapathy, [2]Shradhanjali Das

[1,2]College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT

The term "Internet of Things" (IoT) describes a brand-new, expanded network that makes it possible to connect any object to the Internet and control it remotely or exchange data. These days, the Internet of Things (IoT) is helpful in many fields, including the environment, industry, public security, water monitoring, medical, and so on, because of its various benefits. The Internet of Things leverages the advantages of other modern technologies, such as big data, wireless sensor networks, radio frequency identification, and mobile networks, to cover all areas and function well.

Key words: Internet of Things (IoT); sensor; security; wireless sensor networks; authentication

INTRODUCTION

The Internet of Things (IoT) is a fantastic network technology that connects a vast number of things in the modern digital world. With the help of smart items, the Internet of Things enables smarter living and working. Owing to its significance, IoT is used in numerous industries, including water monitoring, healthcare, smart homes, smart environments, and others. Actually, there isn't a common IoT architecture. The verification of connected items is therefore regarded as being of interest. Ye et al. proposed a novel protocol for key transferring and authentication for Internet of things devices in 2012. We have demonstrated, however, that their protocol is vulnerable to numerous assaults. We present an improved IoT authentication scheme in this work. We also provide the comparison findings between our suggested system and comparable ones.

Embedded real-time temperature and humidity monitoring system implementation

[1]Manoj Kumar Behera, [2]Sanjay Kumar Sarangi

[1,2]College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT

Among the factors that are important to the industrial and agricultural sectors are temperature and humidity. These components are typically inefficiently monitored by wired monitoring systems, which increase the expense of installation and upkeep. Furthermore, because it takes longer to measure, a thermometer—a device used to detect temperature—is not appropriate for real-time monitoring. The development of wireless technology has made it possible to efficiently and remotely monitor the humidity and temperature. This paper describes the use of Arduino for the Internet of Things (IoT) to construct an embedded real-time temperature and humidity monitoring system. The Node-FRED dashboard system, which interfaced with the LoRa radio via the Things Network gateway, is integrated with the Arduino node by the system. This Internet of Things application is used in both indoor and outdoor environments to look into the relationship between humidity and temperature in order to control the atmosphere to a more comfortable level.

Keywords: *Arduino, IoT, Node-FRED, monitoring system, Things Network*

INTRODUCTION

Two factors that illustrate how the world's climate is changing right now are temperature and humidity. The life cycles of plants and animals are impacted by the significant changes in various environmental conditions. Farmers can monitor the state of fish farms and make correct decisions about agricultural production yield with the help of temperature and humidity. Large-scale structures with heating, ventilation, and air conditioning (HVAC) include skyscrapers, hotels, and shopping centers.

An Internet of Things model for Food Reserve Agency's Grain Tracking and Warehouse Intrusion Detection (E-Perimeter)

[1]Prasanna Kumar Mishra, [2]Sanjay Kumar Sarangi
[1,2]College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT

Although it is still in its infancy, Zambia's agricultural industry, through the Food Reserve Agency (FRA), has numerous obstacles, including marketing, spoiling, infestations, theft on the spot, spilling, and storage. Due to the lack of systems, FRA primarily uses manual methods in its business activities. This research suggested and created unique techniques that can be utilized to detect grain tracking within the FRA circulation and real-time warehouse intrusion in order to assist curb these issues. Cloud storage, GSM, GPRS, RFID, PIR, and the APC220 transceiver were all used in the Internet of Things prototype model. The system uses motion detecting using PIR sensors, a wireless radio communication module, and GSM/GPRS technologies to prevent grain theft at storage locations. When someone approaches a PIR sensor, the sensor sends a logic signal to the microcontroller. Last but not least, the Arduino microcontroller, GSM, and RFID system that tracks grain. It is anticipated that if this technology is used, theft will decrease and grain management in the several FRA satellite Depots across the nation will improve based on the experiment's results.

Keywords— *RFID; cloud storage; GSM/GPRS; APC220; Arduino microcontroller; FRA satellite Depots*

INTRODUCTION

Since food is a basic human necessity, food security is essential in every nation [1]. Food security is the state in which all people, at all times, have physical and financial access to enough wholesome food that satisfies their dietary needs and preferences for an active and healthy life, according to the Food and Agriculture Organization (FAO) [2]. The FRA in Zambia, which upholds a sustainable national strategic food reserve, guarantees food sustainability throughout the nation and provides market access for smallholder farmers operating in rural areas [3]. Furthermore, FRA serves as a macroeconomic stabilizer for domestically produced food, namely maize, which is the main crop in the country.

Application of Convolutional Neural Network Technique for Vegetable Detection as Suggestion for Vegetable Recipe

B.B.Biswal

College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT

Vegetarianism is the abstinence from animal-based diets. Despite the fact that young people in Indonesia are becoming more and more vegetarian, not much information exists regarding vegetarian dishes or the restaurants that provide them. In order to recommend vegetarian recipes based on vegetable image data, this study uses MobileNetV2 transfer learning in conjunction with the Convolutional Neural Network (CNN) approach. Six different vegetable image types were downloaded from Kaggle and added to the dataset. They are transformed into tesorflow.js, tagged, preprocessed, and trained to build a CNN model, and then put into use on a web-based platform. With a 95.78% accuracy rate, the model generates 1000 images for every vegetable.

Keywords: Deep Learning, Convolutional Neural Network, MobileNetV2, Kaggle

INTRODUCTION

A vegan lifestyle is one in which animal products are not consumed. Recently, a lot of young individuals have started adopting the growing trend of vegetarianism. In terms of food and nutrition security, people's shifting consumption patterns require support from their environmental surroundings. Indonesia's global vegetarian ranking is lower than Malaysia's and Thailand's among ASEAN nations. Even in the restaurants that offer them, it is difficult for people in this country to find recipes for vegetarian food. Digital image processing is required in order to recognize vegetable photos as suggestions for vegetarian meal preparations. This technology has advanced quickly and been used in many different industries.

Design and deployment of a digital communication system for smart homes as a step toward secure smart cities

[1]Sandip Kumar Bala, [2]Sanjay Kumar Sarangi

[1,2]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT

Security for our homes and buildings is a top priority in our day-to-day lives, and digital smart door locks (DSDL) are becoming a crucial component of these systems. This paper describes the design and implementation of a secure fingerprint-based digital signature-based door lock (DSDL). For door lock/unlock based on finger print, an Arduino Nano microcontroller board, finger print sensor, and servo motor have been used. An automatic method of user authentication and validation for secure access is the DSDL. In comparison to systems now available on the domestic market, the implemented system seeks to produce a cost-effective DSDL based on inexpensive components. The DSDL surpasses the digital security system on the domestic market and is a strong rival due to its affordability and ease of use. It is also appropriate for security-based home automation systems.

Keywords: Arduino Nano microcontroller board, DSDL, home automation systems

INTRODUCTION

The quickest-emerging technology is the home automation system (HAS), which offers a variety of smart home features for the homeowner's convenience. Home automation and security systems, such as climate, lighting, and appliance controls. The quality of life has been enhanced by embedded systems, smart sensors, wireless technology, and interactive applications in a number of domains, including as HAS, smart healthcare, and smart automobiles. Numerous household appliances, including as refrigerators, sewing machines, washing machines, televisions, and others, have improved people's quality of life thanks to smart home appliances with built-in sensors. As a result, security of life and property needs to be given careful consideration, especially as the internet of things (IoT) and 5G era approaches.

A Crime Dataset's Ideal Warehouse Design

[1]**Sandip Kumar Bala,**[2] **Puspita Ray**

[1,2]**College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology**

ABSTRACT

These days, data science and analytics are among the fields that are developing the fastest. In the field, gathering, collecting, and interpreting data can be difficult tasks since they call for cutting-edge methods and tools. Data warehouses and data marts are two examples of methods for gathering, storing, and gaining access to data. Improved warehouse architecture yields superior analytical outcomes. Among the several application domains for data, crime data is a significant and intricate discipline with a wide variety of applications, numerous intricate relationships between its contents, and paramount significance.

Building an ideal data warehouse for a crime dataset utilizing actual crime data gathered from the internet is the goal of the work presented in this paper. Galaxy module is one of the various DW modules that are available in this industry and is utilized in this work.

Key words*: Data warehouse, data marts, Preprocessing*

INTRODUCTION

The rapid development of data collecting and storage technologies, as well as cloud computing, from commercial and research centers has resulted in an unprecedented amount of complicated data that is made publicly available. It is now more important than ever to extract valuable data and offer fresh perspectives for identifying trends from such data repositories. The challenges posed by data that is too big, unstructured, and moving to be handled by conventional methods can be effectively handled via data mining. A cutting-edge, multidisciplinary, and expanding subject of study, data mining can develop models and methods for deriving meaningful information and hidden patterns from data in a variety of context.

Optimizing the size and positioning of DGs using the modified crow search algorithm to improve active radial distribution networks

[1] **Debarchana Rout,**[2]**Ranita Sahu**
[1,2]**College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology**

ABSTRACT

In recent years, there has been a fast increase in the integration of various Distributed Generators (DGs) technologies into power system networks. In radial distribution networks, distributed generation (DG) is essential for lowering power loss and improving the voltage profile. On the other hand, improper DG placement or sizing can reduce network efficiency; also, one integration issue with inverter-based DGs is introducing harmonics. This study presents a strategy based on two procedures. The first method reduces power loss and improves the voltage profile of the entire distribution network, thereby solving the multi-objective problem of DG siting and sizing. In this process, a weighted sum approach is provided to generate the Pareto optimal front and obtain the compromised solution through the use of a novel metaheuristic optimizer called the Crow Search Algorithm (CSA).

Keywords: *Crow search algorithm, Distributed generators, Multi-objective problem, Size of inverter-based DGs, Matlab, simulink*

INTRODUCTION

Since radial distribution systems (RDS) only receive power from the utility grid at one end, they have a straightforward layout and are typically installed at a cheap initial cost in rural or suburban regions. Nevertheless, they have a number of drawbacks. Their primary drawbacks are the heavily loaded distributor near the substation, the severe voltage fluctuation issues that distant customers experience, and the fact that distributor malfunctions will interrupt service to a significant number of customers who are connected to that distributor. To enhance its functionality, CSA is also modified and put into practice. In the second step, a thorough simulation of the tested system is carried out using Matlab/Simulink to verify the achieved solution for the location and size of inverter-based DGs and to ensure that the accepted voltage THD at all busses.

Energy-Aware Data Placement Strategy Based On FCA For High-Volume Cloud Computing Workflow

[1]**Debarchana Rout,** [2]**Sanjit Behera**

[1,2]**College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology**

ABSTRACT

Processing large amounts of data back and forth between Storage and Computing servers that contain these activities and datasets is necessary for intensive workflows. Transferring these datasets across these servers could result in longer execution times, more energy usage from communication equipment, and higher data movement costs. Therefore, we needed an effective data placement strategy (DPS) to reduce the amount of data moved between these servers, the energy used for connectivity, and the time and expense associated with executing workflows. In this study, we offer a data placement strategy that takes into account the granularity of used resources in the data center, the various communication levels (switches, routers), and the original datasets.

Keywords: data placement; intensive workflow; FCA; energy; communication; granularity;

INTRODUCTION

Workflows are a series of actions that are identified as being completed by an individual or group of people. They have been employed in numerous scientific contexts. As astronomy and bio-informatics, for example, produce enormous amounts of datasets every day, these processes have the potential to be labor-intensive due to the hundreds or thousands of intricate activities and large datasets that must be kept. Its processing is quite complex due to the vast number of tasks and the enormous datasets of work flow.

Large-scale wind farm installed by power control using a DC transmission line linked to the large system for frequency control

[1]**N Veda Kumar**
[1]**College of Engineering Bhubaneswar, Biju Pattnaik University of Technology**

ABSTRACT

Due to the widespread installation of wind power generating systems in power systems worldwide, output power changes from wind farms have resulted in significant frequency oscillations in power systems. In this work, variances in wind farm output power are smoothed via DC-transmission. By sending a portion of the power changes in a power system with a large-scale wind farm erected to another big system via a DC transmission line linking each power system, this research suggests a novel way to manage frequency variations in power systems.

Keywords: DC-transmission, Wind Farm, System Frequency.

INTRODUCTION

Renewable energy sources, such as wind power generation, have been extensively available worldwide in recent years. However, differences in wind speed generally cause fluctuations in the output of wind turbine generators. Therefore, wind farm production can significantly affect the frequency of the grid system if a large number of wind turbine generators are linked to a power system. Maintaining the electricity quality of a large-scale wind farm put in a small-scale grid system can be challenging. As a result, in this situation, system control is required to preserve power quality. A large-scale wind farm is erected on the target system in this article, which is a small-scale power system that is connected to another large-scale power system by a DC transmission line. A novel approach to regulate the frequency of the small system is suggested, whereby a portion of the variable power generated by the wind farm is sent via a DC transmission line to the big power system. The small system's frequency characteristic is examined in relation to the DC transmission control technique since it fluctuates based on the quantity of power transferred to the big power system.

Improving the challenges of storing data using Blockchain visualization and IoT techniques

[1]Naba Kumar Rath,[2]Tanmaya kumar Das
[1,2]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT

Internet of things is evolving day by day with connected devices with continuous advancement in the devices but the security of IoT is not assured due to its trusted third party with centralized servers. Blockchain is a peer-to-peer network, where each peer is responsible for their task without centralized server, and no need to trust anyone in the network. Blockchain is integrated with IoT to improve their security, because of its feature of tamper-proof. Few issues are happening while integrating blockchain to IoT. The main issue that has to be resolved for a blockchain is the storage issue. Whenever the blockchain is evolving the storage of the lockchain is also increasing. IoT peers in the network have to store the entire blockchain to perform the verification of data and the IoT nodes are not having the capability to store the entire data. In this paper, we are discussing the storage issue of blockchain while integrating it into IoT. We proposed a navel approach to resolve the issues of storage by the virtualization technique. The result shows that virtualization reduces the storage capacity for the IoT peers as compared with the previously proposed methods.

*Keywords***:** Blockchain; IoT; Bitcoin; Disruptive Technology; BIoT**.**

INTRODUCTION

Although various architecture styles have been proposed for IoT such as client-server architecture, cloud based architecture, Fog computing architecture they are deficient to handle data breaching. IoT is not only involved in a sophisticated application but is also involved in the emergency application. The data breaching in emergency applications such as a remote patient health monitoring system, where the patient's health condition is monitored through a wearable chip kept inside the patient's body. The wearable chip will send the notification to the hospital when there is a change in the patient's body condition. Based on the data analytics, hospital management will call for the ambulance in a critical situation to save the life of the patient. In this case, IoT is contributing majorly to monitoring health conditions through the sensor and giving the notification to the device that is embedded in the hospital.

Utilizing Cat Swarm Optimization Variants for Active Behavioural Biometric Authentication with Deep Learning

[1]Nrusimhadri Nareen, [2]Debarpita Raul

[1,2]College of Engineering Bhubaneswar, BijuPattnaik University of Technology

ABSTRACT

Security issues have only been compounded by the advent of distributed networks and global internetavailability. Combating these security issues depends on being able to correctly authenticate a valid user.This paper presents variants of our CRNM framework which is an efficient cat swarm optimized deeplearning model to accurately authenticate a valid user through signature behavioral patterns andbiometric information of the user. The behavioral patterns considered here are keystroke and mousedynamics. Face recognition has been included as a means to decrease the false rejection rate of thesystem. The major contributions of this work include comparison of various cat optimization variants foractive authentication, performance analysis of our model with different state of the art systems. Thefitness functions tested include Rosenbrock, Rastrigin and Griewank while CSO variants studied areADCSO, AICSO and PCSO. Results of our experiments indicate that the proposed authentication systemis faster and more efficient than existing frameworks.

Keywords: Active authentication; Behavioral biometric; Cat swarm optimization; Hybrid deep model.

INTRODUCTION

Identifying a person is one of the essential steps in conventional security systems. [Barton et al, (2016)] states that traditionally, before the advent of computers, a person was identified by their name, facial features, voice, gait, posture, habitual gestures, handwriting and so many other identification cues. As society advanced and the need to secure country borders arose, person identification took on modifications leading to the use of photographic identity cards, documents like passports, certificate of nativity and other government issued documents. Passwords and secret codes were also used in person identification from time immemorial as in most of the conventional methods there was human involvement in the process of authentication which was both a boon and a bane. The human brain is able to process hundreds of unconscious behavioral and physicalcues in identifying a person very quickly. The level of accuracy would be dependent on many factors not just the sensory inputs received by the brain as reported by [Markus et al, (2014)] especially when identifying familiar person.

Urine Flow-Based Intraurethral Energy Harvesting as a Method to Power Urologic Implants

[1]P Jagannatham, [2]S.K.Verma
[1,2]College of Engineering Bhubaneswar, BijuPattnaik University of Technology

ABSTRACT

Urinary incontinence is commonly treated using active urologic implants, such as artificial sphincters or bladder stimulators. These gadgets are currently fueled by standard wireless power transmission methods or primary batteries. Although these techniques have a number of drawbacks, human body energy harvesting presents a viable substitute or addition to power sources. This research presents a mechatronic harvesting device based on a hubless flow turbine for obtaining energy from the flow of pee inside the urethra. The viability of the harvesting principle is demonstrated in vitro using a test bench that reasonably simulates the flow parameters of the lower urinary tract.

INTRODUCTION

Any involuntary loss of urine is referred to as urinary incontinence (UI), a highly common disorder that has a substantial negative impact on patients' quality of life and is a serious socioeconomic issue . Patients are said to experience fatigue, depression, and anxiety as well as a higher propensity to restrict social interaction According to several studies, the estimated prevalence of UI varies from 25% to 45%; it is more common in women and the number of affected individuals rises with age. However, because the subject is taboo, it is challenging to pinpoint the precise number of patients. With the average age of the population rising and the demographic shift occurring in many developed nations. Conservative approaches, including pelvic floor muscle training, can be employed to treat UI issues. Surgery to implant an artificial urinary sphincter is a possibility in extreme situations, but it comes with a significant risk of complications and necessitates a difficult invasive surgery Energy harvesting is the process of using an appropriate technological instrument to transform accessible energy from the surrounding surroundings into tiny amounts of electrical energy. The human body can function as an energy source that is active or passive. Active energy harvesting necessitates tasks the person specifically does for harvesting, whereas passive energy is harvested from the patient's or user's regular motions, such as breathing and walking.

Transcutaneous Energy Transmission System with a Two-Wire Archimedean Spiral Coil

[1]P Jagannatham, [2]Srikant Verma
[1,2]College of Engineering Bhubaneswar, BijuPattnaik University of Technology

ABSTRACT
In this study, the transformer of a transcutaneous energy transmission system for a fully implanted mechanical heart is equipped with a suggested spiral coil. The power receiving transformer's form was examined in an effort to minimize the amount of rectifier components in the power receiving circuit. The findings showed that the transformers' power transmission efficiency was nearly identical to that of the receiving transformer of the same design. Furthermore, the computations showed that the power receiving circuit's component count was lowered and that both the power transmission and receiving circuit's efficiencies were raised.

INTRODUCTION
Severe cardiac problems are treated by heart transplantation. Nevertheless, obtaining enough hearts for transplantation is challenging. In order to solve this, clinical proposals for artificial heart implantation are now being made. These proposals use wires to carry electricity through the skin both within and outside the body. Nevertheless, this implies that the patient may be harmed by issues like cable breakage or may be at danger of infection at the location of cable invasion. A transcutaneous energy transmission system has been presented as a dependable system that does not require any wires for power transfer in order to address these issues and enhance the patient's quality of life (QOL). The size of the power receiving circuit in the TETS must be decreased since it is implanted in the body for the purpose of power transmission. However, a high number of components in the rectifier are needed for general bridge full-wave rectification, increasing the mounting space of the board. While half-wave rectification is an alternate approach to address this issue, employing the same smoothing circuit as full-wave rectification results in a twice as big ripple ratio. The smoothing capacitor's value can be doubled to solve this, however doing so results in a significant inrush current when the power is turned on. As a result, there are more parts needed for further failure prevention. There aren't many reports of this method, though, because it seriously impairs patients' appearances. At the moment, this approach mostly makes use of a thin, flat plate coil, such a spiral coil.

Gradient Weight for the Enhanced Pair wise-Potential Activation Layer in CNN

[1]P.Karunakar Ready

[1]College of Engineering Bhubaneswar, BijuPattnaik University of Technology

ABSTRACT

Imperfection classification is the most involved task in the cotton sector for finding Fabric Defects (FDs)and improving fiber productivity. Several approaches have been suggested in ancient times to automaticallyclassify FDs. Presently, an Enhanced Pairwise-Potential Activation Layer in Convolutional Neural Network(EPPAL-CNN) approach depends on improved external memory and Dynamic Conditional Random Fields(DCRFs) to solve the complex pattern correlation of FDs and detect the defective fabrics from the givenimages. On the contrary, the gradient-based optimization schemes for learning the weights of CNN tend tounusual convergence nature, resulting in inefficient classification. Hence in this paper, an EPPALOptimizedCNN (EPPAL-OCNN) approach is proposed which introduces an individual weightoptimization scheme depending on NWM-Adam for solving the unwanted convergence of CNN..

*Keywords***:** Fabric defects classification; EPPAL-CNN; Dynamic conditional random fields; Adam Optimization; Learning rate; Gradients**.**

INTRODUCTION

The cotton industry is a frequently developed standard industry. Typically, organic material is used to create cotton filaments. The development phase clearly shows a flaw in the structure of the fabric. A defective steerable device or texture deformation on the sewing system will induce material dissimilarities between the interval of itsemergence in fiber, thread, or line imperfections such as strap misdrawing, resources, imprecision, and woollannel. Production expenses can be minimized by 45-65% of imperfections. Weavers will monitor the cotton substance for vastly technical imperfections in contemporary looms by traversing a pair of devices on a regular basis since a fabric error is being avoided or resolved once observed .As a result, the clothing industry has progressed toward completely automated fabric inspection for relevant textile reliability estimations. Computerization is a benchmarking procedure that detects and reports faults in raw materials, also known as training. Quality assurance on fabrics is typically the only solution to improve reliability, assisting in the quick and efficient recovery of relatively trivial imperfections.

Partial replacement of aggregate by Construction and Demolition Waste for sustainable Concrete Production

[1]Srinivasan Kumar, [2]Jaishankar Reddy

[1,2]College of Engineering Bhubaneswar, Biju Patnaik university of Technology

ABSTRACT

One of the main factors affecting the supply of housing globally is the rising cost of construction materials for traditional buildings. This has made the quest for more affordable alternative building materials necessary. India and other emerging nations generate a significant amount of destroyed garbage annually. Concrete blocks from demolition projects can be recycled into stone aggregates by crushing, screening, and sorting the aggregate. The purpose of the experimental research is to determine how partially replacing coarse aggregate with debris from demolition affects the workability and compressive strength of the concrete that has been demolished. Using M20, M25, and M30 grade concrete, We will substitute demolished concrete in the range of 0%, 05%, 10%, and 15% for fine and coarse aggregates in this project. For coarse aggregates and recycled, demolished concrete, sieve analysis will work. The prepared concrete mix will be tested and compared to standard concrete in terms of split tensile strength and compressive strength. The test will be run after seven and twenty-eight days to assess the strength characteristics. Lastly, evaluate each concrete's strength and select the one with the highest strength.

Keywords: Demolished Concrete, Compressive Strength, Split Tensile Strength

INTRODUCTION

The best building material for civil engineering is concrete. Concrete's low tensile strength and inadequate fracture toughness are the main reasons it is regarded as a fragile material. Cement, aggregates, water, and admixtures are among the elements used in the making of concrete (s). Aggregates make up the majority of the components. The majority of the aggregates are composed of inert granular materials including sand, crushed stone, and gravel.In the past, aggregates have always been affordable, easily accessible, and suitable for a wide range of uses. However, the rate at which natural aggregates are being extracted from the environment is concerning. Given this, alternative materials are used in place of natural aggregate in the production of concrete, making it a sustainable and ecologically friendly building material in modern civil engineering projects .

Performance Evaluation of Biaxial Geo-grid at the interference of Ballast in Granular Earth Railway Embankment

[1]Mamata Mohanty, [2]Shalini Patra

[1,2]College of Engineering Bhubaneswar, Biju Patnaik university of Technology

ABSTRACT

Most areas of civil engineering have been impacted by the development of soil reinforcements, particularly transportation. Geogrids are widely used in roads, but they are now being used in railroads. The main effect that geogrids could have is giving a section the appropriate stiffness by using less material and acting as the right kind of reinforcement. With the aid of geogrids, an attempt has been made in the current study to economically remodel the railway embankment.Biaxial geogrid replaces the blanket layer (thickness up to 100 cm) in railway embankments by meeting the embankment's strain modulus requirement, which is determined by a plate-bearing test in accordance with DIN 18134. The experiment is conducted on a reproduced embankment in a metallic test chamber, where geogrid is positioned underneath the ballast and granular soil serves as the subgrade. Using Midas GTS NX software, a 3-D numerical model validates the experimental findings. The second modulus of the earth embankment has improved by 31.47%, according to the experimental analysis.Indian Railways' design portion is used in the study's implementation. A fifty percent decrease in embankment height is seen with geogrid, which lowers overall expenses.

Keywords: deformation modulus, geogrids, granular earth bed, high-speed embankment, plate load bearing test, reinforced embankments

INTRODUCTION

One of the most popular modes of transportation is the railway. Since transport is typically the backbone of every economy, many nations are constantly upgrading their rail systems. Soil, ballast, and sub-ballast—blanket material—are some of the components that make up a railway embankment. These materials vary in stiffness. The distribution of stresses to the natural ground is the railway substructure's primary purpose. Prior to moving to the layer below known as the blanket layer, the ballast is placed on top and experiences the greatest amount of stress. The blanket layer keeps the ballast from penetrating the subgrade. However, given the rising expense and decreasing supply of naturally occurring resources, certain alternative materials or design modifications should be introduced.

Performance of Laterally Reinforced Silica-Manganese Slag Stone Column for improvement of Soft Marine clay

[1]Mamata Mohanty, [2]Sipra Mallick

[1,2]College of Engineering Bhubaneswar, Biju Patnaik university of Technology

ABSTRACT

Stone columns are the most chosen components among all the ground improvement techniques available for supporting a wide range of flexible structures, including oil storage tanks, road embankments, and railway embankments. This study used silica-manganese slag as the stone column material and carried out several laboratory tests to improve the soft marine clay with end bearing stone columns. Additionally, the circular geotextile discs were inserted laterally within the stone columns to support them.The increase in weight carrying capability was examined and contrasted with an unreinforced, or plain stone, column and a clay bed. We tested circular geotextile discs with varying reinforcement depths, including D, 2D, 3D, and 4D, and two distinct spacings (D and D/2, where "D" is the diameter of the stone column).

Key words: Geotextile, reinforcement, Silica-Manganese slag, stone column

INTRODUCTION

There are numerous techniques for enhancing the ground, including as grouting, deep mixing, preloading, compaction, and dewatering. The deep densification process has advanced rapidly in recent years, offering a wide range of affordable and workable options for many ground engineering applications. Among them, stone columns have gained popularity and proven to be an effective solution. Because there is less confinement from the surrounding soft soil and a possibility of the soft soil squeezing out into the aggregate, stone columns in extremely soft soils may not always provide a suitable load carrying capability. It was discovered that the soil reinforced with a D/2 spacing to the 3D embedment length performs better than a D spacing. Additionally, it was noted that the bulging diameter was located below the reinforcement and decreased upon the addition of the geotextile reinforcement.

Designing renewable power plants with ambiguous data: a risk-based decision-making approach

[1]Prakash Kumar Sahoo, [2]Namrata Mallick
[1,2]College of Engineering Bhubaneswar, Biju Patnaik university of Technology

ABSTRACT

 Numerous evaluations and research on the design and dependability of renewable sources have been conducted recently because to their extensive use; nonetheless, a comprehensive examination of all causes of uncertainty influencing their behavior is still required. This type of analysis is considered essential for carrying out an appropriate "decision making" process for selecting the optimal option among various viable choices (e.g., quantity and size of producing units). In a Bayesian method, utility theory is utilized to characterize the outcomes while a random variable is employed to reflect the failure risk. After that, an illustration of the methodology is provided, along with the findings of the comparison of the risk functions of several power plant generation system alternatives. The proposed approach addresses load and wind turbine generator reliability uncertainties through a combined Monte Carlo simulation and analytical probabilistic approach. This method provides an exceptional level of precision in determining the risk's deduction probability density function, which in turn becomes a random variable. The outcome enables a comprehensive and logical decision-making process.

INTRODUCTION

Uncertainties are added to any design process in the specific instance of wind farms due to the need to account for all types of randomness, including load, wind speed, and dependability data. These uncertainties are, by no accident, increasingly examined in recent works on wind farm design. Specifically, recent advancements in the analysis of how to incorporate uncertainty information into a power system decision-making process are fully demonstrated in , where risk analysis is applied to a wide range of power system decisions, from the design of renewable sources to the choice of substation configurations. The aforementioned "consequences" in risk analysis and DM power systems applications quantify the impact related to potential system failures. As will be demonstrated here, consequences can be thus represented by parameters of "deviation" from the expected performances: in an electrical power plant, power or energy required by loads and not supplied (referred to as "loss of load," or LOL) is generally the most important parameter. Disutility is the term used henceforth to describe the measurement of the performance parameter deviation.

Stability analysis of linked AC power networks with multiple terminal DC grids

[1]**Prakash Kumar Sahoo,** [2]**Rajeev Ranjan**
[1]**College of Engineering Bhubaneswar, Biju Patnaik university of Technology**

ABSTRACT

Selected case studies of small-signal stability analysis for power systems with linked AC and DC subsystems are presented in this study. The Cigré DC-grid test system, which is intended to mimic a more widely applicable future configuration of multi-terminal HVDC (MTDC) systems, serves as the foundation for the analysis. The system's small-signal stability is examined in order to pinpoint key modes tied to various components of the interconnected AC and DC power systems. To uncover interaction issues and critical modes that might arise with various common system setups, the analysis is given in many sections. The stability of the complete Cigré DC grid topology is examined after first analyzing a situation involving a point-to-point HVDC link and then analyzing a four-terminal DC system.

INTRODUCTION

Voltage Source Converter (VSC)-based HVDC transmission is becoming the go-to method for connecting to the current onshore power networks as large-scale offshore wind farms at great distances from shore are predicted to grow.Long-term HVDC transmission lines for wind farms are also anticipated to be coupled with point-to-point HVDC linkages between current AC grids that are based on VSC, eventually becoming MTDC grids. These plans are particularly important in the North Sea region because of the substantial plans for offshore renewable energy and oil exploration activities that call for the construction of infrastructure for the transmission of electric power, as well as the potential advantages of increased connectivity among the nations that surround the North Sea. Thus, in the last several years, a wide range of research on the modeling, control, and operation of VSC-based MTDC systems have been published .Examples of stability analysis for hybrid networks with AC and DC subsystems along with accounts for the synchronous generators' dynamic influence on the AC grids.

Forty five years of European microwaves. What about the future?

[1]Prasanta Kumar Sethi

[1]College Of Engineering Bhubaneswar, Biju Patnaik university of Technology

ABSTRACT

This paper describes some key points in the history and development of the European Microwave Conference, the European Microwave Week, and the European Microwave Association, starting from 1969. It captures the way in which the conference since the earliest days has sought to create a successful blend of scientific and industry interests and has adapted itself to and indeed shaped the many existing technical changes that have characterized and continue to be at the core of the field of microwave engineering.

INTRODUCTION

This article is based on papers and presentations made at the European Microwave Conference, Rome, 2009, in a special session devoted to the 40th anniversary of the first European Microwave Conference . The story started in London, 1969. The EuMC, then called EMC, was first established in the fall of every odd year: London 1969, Stockholm 1971, and Brussels 1973. Starting with Montreux in 1974, the EuMC became an annual event, organized with the support of a professional conference manager and combined with an exhibition of manufacturers of microwave components, systems, and test equipment . The name EuMC was introduced by F. Gardiol in 1974 to avoid confusion with Electromagnetic Compatibility Symposia (EMC). A further development in the conference came from the decision to organize a European Microwave Week, EuMW, starting in 1998 and, with this in mind, contacts were established with other technical entities . Simultaneously, the Management Committee (MC) of the EuMC decided in 1997 to create the European Microwave Association, EuMA, as an international non-profit association under Belgian law, with a scientific, educational and technical purpose

Predicting settlement behaviour of Pile Foundation using PLAXIS 3D

[1]Pradeepta Kishore Dehury, [2]Sasikant Mishra

[1,][2]College of Engineering Bhubaneswar, Biju Patnaik university of Technology

ABSTRACT

In recent years, many construction projects have been built on soft ground. Due to its characteristics, the sentimental or soft soil on which the structures are built is prone to various landings. Foundation is one method to reduce inequalities. Piles are added to reduce the appropriate number of piles. In this project, we want to analyze pile foundation piles by increasing the number of piles in a pile foundation with the same load, with or without groundwater table. The numerical analysis was performed using the finite element method with PLAXIS 3D, considering the variable number of piles. As a result, increasing the number of piles can reduce settlement. It is worth thinking about the optimal number of piles of the pile foundation system in permitted residential areas due to its economical design. This analysis is performed to study the pile foundation behavior under different mass amounts. This analysis was performed using PLAXIS 3D software.

Keywords: PLAXIS 3D, Settlements, Pile Foundation

INTRODUCTION

A foundation can be a structural part of a building on which the building stands. The foundation transfers and distributes its own and applied loads to the ground in such a way that the bearing capacity of the "base layer" is not exceeded. If the soil at a shallow depth cannot support the structure, a deep foundation is needed to transfer the load to the deeper layers. If the solid layer is so deep that it cannot be accessed by an open trench, a deep foundation is used. Insufficient soil bearing capacity for foundation. The choice of pile foundation is based on the condition of the soil, the loads affecting the foundation, the soil layer, the conditions of the construction site and the working conditions.If the plan of the structure is not regular, the load distribution is not uniform in nature. Using a low basis provides a different solution in such cases. Slab foundation becomes necessary to eliminate segregation and similar cases. A pile foundation is critical in areas where the surrounding structure is subject to wear and tear. A shallow bottom may not withstand it. Pile foundations are required near drainage and sewer lines. Often the adjacent soil is limited by pile foundations.

Increasing the AC unit's rooftop condenser's heat rejection in a bus

[1] Sujit kumar khuntia, [2]Firoz Lakra

[1,2]College of Engineering Bhubaneswar, Biju Patnaik university of Technology

ABSTRACT

For the comfort of passengers, uniform cooling performance in passenger buses with big interior volumes is becoming more and more crucial. Buses with big interior volumes may take a while for the cabin cooling system to reach the desired temperature. Because of this For this reason, it is becoming increasingly crucial for the comfort of passengers that the air conditioning unit's cooling cycle, which is housed in the ceiling portion of passenger buses, operate optimally and safely.

Keywords: Aerodynamics, Bus, CFD, Cooling Performance, HVAC

INTRODUCTION

In this investigation, a bus designed by ANADOLU ISUZU saw a drop in the cooling load to be provided to the cabin and an increase in the compressor output pressure value when the cooling circuit's rising refrigerant temperature triggered the air conditioner. There are lots of areas that could be improved. To lower the system circuit's temperature and increase the amount of air entering the condenser, CFD simulations using the Ansys FLUENT 2020 software were run.

Using the RANS equations, the cycle's temperature was lowered for the simulations. The work completed for this study serves as a basis for the creation of numerous new automobiles that will be introduced to the market.

Validation of Commercial Passenger Bus Virtual Vehicle Dynamics Models via Testing

[1]Tapas kumar Chand,[2]Ganesh Maithy

[1,2]College of Engineering Bhubaneswar, Biju Patnaik university of Technology

ABSTRACT

Data from lane change and bump pass testing conducted with a prototype vehicle, as well as virtual vehicle model verification studies using a virtual vehicle model developed as part of a Class-III commercial vehicle project to be constructed by Anadolu Isuzu firm of research and development studies. The MSC Adams/Car application was utilized to construct virtual road models and conduct virtual tests, enabling the replication of the physical tests conducted on the prototype vehicle in a virtual setting. It may vary based on the wheel utilized in the virtual model because the features of the wheel mounted on the test vehicle are not entirely understood.

KEYWORDS: Vehicle Dynamics Tests, Analysis, Adams/Car, Optimization, and pSeven

INTRODUCTION

The way the wheels react and how the driver behaves will have an impact on the test results, particularly in the lane change test. Verifying the peaks between the movements is the goal in order to analyze the data conclusively. Furthermore, the process for acquiring settings suitable for the test data were adopted by adjusting the wheel parameter values that, when used in conjunction with the pSeven optimization program, had the greatest impact on the wheels' lateral sliding angle. The target was established as the lowest and highest values of the lateral slip angle found in the test results, and optimization analyses were carried out. Using 4-poster virtual analyzers, the vertical displacement readings of the chassis were compared and confirmed. Because of Through virtual studies, the virtual vehicle model was validated against test data by offering wheel center movement, damper displacement, changes in the vertical displacement of the chassis, and lateral slip angle values at specific speeds.

Using BS 7910 techniques, the effects of crack-tip constraint on the fracture toughness of API 5L X65 steel are assessed.

[1]Jagannath Mohapatra, [2]Jagabalia Nayak

[1,2]College of Engineering Bhubaneswar, Biju Patnaik university of Technology

ABSTRACT

Over the last ten years, much work has been done on fitness-for-service (FFS) and engineering critical assessment (ECA) processes. These techniques offer a succinct framework that uses failure assessment diagrams (FAD) to investigate the relationship between crack size and applied loads. degree of crack-like defects. These methods depend on the utilization of fracture toughness data obtained from specimens with deep notches under bending loading, which ensures elevated levels of stress triaxiality that propel the fracture process. The techniques for incorporating in-plane constraints into the study of engineering structures with faults that give conservative acceptance criteria are outlined in BS 7910 procedure Annex N.

KEYWORDS

brittle fracture, defects, integrity assessment, low temperature ,shallow-crack

INTRODUCTION

The majority of actual structural elements, such offshore pipelines, have tiny in-plane or out-of-plane dimensions that may reduce the crack-tip constraint to a significant enough degree to raise the elements' effective fracture toughness. The applicability of For reliable estimates of the in-service residual and remaining life of structural pipe components, experimentally obtained fracture toughness data is still necessary. Fracture tests on API 5L X65 pipe steel for pin-loaded single-edge notch tension (SENT) and three-point single-edge notch bend (SENB) specimens were conducted at room temperature and -120°C as part of efforts to validate these procedures for shallow-cracked specimens. The outcomes were indexed with respect to the constraint parameter, T, and the fracture parameter, J. The information acquired can be utilized to create fracture mechanics technique and choose appropriate specimens for pipe crack testing.

Optimizing the Firing Phenomenon for Multiple Unguided Rocket Launches from the LAROM Platform

[1] Subhakanta Nayak, [2]Iteshree Mallick

[1,2]College of Engineering Bhubaneswar, Biju Patnaik university of Technology

ABSTRACT

A weapon system's firing mechanism is a sophisticated mechanical and thermodynamic process. The platform's structure must be carefully considered in the event of several guided or unguided rocket weapon systems. This research article's goal is to maximize the firing procedure for shooting numerous unguided rockets from the Romanian transportable LAROM platform, which is capable of firing both conventional 122 mm and more sophisticated 160 mm rockets..

KEYWORDS

LAROM, rocket, platform, optimization, and oscillations.

INTRODUCTION

For the evaluation, the variant using GRAD 122 mm rockets with a maximum strike distance of 20 km was taken into account. The authors computed the minimal forces, moments, and oscillations for several rocket launch situations. The evaluation considered the induced forces on the launch facility (chassis, tipping portion). Conclusions on the firing process optimization for the taken into consideration launching scenarios could be lost in the theoretical results. The enhancement is carried out to determine the launch order, taking into account the rockets that are accessible on the pods, and the amount of time needed between launches.

Creation and Evaluation of Volatile Combinations Including Polyurea/Polyurethane Binders

[1]Biplab Mohapatra, [2]Banabihari Rout

[1,2]College of Engineering Bhubaneswar, Biju Patnaik university of Technology

ABSTRACT

Drawing a distinct distinction between internal and external security in today's operations might be difficult due to the ubiquity of asymmetric threats. Because domestic security organizations and the military forces frequently carry out identical tasks, both require a broad variety of tools and capacities. For instance, the incapacity of the defense forces to execute extremely complicated nighttime combat maneuvers prompted the creation and application of pyrotechnic lighting systems, which in turn prompted the development of night vision apparatus. These lighting tools are typically designed to guard borders and secure camps.

KEYWORDS

lighting, performance, processability, safety, binder, and polyurea/polyurethane

INTRODUCTION

The creation of heterogeneous mixes for use as pyrotechnic compositions in lighting systems was the main goal of this study. Consequently, several composite formulations based on magnesium, barium nitrate (as an oxidant), and powder (in the form of metallic fuel) and a polymeric binder (polyurethane/polyurea) were acquired and subjected to particular analytical tests. The research's novelty lies in its environmentally conscious pyrotechnic compositions, which use a "green" combination of polyester-polyols derived from the recycling of waste polyethylene terephthalate. Furthermore, the polyurea/polyurethane binder will reduce manufacturing process risks and enhance the processability of these energetic mixes. Newly created as well as To evaluate the safety and performance gains made by adding the binder, traditional pyrotechnic compositions were compared and contrasted.

Analyzing Nozzle Flow Numerically for a Rocket Engine Using Liquid Oxygen/Methane Propellants

[1]Shanta Mohapatra, [2]Pabitra Nayak
[1,2]College of Engineering Bhubaneswar, Biju Patnaik university of Technology

ABSTRACT

The current study examines the responding nozzle flow of a rocket engine that uses methane and liquid oxygen as propellants. The nozzle profile of the RL10A-3-3A rocket engine is available, thus it was chosen as the study's baseline. The commercial CFD program ANSYS Fluent was used to run the simulations for this investigation. The first example is a simulation of the flow of hydrogen via a rocket engine nozzle.

KEYWORDS

RL10A rocket engine, numerical simulation, reacting flow.

INTRODUCTION

The shortened Evans and Schexnayder reaction model—which has eight reactions and six species—is applied in this instance. For the second situation, methane is utilized as fuel rather than hydrogen while maintaining the same chamber pressure. The third scenario involves the use of methane at a substantially higher chamber pressure. Eight species and processes make up the simplified model of the oxygen/methane combustion reaction mechanism that is used. The expansion of the hot gases created in the combustion chamber through the nozzle is significantly more significant for the hydrogen case than it is for the methane case, according to a comparison of the results obtained for the three cases. However, a significantly higher chamber pressure enhances the methane case's hot gas expansion. Ultimately, the findings demonstrate that liquid methane can serve as a practical substitute for hydrogen in reusable rocket propellants.

AN ENTSEMBLE APPROACH AND DEEP LEARNING MODELS TO IMPROVE KIDNEY TUMORS SEGMENTATION PERFORMANCE ON CT IMAGES

[1]**Sakar.G, [2]Lokanath Sarangi**
[1,2]**College of Engineering Bhubaneswar, Biju Pattnaik University of Technology**

ABSTRACT

Clinical picture examinations are conducted with the help of image segmentation, which allows the computerized picture split into a set of pixels. In segmentation, the aim is to enhance and modify the delineation of a picture so that it becomes more distinguished and easier to investigate. Kidney growths address a sort of malignancy that individuals of old age are bound to create. In this respect, Deep Learning (DL) models are becoming increasingly appealing. Creating models for kidney tumor segmentation assist doctors/radiologists in recognizing cancers with effective division as an integral step. A comparison of the segmentation approaches using Attention U-Net, Feature Pyramid Network (FPN) and LinkNet Models is presented in this paper to develop the ideal prediction model on Computed Tomography (CT) images. Various encoders are used in all three architectures to build different predictor models. Ensemble approach using Attention-U-Net architecture outperforms compared to FPN and LinkNet architectures with IoU scores 95.66 %(kidney) and 93.86% (tumor).

Keywords: Deep Learning; Kidney Tumor Segmentation; Attention U-Net; Feature Pyramid Network; LinkNet; Ensemble; Computed Tomography

INTRODUCTION

The most frequently diagnosed genitourinary cancer is renal cell carcinoma. Identifying kidneys and tumors accurately from medical images, such as CT scan is crucial for appropriate treatment. The cancer of the kidney develops from the kidney cells and may spread slowly or precipitously. It usually appears as single mass, but different types of tumors can occur in any kidney. It enables doctors to make more accurate treatment plans by examining the segmentation of kidney and tumors. Yet, segmenting the region of interest (ROI) manually can be tedious and time consuming task because radiologist need to tag out ROI of all the slices for each individual. Therefore nowadays precise auto segmentation tools are thus deeply needed. Kidney cancer is ranked 9th in men and 14th in women.

Development performance for Mobile Phone Wireless Communication Networks

[1]**Salil Kumar Malla**, [2]**Dillip kumar Bhadra**
[1,2]**College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology**

ABSTRACT

The objective of this research is to provide an overall or summary of the critical significance of then mobile wireless development standards. In addition to the first RF communication rules imitating modern cellular radio systems, the report starts with a summary of the communications of cellular wireless records in general. The concept of wireless verbal exchange systems or technology and a fundamental concept of cellular communication has played an essential role This type of development will drive the information technology research on generational mobile wireless communication cooperatively based on deep learning and on the prediction of carbon nanotubes in the industrial field Mobile FG (Future Generations) wireless technology will have higher data transfer rates than 6G and 7G. In addition, we have a large number of technologies. 7G offers the resolution of this problem as the integration of terminals, networks and applications is all about seamlessly. This article has tried to provide a study and detailed comparison of the various cell technologies 4G, 5G, 6G, 7G and FG, respectively.

Keywords

cellular system, Mobile Wireless Generations, multipath channel, propagation Mechanisms, Optical Wireless Network, and Deeping ELearning.

INTRODUCTION

Eventually, the performance of every communication system is determined by the medium through which the message signal passes .This medium is known as a communication channel, as an optic fiber, computer hard drive or wireless connection. There are a wide range of channels that can be divided into two groups. The channel is known as a wired channel if there is a solid connection between transmitter and receiver. This connection is called a wireless channel if this solid connection is missing. Due to its untrustworthy behavior, wireless channels are different from wired channels. The state of the channel can change over a very short time on wireless channels .This severe and random behavior of wireless channels makes communication across such channels a difficult task.

A CASE STUDY BASED ON SOFTWARE PROJECT ACTIVITIES AND USER INVOLVEMENT IN TRANSITION USING AGILE METHOD

[1]Sambasiva Rao Pedapudi,[2]Raghunath Verma

[1,2]Aryan Institute of Engineering and Technology, Biju Pattnaik University of Technology

ABSTRACT

This study examines user involvement in a software project using agile method that is performed under traditional waterfall model. The focus is placed on practicality of user transitional activities from the agile method operating under the umbrella of waterfall model. We explore the level of transitional detailed activity using three experiments, namely, no detail waterfall, coarse-grained waterfall- agile, and fine grained waterfall-agile. A preliminary study is conducted with the help of ocal professional developers to set up a process guideline for the project performance measurement. Three measurable activities are recommended, namely, change request, rework, and time buffering. COSMIC Function Point metrics are used to measure the above activities based on user's requests. The results show that user involvement pays off upon user acceptance test since less reworks are required, saving the effort and time buffering. This practicality will contribute to actual production of software project management.

*Keywords***:** Agile method; waterfall model; COSMIC Function Point; user acceptance test**.**

INTRODUCTION

Traditional software development process models such as waterfall suffer from heavy load at the beginning and the end of the development life cycle (LC). This is because developers must establish correct and complete software requirements specification (SRS) before project delivery and get user acceptance of the project at the end. In many cases, the effort of rework during user acceptance test (UAT) is considerable or the project is rejected. This is because from the setup of SRS until UAT, the span can be time-consuming. Things might change during this time span, e.g., technology and user change requests that render some specifications of the stated SRS obsolete or reengineering of the workflow. The advent of agile development method has been exercised by many small projects to fill this time-span gap and provides several contributing factors such as easy to adapt practice, build-a-little-test-a-little framework, and user involvement.

Mobile Phone Wireless Communication Networks

[1]Sandeep Kumar Mishra, [2]Anwesha Halder
[1,2]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT

The objective of this research is to provide an overall or summary of the critical significance of then mobile wireless development standards. In addition to the first RF communication rules imitating modern cellular radio systems, the report starts with a summary of the communications of cellular wireless records in general. The concept of wireless verbal exchange systems or technology and a fundamental concept of cellular communication has played an essential role This type of development will drive the information technology research on generational mobile wireless communication cooperatively based on deep learning and on the prediction of carbon nanotubes in the industrial field Mobile FG (Future Generations) wireless technology will have higher data transfer rates than 6G and 7G. In addition, we have a large number of technologies. 7G offers the resolution of this problem as the integration of terminals, networks and applications is all about seamlessly. This article has tried to provide a study and detailed comparison of the various cell technologies 4G, 5G, 6G, 7G and FG, respectively.

Keywords

cellular system, Mobile Wireless Generations, multipath channel, propagation Mechanisms, Optical Wireless Network, and Deeping ELearning.

INTRODUCTION

Eventually, the performance of every communication system is determined by the medium through which the message signal passes . This medium is known as a communication channel, as an optic fiber, computer hard drive or wireless connection. There are a wide range of channels that can be divided into two groups. The channel is known as a wired channel if there is a solid connection between transmitter and receiver. This connection is called a wireless channel if this solid connection is missing. Due to its untrustworthy behavior, wireless channels are different from wired channels. The state of the channel can change over a very short time on wireless channels. This severe and random behavior of wireless channels makes communication across such channels a difficult task. The classifications for wireless channels are different. Wireless channels can be characterized by the spread environment. A number of different propagation environments, like urban, suburban, indoor, underground or orbital environments, have been identified which differ in many different ways. The wireless channel places fundamental constraints on wireless communication systems performance. From a straight line of vision to a roughly obstructed one, building, foliage and mountain, the path between the recipient and the transmitter can be changed. Even mobile speeds affect how quickly the signal level decreases.

NETWORK TRAFFIC FORECASTING USING MACHINE LEARNING APPROACHES

[1]Sasmita Mishra,[2]Debarchana Jena
[1,2]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT

In the era of the digital world. The communication and the use the internet is an important role in today'ssociety. As a result, the number of users networks traffic increases but not enough resources for userscausing users to receive inefficient services. Therefore, the network service provider must take action to fix the aforementioned problem. Forecasting is therefore necessary in order to determine the amount of network traffic in order to support the future increase in user numbers. Consequently, this research investigates to assess network traffic forecasts comparing the machine learning: Artificial Neural Network (ANN), Long Short-Term Memory (LSTM), and statistical methods: Autoregressive Integrated Moving Average (ARIMA), Simple Moving Average (SMA). The method of sliding window will be used simultaneously and evaluate the forecast and model performance using the MAE, MAPE, MSE, RMSE and R-square algorithms, respectively.

*Keywords***:** Machine learning; Forecasting; Artificial Neural Network; Long Short-Term Memory;Autoregressive Integrated Moving Average; Simple Moving Average.

INTRODUCTION

Nowadays, the life and well-being of society are being driven by technology. Communication through the online world has resulted in the increasing use of the internet. Therefore, the amount of traffic on the network has increased even more. Using an internet network are described as simple compared to a car and the transmission line is compared to a road. If one day when the number of cars on one of the roads has increased until the car overflows the road causing a bottleneck and causing traffic congestion. It's like having several internet users at the same place and time. As a result, the network system cannot support the use of the service user. This problem causes users to experience inefficient usage such as internet lag, internet speed that is not according to package, etc. The results show that machine learning forecasting is more effective than statistical forecasting.

Deep neural networks: the general architecture flow of pipelined hardware implemented

[1]Satya Krishna V,[2]Ankit Sharma
[1,2]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT

DNNs (Deep Neural Networks) have solved various deep learning tasks, including classification problems ,natural language processing, and speech recognition. However, this success comes with increased computational and memory requirements. Furthermore, recent deep learning research indicates that hardware implementations such as FPGAs (Field Programmable Gate Arrays) are preferable for implementing DNNs, and they fulfill the requirements due to the integrated circuits with programmable logic gates and connections. This technique offers hardware implementation flexibility, which makes it appealing for a wide range of applications, and that flexibility differs from the standard circuit. As a result, FPGAs are becoming increasingly popular as a hardware solution for accelerating systems and processes. This article presents a generic version of the design flow for automatically implementing DNN models on hardware by generating pipelined HDL codes, which can overcome the implementation problem.

Keywords: HDL; FPGA; DNN; Pipeline; Design Flow**.**

INTRODUCTION

DNNs (Deep Neural Networks) have solved various deep learning challenges, including natural language processing, classification problems, and speech recognition. However, this progress increases computational and memory requirements due to their massive computations and intricate structures (nodes and layers). The article compares the design flow to other recent similar tools. The design flow is validated using a DNN to detect the diabetic patient from the Pima Indians dataset classification. This paper shows a high performance by reducing the latency by 4x the non-pipelined VHDL code and 1000x the software implementation using the Tensor Flow framework without affecting the model's accuracy. Also, this design flow can serve in the early prediction of diabetes in the future finally, a presentation of the conclusion and future works.

DESIGNING AN ALGORITHM FOR
CONTINUOUS AUTHENTICATION ON SMARTPHONE

[1]Satya Krishna V, [2]Subrat kumar Mohanty
[1,2]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT

In today's world smart phone has turned more into a necessity rather than an accessory. It has become our personal assistant due to all the applications of smart phone. Mobile security is the main concern of every smart phone users as everyone do all kind of transactions through smart phone, keeps the confidential data in their mobile. Password authentication is no more trustworthy authentication process, password can be steal through finger oil or shoulder surfing. Continuous authentication is an authentication technology to confirm the identity of the user throughout the session. Keystroke and touch dynamics is behavioral biometric authentication which verify the identity of the user using their typing and touch behavior on the smart devices. In this study author proposed KD Smart system for all the smart devices to enhance the authentication process. FAR 1.66%, FRR 6.73% and EER 4.1% achieved to confirm the authenticity of KD Smart system.

Keywords: Keystroke Dynamics, Touch Dynamics, KD Smart system, FAR, FRR, EER

INTRODUCTION

The importance of smart phones in human's daily life is undeniably everlasting. This is because there is on growing enormous transformation in the smart phones are no longer the ordinary communication device it used to be. It has become the colossal point of interest for individuals and businesses alike, 91% people says that their Smartphone is very important and for 60% it is even more important than coffee because smart phones offers courtesy of the various incredible features and opportunities through mobile applications and its services. Everyone used to do all their financial transaction (banking, purchasing and all kind of payments), keeps personal data, use social media and even keeps their password file as well in their mobile. Now the time is where everyone is fully occupied and dependent on all these apps, and cannot imagine their life without these apps.

DYNAMIC BABY SIGN LANGUAGE RECOGNITION SYSTEM BASED ON DEEP LEARNING

[1]**Sivaraman.G,**[2]**Sipra Mallick**
[1,2]**College of Engineering Bhubaneswar, Biju Pattnaik University of Technology**

ABSTRACT

In spite of Sign language being widely used by the Deaf and Hard of Hearing communities, this paper illustrates a different application of sign language, namely Baby Sign Language used to communicate with hearing infants and toddlers by hearing parents. To accomplish continuous sign recognition, we propose a model based on convolution neural networks (CNN) and long short-term memory networks (LSTM). Using CNN, videos' information can be translated into vectors. The LSTM model is employed to connect with the fully-connected layer of CNN, as the video can be viewed as an ordered sequence of 9 frames. The method is evaluated on a dataset that includes 34 daily vocabularies that we built ourselves. CNN-LSTM demonstrates a high recognition rate with minor changes in the optimizer hyper parameter from SGD to Adam. SGD gives a 75% accuracy, while the Adam optimizer gives 99% accuracy.

*Keywords***:** Baby Sign Language; Deep Learning; CNN-LSTM

INTRODUCTION

Through communication, we can convey our thoughts and feelings at the same time, enabling us to understand what others are feeling and thinking. There are two ways in which we communicate: verbally and nonverbally. Communication through verbal means involves speaking to others; however non-verbal means expressing ourselves through facial expressions, gestures, posture, and hand movements. Those deaf or hard of hearing people are most likely to use sign language to express their emotions, thoughts, and ideas, but different countries have different Sign Languages similar to spoken languages. There are somewhere between 138 and 300 different types of sign language used around the globe today [https://www.ai-media.tv]. The most common sign language in the world is American Sign Language (ASL). The use of sign language helps deaf and hard of hearing people communicate and children with disorders such as autism and aphasia. Gestures, posture, eye gaze, and facial expressions all play a vital role in Sign Language. The most common way of learning sign language is by learning the A-Z alphabet in sign form.

A Machine Learning-Based Smart Lead Scoring System

[1]SK. Moulali, [2]Biswajit Das
[1,2]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT

The segmentation of new commercial leads is a crucial task for modern and highly competitive businesses, to identify new profitable opportunities and enhance their Return On Investment (ROI). Business Lead scoring involves assigning a score (i.e., a buying probability) to each possible lead generated for the business. The interactions of these leads with the business marketing channels across the internet are converted into multiple attributes, including useful pieces of information (e.g., contact details, lead source, channel) and behavioral hints (e.g., reply speed, motion tracking). This process can help assess the quality of the opportunity and its position in the purchasing process. Furthermore, an accurate lead scoring process can help marketing and sales teams prioritize the selected leads and appropriately respond to them within an optimal time frame, increasing their propensity to become clients. The use of machine learning algorithms can help to automate this process. In this paper, the authors compared the performances of various ML algorithms to predict lead scores. The Random Forest and Decision Tree models have the highest accuracy scores of 93.02% and 91.47%, respectively, whereas the training time of the Decision Tree and Logistic Regression models was shorter, which can be a decisive factor when dealing with massive datasets.

Keywords: CRM; Predictive Lead Scoring; Marketing Management; Machine Learning; Artificial intelligence.

INTRODUCTION

The lead interactions for Business to Consumer (B2C) sales activities can be roughly divided into two categories: lead generation and lead conversion. The process starts by approaching potential clients through different channels (e.g., website, social media, campaigns), with the purpose to attract them to the business's website, and encourage them to interact with it. These actions are monitored by an automated system, which contributes to nurturing the business's database. Finally, the lead is approached by a professional sales agent who will assist the lead to take the purchasing decision and eventually solve any problems and hurdles the client may encounter, he will use all the marketing tactics and financial incentives (e.g., coupons, reductions) to seal the deal.

The Future of Wireless Communications System

[1]Snehasis Dey, [2]Prasanth Sethi
[1,2]College Of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT

Transformative solutions are expected to drive the surge for accommodating a rapidly growing number of intelligent devices and services. Major technological breakthroughs to achieve connectivity goals within 6G include: (i) a network operating at the THz band with much wider spectrum resources, (ii) intelligent communication environments that enable a wireless propagation environment with active signal transmission and reception, (iii) pervasive artificial intelligence, (iv) large-scale net-work automation, (v) an all-spectrum reconfigurable front-end for dynamic spectrum access, (vi) ambient backscatter communications for energy savings, (vii) the Internet of Space Things enabled by Cube Satsand UAVs, and (viii) cell-free massive MIMO communication networks. In this roadmap paper, use cases for these enabling techniques as well as recent advancements on related topics are highlighted, and open problems with possible solutions are discussed, followed by a development timeline outlining theworldwide efforts in the realization of 6G. Going beyond 6G, promising early-stage technologies such as the Internet of NanoThings, the Internet of BioNanoThings.

INTRODUCTION

Wireless communication systems have experienced substantial revolutionary progress over the past few years. Various stakeholders, including commercial solutions providers, academic research groups, standards bodies, and end-users, have all greatly benefited from the radical changes led by the most recent 5G developments, which include paradigm-defining techniques such as network softwarization and virtualization, massive MIMO, ultra densification, and the introduction of new frequency bands. Numerous burgeoning applications and verticals, including virtual and augmented reality (VAR), e-commerce, contactless payment, machine-to-machine communications, and enhanced mobile broadband, among others, have demonstrated the vast potential of 5G, which continues to evolve and adapt to a wide variety of emerging use cases. However, as societal needs continue to evolve, there has been a marked rise in a plethora of emerging use cases that cannot be served satisfactorily with 5G.

HARMONY SEARCH OPTIMIZATION WITH QOS AWARE MODIFIED FOR VANET ROUTE SELECTION

[1]Sonali Pradhan, [2]Sasmita Das
[1,2]College of Engineering Bhubaneswar,Biju Pattnaik University of Technology, Odisha

ABSTRACT
Nodes in VANET represent moving automobiles in a city or highway environment, and the network is built on top of mobile ad-hoc network (MANET). Routing protocols are used in VANET deployment to send data between nodes. Different MANET-designed routing protocols for VANET have been developed and been applied. Real-time implementation, on the other hand, still has difficulties in meeting VANET's quality of service (QoS). Due to this, our work focus on a proactive routing protocol, based on the wellknown OLSR protocol for the VANET proactive network. Due to the need to have an up-to-date routing table for all conceivable routes, the VANET OLSR performs only moderately well. Before deploying VANET, it's critical to determine the ideal parameter con-figurations for the network's parameters and to improvise the QoS.

Keywords: VANET, Routing, QoS, harmony search optimization, ACO, AASISQ Protocol.

INTRODUCTION
Millions of people around the world rely on cars as their primary mode of mobility. As this mode of transportation becomes more widely used, it will be necessary to enable vehicle-to-vehicle communication in order to provide added security and entertainment for passengers. In addition to increasing traffic saturation and hazard circumstances, extensive automobile use has also increased the likelihood of an accident occurring. These factors prompted the creation of software that aids the driver in making judgments and ensuring the safety of all passengers. Other benefits include helping the driver avoid traffic bottlenecks while determining the route, increasing vehicle efficiency, and reducing pollution. Creating a communication system between automobiles in the entertainment area can benefit passengers in various ways, such as allowing them to share music, films, or even interacting with other individuals in other vehicles and information stations on the roadside. Vehicle ad hoc network (VANET) deployment is an option for enabling communication between automobiles .Ad hoc networks are defined by the fact that they can be set up anywhere since they are not dependent on a fixed infrastructure.

Using Embodied Learning, a Weighted Hybrid Model to Enhance Predictive Performance in Recommendation Systems

[1]Sonali Pradhan, [2]Alka Rout
[1]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT

Recommending items to the users based on their likes and dislikes has become a need in e-marketing sectors. Content Based Filtering (CBF) and Collaborative Filtering (CF) are the two common methods for generating recommendations both uses different set of input sources to make recommendations. CBF method requires more information on items rather than user preferences. Similarly, to generate accurate predictions CF needs large dataset with more number of active users. To overcome the limitations of traditional methods and to improve the accuracy of predictions a weighted sum hybridization method is proposed by applying ensemble learning approach to find best combination of models which improves predictive performance.
Keywords: Baseline model; Collaborative filtering; Content based filtering; Ensemble learning; Hybrid filtering; Movie recommendation system

INTRODUCTION

In recent years, there has been an exponential rise in the volume of information available online due to electronic resources and online services. This overload of information created a potential filtering problem in delivering required information for users. This emphasize the necessity of having automated systems which can extract relevant information which is unseen by user's. Such Systems are commonly referred as Recommender Systems (RS). This system performs well in filtering the products, music, movies and so on. To boost the willingness of customers in order to purchase items on an e-commerce website, a system is very much required to provide information of unseen products. One of the approaches for managing the overload problem on the customer's side is to use a recommender system. The recommendations using baseline model, CBF models and CF models are individually obtained and best two models are used for weighted hybridization method where each of the these approaches are experimented with different weights to obtain the best hybridized recommendations. Experimental results shows hybrid approach gives better predictions with Root Mean Squared Error (RMSE) value of 0.88 and Mean Absolute Error (MAE) value of 0.67 which are less compared to all other approaches.

An optimal strategy for virtual machines to improve security and privacy issues in cloud computing using random fields

[1]Sonali Pradhan, [2]Animesh Pradhan
[1,2]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT
Virtualization creates virtual OS, platform, network devices, storage, software, and hardware devices in cloud computing. Moreover, Virtual Machine (VM) technology has essential building blocks like cluster systems and data centre. The advancement is due to migrating, on solidating and isolating workloads. The VM migration seeks to enhance the security, performance, manageability and fault tolerance systems. In a virtual CC environment, some sets of tasks from various users are scheduled over the VMs, and load balancing turns out to be a crucial issue in achieving security and energy efficiency. Therefore, a novel optimization algorithm is initiated to resolve these issues and attain superior balancing with the influence of external resources. The Conditional Random Field-based Moth Algorithm (CRF-MA) considers themulti-objective functions by handling metrics like security, energy consumption, CPU utilization, make span, migration, and resource cost. The performance of the CRF-MA is examined by determining the energy consumption, SLA violation, solution size and migration number. The simulation is done in Cloud Sim, and the proposed CRF-MA gives a better trade-off than other approaches**.**

Keywords- VM migration, security, cloud, optimization, multi-objective constraints, migration number

INTRODUCTION
Cloud computing and artificial intelligence enable direct centre facilities to be somehow accessible utilizing virtual servers, and it is used to solve a variety of issues .Virtual machines (VMs) in the virtualized setting employ virtual network routing to migrate from one host to another in the little done to resolve, improving host speed, management, and high availability Live migrants have used computation dynamically to re-allocate VMs depending on unique massive resource consumption and move unoccupied hosting to reduce the power consumption to reduce the number of devices in the network and power consumption. Other important considerations to improve translation include avoiding prospective Risks as much as possible and lowering movement duration. Multiple studies have overcome various VM placement issues in cloud servers. In general, there seem to be two techniques to reduce implementation complexity: lowering the overall number of migrant sand minimizing implementation complexity.

Developing a Hybrid Bio-Swarm model (HBSBA) to improve Blockchain miner efficiency through resource augmentation methods

[1]T.Stephen Thangaraj, [2]Ankit Sahney
[1,2]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT
Block chain mining is a power &resource consuming task, which requires multiple-levels of optimization, both at resource &task level. Over the years, a wide variety of mining optimization models are proposed by researchers, but most of them are applicable only to a subset of mining types. For instance, mining models used for Proof-of-Work (PoW) consensus-based mining, are not applicable for Delegated Proof-of-Stake (DPoS), and other consensus types. This limits the scalability of these models, which reduces their adoptability for dynamic blockchain systems (DBSes). These DBSes utilize different consensus models as per context of data storage, and are widely used by block chain designers to deploy high-efficiency, and low delay storage solutions.

*Keywords***:** Block chain, Mining, Time, Cost, Speed, Scalability, Consensus**.**

INTRODUCTION

Designing a block chain-based storage model requires drafting of block structure, consensus modeling, hash rules, block chain visibility rules, etc. A typical block chain storage model is depicted in figure 1, wherein identification of storage goals, platform selection, ideation of block chain, minimum viable product (MVP) design, technical design & testing, development, deployment and upgrade phases can be observed. During the initial design phase, finalization of block structure, its consensus type, and miner selection models are decided .A standard mining optimization solution is not available for such scenarios, due to which researchers & system designers opt for deployment-specific optimizations, which need to be redesigned for each block chain system. To remove this drawback, a standard block chain mining optimization model is proposed in this text. This model uses a combination of Genetic Algorithm (GA) & Particle Swarm Optimization (PSO) for solving two different issues. The GA model is used to optimize miner set selection, which will be used for consensus, while the PSO model optimizes the responses from these miner sets depending upon their temporal mining performance. Due to optimum miner set selection, only higher efficiency miner nodes are used for mining the block chain.

AN IOT-BASED HYBRID SECURITY FRAMEWORK FOR MEDICAL DATA USING AES

[1]Tanmaya Kumar Das, [2]Sonali Pradhan
[1]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology.

ABSTRACT

When sensitive data stored and transmit over the internet while information is no longer protected based on physical boundaries, security is considered as the significant issue. The secure communication between different entities is ensured by an effective, essential, and efficient component known as cryptography, which transmit unintelligible data and allow the authorized recipient to access the data. A hybrid public key cryptography system is presented in this paper based on the Diffie Helman key exchange algorithm and Elliptic curve cryptography. Elliptic curves are used to generate the private keys at the user end. These private keys are used to compute the public keys which can then be shared between multiple parties forming a group. The proposed modified key generation process helps reducing the key size which helps in effectively exchanging the keys over internet. The proposed algorithm achieves this without compromising the cryptographic efficiency. Advance Encryption Standard (AES) is used for encryption of message based on the shared secret key.

Keywords:
Cryptography system; Elliptic Curve Cryptography; Diffie Helman key exchange algorithm; Advance Encryption Standard (AES), SHA256.

INTRODUCTION

A new digital existence acquires with the improvements of Internet of Things (IoT) in the physical universe. The expectation of being connectivity and collaboration is included in many objects.The efficient, intelligent, and agile way should adapt in the network architecture to maintain the quality of provided services through the connection of trillions or billions of IoT devices for the cloud in order to exchange, process, and store the data while concerning the networks and devices with heterogeneity. The significant challenges have faced by the future IoT in addition to the benefits of a traditional, and centralized cloud model. Those challenges are mobility support, awareness of location, data volume, velocity, latency, or monopoly versus an open IoT contention. The Internet of Medical Things has become the great area of interest because it uses for predicting the diseases and health monitoring and treatment. Here, these performance parameters have controlled. Based on the communication resources, storage, and additional computing for specific operations, the challenges have addressed using edge computing.

Studies on the Use of Ultra-short Term Wind Power Forecasting Models

[1]Tanushree Mishra, [2]Radhika Sharma
[1,2]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT

Wind power prediction is a useful tool for mitigating the risk that intermittent and variable wind power poses to the electric grid's dispatch. Because ultra-short term wind power prediction often operates on a time scale of minutes to hours, it can assist power grid dispatching in real-time and ensure the safe, stable, and cost-effective operation of the electric power system. The ultra short term wind power forecast model is established using three algorithms: BP, SVM, and RBF. Three actual wind farms located in various parts of China were subjected to wind power prediction using the projected models, and the models' applicability was examined.

INTRODUCTION

The safe and stable operation of the power system will be greatly threatened by the large-scale integration of wind power into the grid; nevertheless, this issue can be effectively resolved with precise wind power forecast .The operation and management of wind farms, as well as power grid dispatching, can receive technical support from ultra-short term wind power forecasts, which in turn ensures the power system operates reasonably .China is susceptible to short-lived extreme weather events due to its vast size, complex geographic and geomorphic circumstances, and complex climate. In addition, the development of wind farms assumes a large-scale, centralized nature, meaning that topography and weather in various locations will interact and constrain each other. The aforementioned issues pose significant obstacles to enhancing the accuracy and efficacy of ultra-short term wind power forecasting.Thus, it is crucial to investigate the suitability of various ultra-short-term wind power forecasting techniques. The processing of pseudo historic load data, the sorting of prediction samples, and the prediction algorithm comprise the three links that make up the ultra-short term load prediction The ultra-short term wind power forecast is now primarily achieved by statistical models. The time series approach, Kalman filters, autoregressive moving average, artificial neural network, and support vector machine are the main components of the widely used forecasting techniques

Use of Plastic waste in Concrete: A step towards Sustainable development

[1]**BiswaRanjan Tripathy,**[2]**Sipra Mallick**

[1,2]**College of Engineering Bhubaneswar, Biju Pattnaik University of Technology**

ABSTRACT:

Plastics are cheap, light, versatile and readily available materials. The use of plastic has become an essential part of our daily lives and its production has grown exponentially over the last 50 years. As a result, the amount of plastic-related waste increases, which worsens the environment. This encourages researchers to use this waste as a sustainable material for concrete production. However, this article explores recent research on how using recycled plastic in concrete is an effective solution to improve sound and thermal insulation. Aggregate is the largest and heaviest part of concrete, accounting for 85% of its weight. In addition, plastic has a low density compared to the filling material. As a result, the use of plastic waste as a partial replacement of filler (50-75%) significantly improves the efficiency of thermal and acoustic lightweight concrete insulation. In addition, its production costs are dramatically lower compared to conventional concrete, and plastic can be installed quickly and used with less labour due to its light weight. Plastic waste can be considered as a typical material for the production of light green concrete, which can be used as a non-structural component in house construction.

INTRODUCTION:

Since the 1920s, plastic materials have effectively infiltrated every aspect of modern life, from computer microchips to shopping bags. Plastics are a key raw material in our current industries and the largest user (36%) is packaging. Plastic is used in every field because it is not just one material, but a group of materials: polymers. There are many different types of plastic materials and they have incredibly useful and versatile properties. Table 1 summarizes the most used plastic materials and e.g. their mechanical properties at room temperature.Two of the most useful properties of plastics are their longevity and durability, which allows the production of durable products that require little maintenance, making the products very cost-effective during their life cycle .These properties make people deal with plastic almost every day in every day-to-day interaction compared to other materials. The advantages of these materials and the growth of the world population have caused the production of the plastic industry to double in the next 10-20 years. By 2050, a total of 700 million tons of plastic will be produced, representing 50, 10, and 16 percent of future supplies in Asia, North America, and Europe, respectively.

Using low-quality aggregates in asphalt mixes: A comprehensive review

[1]Sipra Mallick, [2]Shalini Patra

[1,2]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

ABSTRACT:

The properties of the aggregates are greatly influenced by the parameters of the source rocks, i.e. the formation process, chemical composition, impurities, pore volume and grain size. The study provides an overview of aggregate processing methods and their effectiveness in improving aggregate quality. Various aspects of aggregate processing methods such as processing temperature, additive dosage, field adaptability are studied using three processing methods, viz. polymer coating, cement coating and chemical processing. The work also presents a view of the effect of different processing methods on the mixture properties and operating parameters of asphalt mixtures. The review revealed that the forming properties of aggregates can be improved by a suitable crushing process (two or three steps). Instead, the physical and durability properties of aggregates can be improved by various processing methods such as polymer coating, Zycosoil treatment. In addition, the review concluded that processing methods can have a moderate effect on the mechanical properties of aggregates, as it largely depends on the properties of the source rocks.

INTRODUCTION:

The crushed stone is extracted after various mechanical treatments, such as crushing, gluing, washing etc. Almost 300 different types of waste are available worldwide (Farhana et al., 2013); some of which are considered useful for use as building materials. Aggregates constitute 90% to 95% of the material used to construct flexible asphalt pavements (Chowdhury et al., 2001); therefore, the quality of the aggregate significantly affects the performance of the pavement. Over the years, various test methods have been developed to select the appropriate aggregate for pavement construction. The goal is to obtain a material that has sufficient strength, durability and compatibility with other materials to last the life of theroad and design. In addition to elemental composition and mineral composition, many other variables affect the performance of bituminous aggregates, such as pavement type, pavement design, subgrade conditions.

Utilizing alternative clustering algorithms, the performance of students in placement activities is resolved using R-Tool and standard deviation equation.

[1]**Vijay Kumar,** [2]**Rajesh Verma**
[1]**College of Engineering Bhubaneswar, Biju Pattnaik University of Technology**

ABSTRACT

In clustering problem analysis, Ensemble Cluster is proven to be a viable solution. Creating a cluster for such a comparable dataset and combining it into a separate grouping the clustering quality may be improved by using the combining clustering technique. Consensus clustering is another term for Ensemble clustering. Cluster Ensemble is a potential technique for clustering heterogeneous or multisource data. The findings of spectral ensemble clustering were utilized to reduce the algorithm's complexity. We now provide alternative clustering algorithms that have been applied to the same dataset and yielded diverse clustering outcomes. Because the many strategies were all described, it was easier to choose the most appropriate one to handle the situation at hand. To forecast the degree of student achievement in placement, clustering is created on the preprocessed information using clustering's specifically normalized k-means comparing with K-Medoids and Clarans algorithms.

*Keywords***:** Consensus Clustering, K-Means, K-Medoids, Clarans**.**

INTRODUCTION

Analyzing of Cluster is a fundamental approach for assessing variable knowledge in any field of investigation. When we use different clustering methods on the same dataset, including such k means, K-Medoids and Clarans, we obtain diverse results. The huge measure of information put away in the PC frameworks of an assortment of organizations, both public and private, has pushed the advancement of new advances for information examination and the board Information handling approaches have their starting points in setting, determined to reveal stowed away and non-insignificant connections among different sorts of information . This assortment of strategies, which are utilized in an assortment of ventures as well as the scholarly climate, is gotten from standard data examination strategies and has the ability to deal with huge volumes of information. For cluster result assessments, two sorts of approaches have been employed in clustering analysis.

Warm Mixed Asphalt using Foaming Technology: A Cost effective approach

[1]EdaraKrishan Reddy, [2]Pratiksha shethy

[1]College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

[2]Aryan Institute of Engineering and technology, Biju Pattnaik University of Technology

ABSTRACT

The most often utilized warm mix asphalt (WMA) foaming processes are those that are most economical. By adding foaming chemical additives, this technology enables the temperature of the asphalt binder to be lowered. By using recycled materials and more ecologically friendly production techniques, civil engineering infrastructure materials can make a substantial contribution to the sustainability movement. Recycling is the process of combining reclaimed asphalt pavement (RAP) with fresh gravel, bitumen, or a recycling agent to create hot mix asphalt. RAP can be obtained through ripping or crushing operations or pavement milling using rotating drum cold milling equipment. This study examined the viability of employing foaming technology to include reclaimed asphalt pavement (RAP) in warm mix asphalt. The asphalt industry has not yet adopted this technology, despite its promising performance when compared to HMA. It must be demonstrated that WMA performs on par with or better than HMA over the long run in order for widespread adoption to occur.
Keywords: reclaimed asphalt pavement ,foaming, warm mixasphalt, sustainable.

INTRODUCTION

Sustainability is defined by environmental experts as supplying current demands without diminishing or lowering the amount of resources needed for future generations (World Commission on Environment and Development, 1987). By using recycled materials and more ecologically friendly production techniques, civil engineering infrastructure materials can make a substantial contribution to the sustainability movement. Reclaimed asphalt pavement (RAP) is mixed with fresh aggregate, bitumen, or a recycling agent to create hot mix asphalt (HMA) through the recycling process. The RAP can be extracted from a ripping or crushing process or by pavement milling using a rotary drum cold milling machine (Huffman, 2001). In addition to reducing waste production, the usage of RAP helps address issues related to the material used in roadway building, particularly in large cities. Higher RAP usage may cause performance problems in terms of pavement durability. The use of 15% RAP greatly increased mixture stiffness, according to Xiao et al.

Plastic waste in Concrete Technology: A Survey

Biswa Ranjan Tripathy

College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

Abstract:

Plastics are cheap, light, versatile and readily available materials. The use of plastic has become an essential part of our daily lives and its production has grown exponentially over the last 50 years. As a result, the amount of plastic-related waste increases, which worsens the environment. This encourages researchers to use this waste as a sustainable material for concrete production. However, this article explores recent research on how using recycled plastic in concrete is an effective solution to improve sound and thermal insulation. Aggregate is the largest and heaviest part of concrete, accounting for 85% of its weight. In addition, plastic has a low density compared to the filling material. As a result, the use of plastic waste as a partial replacement of filler (50-75%) significantly improves the efficiency of thermal and acoustic lightweight concrete insulation. In addition, its production costs are dramatically lower compared to conventional concrete, and plastic can be installed quickly and used with less labour due to its light weight. Plastic waste can be considered as a typical material for the production of light green concrete, which can be used as a non-structural component in house construction.

Introduction:

Since the 1920s, plastic materials have effectively infiltrated every aspect of modern life, from computer microchips to shopping bags. Plastics are a key raw material in our current industries (Figure 1) and the largest user (36%) is packaging. Plastic is used in every field because it is not just one material, but a group of materials: polymers. There are many different types of plastic materials and they have incredibly useful and versatile properties. Table 1 summarizes the most used plastic materials and e.g. their mechanical properties at room temperature.Two of the most useful properties of plastics are their longevity and durability, which allows the production of durable products that require little maintenance, making the products very cost-effective during their life cycle (Ragaert et al., 2017). These properties make people deal with plastic almost every day in every day-to-day interaction compared to other materials. The advantages of these materials and the growth of the world population have caused the production of the plastic industry to double in the next 10-20 years (Truchot et al., 2018).

Low-quality aggregates in asphalt mixes: A comprehensive review

Sipra Mallick

College of Engineering Bhubaneswar, Biju Pattnaik University of Technology

Abstract:

The properties of the aggregates are greatly influenced by the parameters of the source rocks, i.e. the formation process, chemical composition, impurities, pore volume and grain size. The study provides an overview of aggregate processing methods and their effectiveness in improving aggregate quality. Various aspects of aggregate processing methods such as processing temperature, additive dosage, field adaptability are studied using three processing methods, viz. polymer coating, cement coating and chemical processing. The work also presents a view of the effect of different processing methods on the mixture properties and operating parameters of asphalt mixtures.

Introduction:

The crushed stone is extracted after various mechanical treatments, such as crushing, gluing, washing etc. Almost 300 different types of waste are available worldwide (Farhana et al., 2013); some of which are considered useful for use as building materials. Aggregates constitute 90% to 95% of the material used to construct flexible asphalt pavements (Chowdhury et al., 2001); therefore, the quality of the aggregate significantly affects the performance of the pavement. Over the years, various test methods have been developed to select the appropriate aggregate for pavement construction. The goal is to obtain a material that has sufficient strength, durability and compatibility with other materials to last the life of theroad and design. In addition to elemental composition and mineral composition, many other variables affect the performance of bituminous aggregates, such as pavement type, pavement design, subgrade conditions, maintenance practices, traffic characteristics, and weather conditions (Little et al., 2001). Pasetto et al., 2021).

Coal and biomass pyrolysis in sequence: The impact of volatiles produced from coal on the properties of biochar

[1]Gangadhar Mande, [2]Badal Maharana

[1,2]College of Engineering Bhubaneswar, Biju Patnaik university of Technology, Odisha, India

ABSTRACT

It has been demonstrated that the co-pyrolysis of coal and biomass, two significant carbonaceous feed stocks, alters the fuel characteristics of the resultant oil and char. However, nothing is known about how the volatiles in coal affect the characteristics of the biomass-based biochar. This work examined the successive pyrolysis of coal in the upper bed at 600 °C with sawdust, cellulose, or lignin in the lower bed. The biomass-derived biochar and the volatiles from the pyrolysis of coal did react, causing additional gases to be formed at the expense of the biochar and promoting cracking reactions. The volatiles from coal affected the evolution of aromatic phenols and improved the cracking or gasification of sugar derivatives. Moreover, volatiles obtained from coal also aided in the deoxygenation or cracking of oxygen-containing functions, increasing the carbon content and crystallinity of the biochar while decreasing its thermal stability. Furthermore, the volatiles from the pyrolysis of coal had a substantial impact on the hydrophilicity and the growth of functionalities on surface biochar.

INTRODUCTION

Important carbonaceous resources like coal and biomass wastes can be transformed into liquid or gaseous fuels or functional carbon compounds by thermochemical processes like pyrolysis in the absence of oxygen [1-3]. Because biomass and coal have fairly varied natural compositions, the pyrolysis products have different properties [4,5]. Typically, biomass is made up of cellulose, hemi cellulose, and lignin, which are rich in organic materials that contain oxygen and also serve as a precursor to pyrolysis products such oxygen-rich bio-oil [6–8]. As a result, the majority of biomass is pyrolyzed to produce bio-oil, which typically has low heating value and poor thermal stability [9, 10].

Deep neural networks: the general architecture flow of pipelined hardware implemented

Satya Krishna V
College of Engineering Bhubaneswar,BijuPattnaik University of Technology,Odisha,India

Abstract

DNNs (Deep Neural Networks) have solved various deep learning tasks, including classification problems ,natural language processing, and speech recognition. However, this success comes with increased computational and memory requirements. Furthermore, recent deep learning research indicates that hardware implementations such as FPGAs (Field Programmable Gate Arrays) are preferable for implementing DNNs, and they fulfill the requirements due to the integrated circuits with programmable logic gates and connections. This technique offers hardware implementation flexibility, which makes it appealing for a wide range of applications, and that flexibility differs from the standard circuit. As a result, FPGAs are becoming increasingly popular as a hardware solution for accelerating systems and processes. This article presents a generic version of the design flow for automatically implementing DNN models on hardware by generating pipelined HDL codes, which can overcome the implementation problem. *Keywords*: **HDL; FPGA; DNN; Pipeline; Design Flow.**

Introduction

DNNs (Deep Neural Networks) have solved various deep learning challenges, including natural language processing, classification problems, and speech recognition. However, this progress increases computational and memory requirements due to their massive computations and intricate structures (nodes and layers). The article compares the design flow to other recent similar tools. The design flow is validated using a DNN to detect the diabetic patient from the Pima Indians dataset classification. This paper shows a high performance by reducing the latency by 4x the non-pipelined VHDL code and 1000x the software implementation using the Tensor Flow framework without affecting the model's accuracy. Also, this design flow can serve in the early prediction of diabetes in the future—finally, a presentation of the conclusion and future works.

Studies on the Use of Ultra-short Term Wind Power Forecasting Models

Tanushree Mishra
College of Engineering Bhubaneswar,Biju Pattnaik University of Technology,Odisha,India

Abstract:

Wind power prediction is a useful tool for mitigating the risk that intermittent and variable wind power poses to the electric grid's dispatch. Because ultra-short term wind power prediction often operates on a time scale of minutes to hours, it can assist power grid dispatching in real-time and ensure the safe, stable, and cost-effective operation of the electric power system. The ultra short term wind power forecast model is established using three algorithms: BP, SVM, and RBF. Three actual wind farms located in various parts of China were subjected to wind power prediction using the projected models, and the models' applicability was examined.

INTRODUCTION

The safe and stable operation of the power system will be greatly threatened by the large-scale integration of wind power into the grid; nevertheless, this issue can be effectively resolved with precise wind power forecast [1]. The operation and management of wind farms, as well as power grid dispatching, can receive technical support from ultra-short term wind power forecasts, which in turn ensures the power system operates reasonably [2]. China is susceptible to short-lived extreme weather events due to its vast size, complex geographic and geomorphic circumstances, and complex climate. In addition, the development of wind farms assumes a large-scale, centralized nature, meaning that topography and weather in various locations will interact and constrain each other. The aforementioned issues pose significant obstacles to enhancing the accuracy and efficacy of ultra-short term wind power forecasting. Thus, it is crucial to investigate the suitability of various ultra-short-term wind power forecasting techniques.

NETWORK TRAFFIC FORECASTING USING MACHINE LEARNING APPROACHES

Sasmita Mishra
College of Engineering Bhubaneswar,BijuPattnaik University of Technology,Odisha,India

Abstract
In the era of the digital world. The communication and the use the internet is an important role in today's society. As a result, the number of users networks traffic increases but not enough resources for users causing users to receive inefficient services. Therefore, the network service provider must take action to fix the aforementioned problem. Forecasting is therefore necessary in order to determine the amount of network traffic in order to support the future increase in user numbers. Consequently, this research investigates to assess network traffic forecasts comparing the machine learning: Artificial Neural Network (ANN), Long Short-Term Memory (LSTM), and statistical methods: Autoregressive Integrated Moving Average (ARIMA), Simple Moving Average (SMA). The method of sliding window will be used simultaneously and evaluate the forecast and model performance using the MAE, MAPE, MSE, RMSE and R-square algorithms, respectively. The results show that machine learning forecasting is more effective than statistical forecasting. Because the error value is lower, the model can reliably anticipate data. Therefore, the results of this research are expected to help network service provider to improve their networks quickly and efficiently to accommodate the number of users that may increase in the future.

*Keywords***: Machine learning; Forecasting; Artificial Neural Network; Long Short-Term Memory; Autoregressive Integrated Moving Average; Simple Moving Average.**
 Introduction
Nowadays, the life and well-being of society are being driven by technology. Communication through the online world has resulted in the increasing use of the internet. Therefore, the amount of traffic on the network has increased even more. Using an internet network are described as simple compared to a car and the transmission line is compared to a road. If one day when the number of cars on one of the roads has increased until the car overflows the road causing a bottleneck and causing traffic congestion. It's like having several internet users at the same place and time. As a result, the network system cannot support the use of the service user. This problem causes users to experience inefficient usage such as internet lag, internet speed that is not according to package, etc. Therefore, network operators need to find revise the problem aforementioned necessary have to be predicted the amount of internet usage on the network in the future. In order to allocate resources available on the network provide efficiency as well as sufficient for future service users and will result in more reliable network service providers.