ਮਹਾਰਾਜਾ ਰਣਜੀਤ ਸਿੰਘ ਪੰਜਾਬ ਟੈਕਨੀਕਲ ਯੂਨੀਵਰਸਿਟੀ, ਬਠਿੰਡਾ

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Bathinda-151001 (Punjab), India

REPORT

2016-21

CONFERENCE PROCEEDINGS

MAHARAJA RANJIT SINGH PUNJAB TECHNICAL UNIVERSITY

Bathinda-151001 (Punjab), India

CONFERENCE PROCEEDINGS

2016-21

INTERNAL QUALITY ASSURANCE CELL
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CONFERENCE PROCEEDINGS [2016-21]

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Year 2021

INTERNAL QUALITY ASSURANCE CELL

CONFERENCE PROCEEDINGS

2016-21

S.No.	Department	Name of Faculty	Title of the book/chapter published	Title of the paper	Title of the proceedings of the conference	ISBN/ISSN number of the proceeding	Name of the publisher
2021							
1	Electronics and Communication Engineering	Dr. Manoj Sharma	Advances in Intelligent Systems and Computing	Smart Street Lights to Reduce Death Rates From Road Accidents	Proceedings of International Conference on Recent Trends in Machine Learning, IoT, Smart Cities and Applications	978-981-15-7234-0	Springer
2	Department of Computational Sciences	Dr. Munish Kumar	Gender classification and writer identification system based on handwriting in gurumukhi script	NA	Proceedings - IEEE 2021 International Conference on Computing, Communication, and Intelligent Systems,	978-172818529-3	IEEE Access
3	University Business School	Dr. Pritpal	CATEGORIZATION OF RISK FACTORS IN PROSPECTUS AND IPO INITIAL PERFORMANCE: EVIDENCE FROM INDIA	International Conference on Contemporary Issues in Sustainable Management Practices & Technology Innovation (ICCISMPTI21)	Proceedings of International Conference on Contemporary Issues in Sustainable Management Practices & Technology Innovation (ICCISMPTI21)	978-93-91044-08-4	Imperial Publications, India

4	CSE	Dr. Naresh Kumar Garg	Real-Time Implementation of Enhanced Energy-Based Detection Technique	Chapter 21:Optimized Data Hiding for the Image Steganography Using HVS Characteristics	Proceedings of the International Conference on Paradigms of Computing, Communication and Data Sciences: PCCDS 2020	Print ISBN: 978-981-15-7532-7 Electronic ISBN: 978-981-15-7533-4	Springer Singapore
2020							
5	Textile Engineering	Dr. Anupam Kumar	To study the particle board made from sisal fibre pulp for furniture	NA	National Conference Advancements and Futuristic Trends in Machanical and Materials Engineering	NA	AFTMME
6	Civil Engg.	Dr Sanjiv Kumar Aggarwal	NA	Artificial Neural Network Modelling for Road Accident Prediction on a Rural Highway in Punjab	8th International Conference on Advancements in Engineering and Technology	978-81-924893-5-3	Bhai Gurdas Institute of Engineering & Technology, Sangrur, (Punjab), India
7	Civil Engg.	Dr Sanjiv Kumar Aggarwal	NA	Improvement of CBR Value of Expensive Soil with Steel Slag	8th International Conference on Advancements in Engineering and Technology	978-81-924893-5-3	Bhai Gurdas Institute of Engineering & Technology, Sangrur, (Punjab), India

8	Civil Engg.	Dr Sanjiv Kumar Aggarwal	NA	Influence of Layered Reinforced Industrial Waste on CBR of Expansive Soil	National Conference on Geo-Science and Geo-Structures	0000-0002-4908-5936	Springer conference proceeding
9	Civil Engg.	Dr Sanjiv Kumar Aggarwal	NA	Weak Subgrade Soil Reinforcement by Using Geogrid Material – A Review	Conference on Sustainable Infrastructure with Smart Technology for Energy and Environmental Management	955 012108	IOP Conference Series: Materials Science and Engineering
10	Computational Sciences	Dr. Munish Kumar	NA	Newspaper Text Recognition of Gurumukhi Script using Random Forest Classifier	Proceedings of International Conference on Machine Intelligence and Data Science Applications	1573-7721	Springer, Singapore
11	Computational Sciences	Dr. Munish Kumar	NA	TxtLineSeg: Text Line Segmentation of Unconstrained Printed Text in Devanagari Script	Proceedings of International Conference on Computational Methods and Data Engineering	NA	Springer
12	Computational Sciences	Dr. Munish Kumar	NA	XGBoost: 2D-Object Recognition using Shape Descriptors and Extreme Gradient Boosting Classifier	Proceedings of International Conference on Computational Methods and Data Engineering	NA	Springer,Singapore

13	Computational Sciences	Dr. Munish Kumar	NA	Writer Identification System Based on Offline handwritten Text in Gurumukhi Script	Proceedings of International Conference on Parallel, Distributed and Grid Computing	NA	IEEE
14	EE	Prof. (Dr.) Sarbjeet Kaur Bath	NA	Multi-Area Dynamic Dispatch Mathematical Formulation Incorporating PEVs/BEVs and Renewable Energy Sources	International Conference on Decision Aid Sciences and Applications (DASA'20) organized by the University of Bahrain	NA	
15	Department of Mechanical Engineering	Dr. Balwinder Singh	NA	To study the corrosion behavior of friction stir processed magnesium alloy AZ91	Materials Today: Proceedings	2214-7853	Elsevier
16	Department of Mechanical Enggenering	Dr. Buta Singh Sidhu	NA	Effect of surface alloying on wear behaviour of EN-47 steel	Materials Today: Proceedings	2214-7853	Elsevier
2019							

17	Computational Sciences	Dr. Munish Kumar	Communications in Computer and Information Science	Benchmark Datasets for Offline Handwritten Gurmukhi Script Recognition	Proceedings of the Workshop on Document Analysis and Recognition	Print ISBN978-981-13-9360-0 Online ISBN 978-981-13-9361-7	Springer, Singapore
18	Computational Sciences	Dr. Munish Kumar	Communications in Computer and Information Science	Benchmark Dataset: Offline Handwritten Gurmukhi City Names for Postal Automation	Proceedings of the Workshop on Document Analysis and Recognition	Print ISBN978-981-13-9360-0 Online ISBN 978-981-13-9361-7	Springer, Singapore
19	Computational Sciences	Dr. Munish Kumar	NA	A Benchmark Dataset of Online Handwritten Gurmukhi Script Words and Numerals	Proceedings of the International Conference on Computer Vision and Image Processing, Jaipur, India	NA	Springer
20	ME	Dr. Kamaljit Singh Boparai	NA	Investigations for wax coated 3D printed hybrid patterns for partial dentures	ASME 2019 14th International Manufacturing Science and Engineering Conference MSEC2019 June 10-14, 2019, The Behrand College, Penn State University, Erie, PA, USA	978-0-7918-5874-5	ASME
21	Physics	Dr. Pooja Devi	NA	Flexible and highly sensitive Cl2 sensor based on solution processed	AIP Conference Proceedings	1551-7616	Americian Institute of Physics

				phthalocyanine nanowires			
	2018						
22	Electronics and Communication Engineering	Dr. Savina Bansal	Advanced Computational and Communication Paradigms	Pilot Sub carrier based channel estimation in OFDM system	Proceedings of International Conference on ICACCP 2017, Volume 1	978-981-10-8240-5	Springer Nature
23	Department of Computational Science	Dr. Munish kumar	Zone segmentation of a text line printed in gurmukhi script newspaper	NA	PDGC 2018 - 2018 5th International Conference on Parallel, Distributed and Grid Computing	978-153866026-3	IEEE access
24	Department of Computational Sciences	Dr. Munish kumar	Performance Comparison of Several Feature Selection Techniques for Offline Handwritten Character Recognition	NA	Proceedings of the 2018 3rd IEEE International Conference on Research in Intelligent and Computing in Engineering, RICE 2018 8509076	978-153862599-6	IEEE access
25	Department of Computational Sciences	Dr. Munish kumar	Pulmonary Lesion Detection and Staging from CT Images Using Watershed Algorithm	NA	Proceedings of the 8th International Advance Computing Conference, IACC 2018	978-153866678-4	Taylor & Francis

26	Textile Engineering	Dr.Rajeev Kumar Varshney	Conference-proceedings	Low-stress Mechanical Properties of Wool-Cotton Union Fabric	National Conference "Recent Advances in Wool and Specialty hair". G B Pant University of Agriculture and Technology, Pant Nagar;	1544-0478	Lambert Academic Publishing, Saarbrucken, Germany
27	Physics	Dr. Pooja Devi	NA	Zinc phthalocyanine nanowires based flexible sensor for room temperature Cl2 detection	AIP Conference Proceedings	1551-7616	Americian Institute of Physics
28	Computational Sciences	Dr. Munish Kumar	NA	Pulmonary Lesion Detection and Staging from CT Images Using Watershed Algorithm	Proceedings of the 8thInternational Conference on Advance Computing Conference	NA	IEEE
29	Computational Sciences	Dr. Munish Kumar	NA	Performance Comparison of Several Feature Selection Techniques for Offline Handwritten Character Recognition	Proceedings of International Conference on Research in Intelligent and Computing in Engineering,	NA	IEEE

30	Computational Sciences	Dr. Munish Kumar	NA	Zone Segmentation of a Text line Printed in Gurmukhi Script Newspaper	Proceedings of 5thInternational Conference on Parallel, Distributed and Grid Computing	NA	IEEE
31	ECE	Dr. Savina Bansal	2018 8th International Conference on Cloud Computing, Data Science …	Energy aware fault tolerant fixed priority task scheduling in multiprocessor system	2018 8th International Conference on Cloud Computing, Data Science …	NA	IEEE
32	EE	Prof. (Dr.) Sarbjeet Kaur Bath	NA	Design and analysis of renewable energy based hybrid model for Remote Applications	2018 2nd IEEE International Conference on Power Electronics, Intelligent Control and Energy Systems, (ICPEICES 2018)	DOI: 10.1109/ICPEICES.2018.8897484	
	2017						
33	Computer Science and Engineering	Naresh Kumar Garg	Lecture Notes on Data Engineering and Communications Technologies book series (LNDECT, volume 9)	Writer Identification System for Handwritten Gurmukhi Characters: Study of Different Feature-Classifier Combinations	Proceedings of International Conference on Computational Intelligence and Data Engineering	Print ISBN978-981-10-6318-3 Online ISBN978-981-10-6319-0	Springer

34	Civil Engg.	Dr Gurprit Singh Bath	NA	Use of Waste Ceramic Tiles Aggregates as an Alternative Material of Coarse Aggregate in Cement Concrete	International Conference on Eco-sensitive Developments in Science and Technology	2278-0181	International Journal of Engineering Research and Technology
35	Civil Engg.	Dr Sanjiv Kumar Aggarwal	NA	An Appraisal of Using Steel Fibre Reinforced Concrete for Pavements	International Interdisciplinary Conference on Science, Technology, Engineering, Management, Pharmacy and Humanities	978-09-989000-0-1	DAV Institute of Engineering & Technology, Jalandhar (Punjab)
36	Computational Sciences	Dr. Munish Kumar	NA	Object Detection Using Multiple Shape- Based Features	Proceedings of International Conference on Parallel, Distributed and Grid Computing	NA	IEEE
37	EE	Prof. (Dr.) Sarbjeet Kaur Bath	NA	Design and Optimization of RES based Standalone Hybrid System for Remote Applications	Proceeding of 8th IEEE conference on Innovative Smart Grid Technologies (ISGT 2017),Washington DC, USA	DOI: 10.1109/ ISGT.2017.8086042	
38	ME	Kamaljit Singh Boparai	NA	Experimental investigations for wear properties of rapid tooling with	ASME 2017 12th International Manufacturing Science and Engineering Conference MSEC2017 June	978-0-7918-5072-5	ASME

				nano scale fillers for grinding applications	4-8, 2017, Los Angeles, CA, USA		
39	Department of ECE	Dr. K.S.Bhatia	Keystroke dynamics based user authentication using numeric keypad	NA	Proceedings of the 7th International Conference Confluence 2017 on Cloud Computing, Data Science and Engineering	978-150903518-2	IEEE access
2016							
40	Electronics and Communication Engineering	Dr Savina bansal	Advances in Intelligent Systems and Computing	An efficient adaptive data hiding scheme for image steganography	Proceedings of the International Congress on Information and Communication Technology pp 371-379	NA	Springer Science
41	Civil Engg.	Dr. Manjeet Bansal	NA	Waste Water Management and The Infrastructure Required	National Conderence on Sustainable Civil Engineering Practices (NCSCEP)	9789382782261	Quality Council of India
42	Civil Engg.	Dr. Manjeet Bansal	NA	Health and Environmental Hzards of E-Waste-A Brief Study	International Conference on Latest Developments in Material, Manufacturing & Quality Control	978-93-5212-858-7	GZSCCET, Bathinda

43	Civil Engg.	Dr. Manjeet Bansal	NA	Solar Power: A Green Future	International Conference on Latest Developments in Material, Manufacturing & Quality Control	: 978-93-5212-858-7	GZSCCET, Bathinda
44	Civil Engg.	Dr. Manjeet Bansal	NA	Machinery Pollution: Its Impacts and Reasons	International Conference on Latest Developments in Material, Manufacturing & Quality Control	978-93-5212-858-7	GZSCCET, Bathinda
45	Civil Engg.	Dr. Manjeet Bansal	NA	Impact of Climate Change on Water Resurcesin	3rd DAV National Congress, Science, Technology, Engineering, Humanity &Managemeent, Transforming India into a Knowledge Economy	978-93-5254-976-4	DAV Insitute of Engg. & Technology, Jalandhar
46	Civil Engg.	Er. Ramanpreet Singh	NA	Machinery Pollution: Its Impacts and Reasons	International Conference on Latest Developments in Material, Manufacturing & Quality Control	978-93-5212-858-7	GZSCCET, Bathinda
47	Civil Engg.	Dr Gurprit Singh Bath	NA	Effect of Biomass Ash on The Behavior of Clayey Soil	International Conference on Latest Developments in Materials, Manufacturing and Quality Control	978-93-5212-858-7	GZSCCET, Bathinda

48	Civil Engg.	Swati	NA	A review on Security issues on routing protocols in Delay tolerant networks	FIRST INTERNATIONAL CONFERENCE ON RECENT, (ICRTC- 2016)		Punjabi University Patiala
49	CSE	Jyoti Rani	NA	MRI brain image enhancement using Histogram equalization techniques	International conference on Wireless communications, Signal Processing and networking(WiSPNET) 2016	Electronic ISBN:978-1-4673-9338-6	IEEE
50	CSE	Jyoti Rani	NA	A review: Study of various techniques of Hand gesture recognition	1st international conference on Power electronics, Intellegent control and energy systems(ICPEICES)	Electronic ISBN:978-1-4673-8587-9	IEEE
51	CSE	Naresh Kumar Garg	NA	Offline Handwritten Sanskrit Simple and Compound Character Recognition Using Neural Network	International Conference on ICT for Sustainable Development	ISSN: 2194-5357 ISBN: 978-981-10-0127-7	Springer, Singapore
52	CSE	Naresh Kumar Garg	NA	Text summarization of hindi documents using rule based approach	international conference on micro-electronics and telecommunication engineering (ICMETE)	Electronic ISBN:978-1-5090-3411-6	IEEE

53	CSE	Naresh Kumar Garg	NA	Bi-featured image quality assessment with the hierarchical image quality enhancement algorithm	International Conference on Inventive Computation Technologies (ICICT)	Electronic ISBN:978-1-5090-1285-5	IEEE
54	CSE	Naresh Kumar Garg	NA	Enhancement in Foggy Road Scene Videos Using RSWHE and Gamma Correction	International Conference on Micro-Electronics and Telecommunication Engineering (ICMETE)	Electronic ISBN:978-1-5090-3411-6	IEEE
55	CSE	Abhilasha Jain	NA	Literature Survey on various Scheduling approaches in Grid computing Environment	1st international conference on Power electronics, Intellegent control and energy systems(ICPEICES)	Electronic ISBN:978-1-4673-8587-9	IEEE
56	CSE	Parul Garg	NA	Improved distributed fault tolerant clustering algorithm for fault tolerance in WSN	Internatinal conference on Micro-Electronics and Telecommunication Engineering 2016	Electronic ISBN:978-1-5090-3411-6	IEEE
57	CSE	Prof. (Dr.) Sarbjeet Kaur Bath	NA	Binary Grey Wolf optimizer algorithm for Economic Load Dispatch Problem	*Proc. of* International Conference on Multidisciplinary Research,	NA	IEEE

					University of Freiburg, Freiburg, Germany		
58	EE	Prof. (Dr.) Sarbjeet Kaur Bath	NA	Solution of Non-Convex and Dynamic Economic Load Dispatch Problem of Small Scale Power Systems Using Dragonfly Algorithm	National Conference on Advanced Computational Methods in Electrical Engineering (ACMEE – 2016) held at SLIET Longowal, Sangrur, Punjab, India	NA	NA
59	EE	Savina Bansal	Emerging Communication Technologies Based on Wireless Sensor Networks …	Energy-efficient data collection techniques in wireless sensor networks	Emerging Communication Technologies Based on Wireless Sensor Networks …	NA	https://books.google.co.in/
60	ECE	Savina Bansal	MATEC Web of Conferences	Analyzing block type channel estimation for OFDM based digital communication system	MATEC Web of Conferences	57, 01011	https://doi.org/10.1051/matecconf/20165701011

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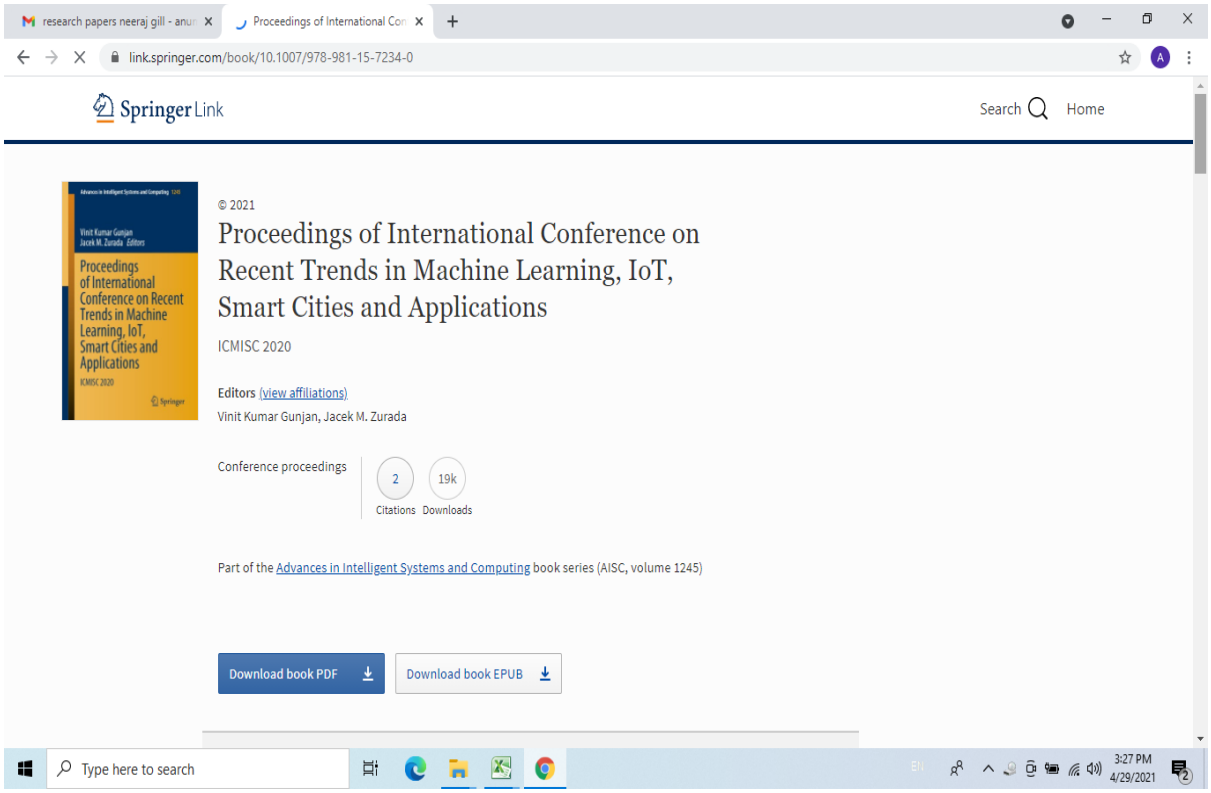
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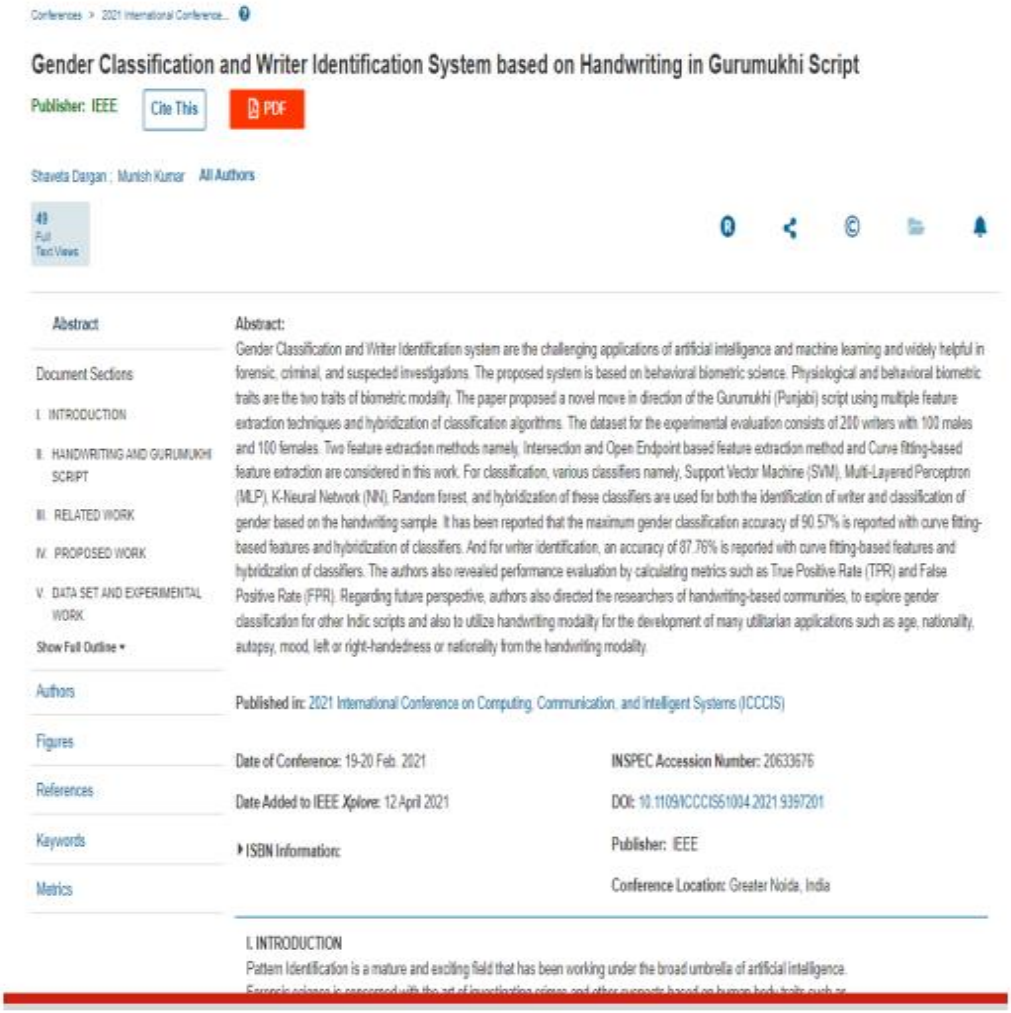

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Gender Classification and Writer Identification System based on Handwriting in Gurumukhi Script

Publisher: IEEE | Cite This | PDF

Shaveta Dargan ; Munish Kumar All Authors

49 Full Text Views

Abstract

Document Sections

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II. HANDWRITING AND GURUMUKHI SCRIPT

III. RELATED WORK

IV. PROPOSED WORK

V. DATA SET AND EXPERIMENTAL WORK

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Figures

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Keywords

Metrics

Abstract:
Gender Classification and Writer Identification system are the challenging applications of artificial intelligence and machine learning and widely helpful in forensic, criminal, and suspected investigations. The proposed system is based on behavioral biometric science. Physiological and behavioral biometric traits are the two traits of biometric modality. The paper proposed a novel move in direction of the Gurumukhi (Punjabi) script using multiple feature extraction techniques and hybridization of classification algorithms. The dataset for the experimental evaluation consists of 200 writers with 100 males and 100 females. Two feature extraction methods namely, Intersection and Open Endpoint based feature extraction method and Curve fitting-based feature extraction are considered in this work. For classification, various classifiers namely, Support Vector Machine (SVM), Multi-Layered Perceptron (MLP), K-Neural Network (NN), Random forest, and hybridization of these classifiers are used for both the identification of writer and classification of gender based on the handwriting sample. It has been reported that the maximum gender classification accuracy of 90.57% is reported with curve fitting-based features and hybridization of classifiers. And for writer identification, an accuracy of 87.76% is reported with curve fitting-based features and hybridization of classifiers. The authors also revealed performance evaluation by calculating metrics such as True Positive Rate (TPR) and False Positive Rate (FPR). Regarding future perspective, authors also directed the researchers of handwriting-based communities, to explore gender classification for other Indic scripts and also to utilize handwriting modality for the development of many utilitarian applications such as age, nationality, autopsy, mood, left or right-handedness or nationality from the handwriting modality.

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Publisher: IEEE

Conference Location: Greater Noida, India

I. INTRODUCTION

Pattern Identification is a mature and exciting field that has been working under the broad umbrella of artificial intelligence.

CATEGORIZATION OF RISK FACTORS IN PROSPECTUS AND IPO INITIAL PERFORMANCE: EVIDENCE FROM INDIA

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ABSTRACT

The present paper focuses on the relationship between IPO initial day performance and disclosure of risk factors, specifically, disclosure related to the Risk Factors section of an IPO prospectus. All companies going public in India must file a DRHP/RHP with the Securities and Exchange Board of India. The Risk Elements section of the prospectus is used to identify known risks related to the IPO's business, industry, and financial performance, or to outline any factors that make the offering speculative or risky to prospective investors. This section appears to be of particular interest to investors. However, it's unclear how the risk factors disclosure part affects IPO pricing and performance. With this in mind, a sample of 131 IPOs screened during 2013 to 2018 are analyzed. More the disclosure in prospectus less will be the information asymmetry. External risk factors as prevailing disclosure pattern have significant negative impact on initial underpricing. Mutually exclusive risk categories are identified and regressed to know its impact on initial performance of IPO. Operating Risk category is found to have significant positive impact on the initial returns. This paper will make a contribution to the academic disclosure literature by suggesting an approach by which to characterize a risk factor section of text in the IPO prospectus.

Keywords: *Risks, IPO, Underpricing, Mutually Exclusive Risk Categories*

INTRODUCTION

Risk factor disclosure by issuers in their IPO prospectuses are intended to play a significant role in capital markets by bestowing the investors a clear understanding of the risks that issuer encounters. Risk is an essential element of any investment decision. Risk is regarded as a situation in which the likely outcomes of decisions are unknown. It refers to the possibility of loss of income or capital as well as unavailability or variability of expected return. The expected outcome of an investment is subjective to each investor. Each investor ideally considers the different characteristics of the securities as well as various outcomes that best suits to his or her own circumstances and interests. In investments, as in the other realms of risk taking, the risk is largely in the eyes of the risk taker. Risk takers tend to be focused on the prospect of opportunities and gains so they are innate and positive

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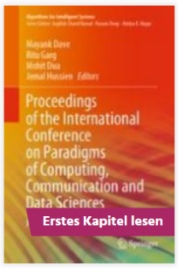

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This is to certify that **Dr. Anupam Kumar**, Professor, Department of Textile Engineering, Giani Zail Singh Campus College of Engineering & Technology Maharaja Ranjit Singh Punjab Technical University, Bathinda, has presented a research paper in International Conference on "Advancement and Futuristic Trends in Mechanical and Materials Engineering (AFTMME-20)" on 19-20 December, 2020.

Title of Paper: **To Study the Particle Board Made From Sisal Fibre Pulp For Furniture**

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ARTIFICIAL NEURAL NETWORK MODELING FOR ROAD ACCIDENT PREDICTION ON A RURAL HIGHWAY IN PUNJAB, INDIA

Nirpinder Jain, Research Scholar, IKGPTU, Kapurthala, Punjab
Dr.Sanjiv Aggarwal, Professor, Civil Engineering, MRSPTU, Bathinda, Punjab

ABSTRACT:
The last decade has seen a tremendous growth of vehicles around the world. The growth of vehicles has led to increase in traffic volume and increased number of road trips. This scenario has led to increase in road traffic accidents and injuries. The causative factors of accidents are the complex interaction between the various road-user and vehicle-environment related factors. Accident prediction modelling enables traffic engineers to analyse why an accident happens and correlate mathematically the causal factors to accident occurrence. The study uses artificial neural network to predict the number of accidents and identify significant factors related to road accidents on rural highway. SH-13 in Punjab is chosen for the study. The sensitivity analysis indicates that Speed, Width of pavement, Width of shoulder and Percentage of heavy vehicles were the most important factors responsible for accidents on the selected stretch of rural two lane highway in Punjab, India

Keywords:-Traffic, Artificial Neural Network, Accident Modelling, Two Lane Roads.

1 INTRODUCTION

In last decade, remarkable effort and money have been invested to improve the highway safety. The current challenge to transportation engineers is to plan and reduce the loss of life and property in the transportation system. Accidents lead to a huge financial burden on the society especially in low income countries. In Indian scenario the deaths and injuries due to road accidents have been increasing at an alarming rate during last 10 years. Fatal accidents, on Indian multi lane highways have increased consistently since 2006 (93,917) to 2016(1, 36,071) [1]. Consequently, number of persons killed per 100 accidents, has gone up from 22.9 in 2006 to 31.4 in 2016. The current circumstances demand that highway safety engineers develop techniques and methods for roadway and roadside improvements to reduce the probability and severity of crashes. Even though the identification of basic cause of road accident is difficult, an understanding of accident causing situations will help in formulation of accident prevention strategies. In this study an attempt is made to develop model using Artificial Neural Network that explains the relationship between the number of accidents and geometric and traffic characteristics of roadways.

2 CAUSES OF ACCIDENTS

Influencing factors for cause of accidents can be classified as those related to behaviour of driver, road geometrics, vehicles, traffic and environment. Further road, road user and traffic factors are the three prominent factors that can be controlled by highway/traffic engineers and can be incorporated in the safety oriented design to minimize the road accident causing factors.

2.1 ATTRIBUTES RESPONSIBLE FOR ACCIDENTS

The roadway and traffic variables can be summed up as (i) Lane/Pavement width (ii) width of shoulder (iii) condition of pavement and shoulder (iv) Horizontal curves (v) Traffic volume (vi) Speed. The literature study pointed that there is negative correlation between accidents and width of pavement and width of shoulders [6], [3]. Researchers also correlated accidents with paved and unpaved shoulders and reported that paved shoulders showed reduction in accidents [4], [10]. A few studies showed an increase of accidents at curves due to head on collision or loss of control [5].

Traffic volume is another significant variable in predicting accidents. The studies on traffic variables pointed that 27% higher AADT is predicted to increase accident rate by 16.4% [6], traffic flow strongly affects the accident rate [7], [8]. The number of single vehicle accidents decreases as density and volume to capacity ratio increases and number of multi vehicle accidents increases with vehicle density and capacity ratio [9]. Further, the literature revealed that passenger cars, night-time, and rural areas are more dangerous in terms of driver injury severity [2].

3 MODELLING USING ARTIFICIAL NEURAL NETWORKS

Improvement of CBR Value of Expensive Soil with Steel Slag

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ABSTRACT

In India, the expansive soil is one of the major soil deposits. They exhibit high swelling and shrinking when exposed to changes in moisture content and hence have been found to be most troublesome from engineering considerations. It is also known as "Black cotton soil". Because of its high swelling and shrinkage characteristics, the Black Cotton soil has been a challenge to geotechnical and highway engineers. Geotechnical engineer recommends a verity of preventative techniques for soil to control of expansive soil. Recently many researchers used industrial waste in soil stabilization as low cost materials and to save the environment. In India, industries like steel plants produce considerable amounts of waste. Steel slag is the by-products of steel plants is dumped randomly in open areas, which causes many environmental hazardous problems; whose disposal poses a problem. Most of the steel slag production in steel industries is utilized in the cement industry and has never been used in any other fields due to the lack of research in these fields.

This paper brings out the results of experimental program carried out in the laboratory to evaluate the effect of mixing different proportions of steel slag with clayey soil on compaction and California bearing ratio. Results show that addition of steel slag reduces the swelling, plasticity index and increases the CBR value of soil.

Keywords

Expansive soil, steel slag, Free swell index, CBR.

1. INTRODUCTION

Expansive soils of Central India, commonly known as Black Cotton soils, cover approximately one-sixth of the total area of our country. These soils cover the Deccan plateau covering entire Maharashtra state, South Gujarat, central and western Madhya Pradesh, Southern part of Andhra and Orissa states. Black soils also occur in a smaller area of Rajasthan, Uttar Pradesh and Tamilnadu. In terms of geotechnical Engineering, Black Cotton soil is one which when associated with as engineering structure and in presence of water will show a tendency to swell or shrink causing the structure to experience moments which are largely unrelated to the direct effect of loading by the structure. Black cotton soil is not suitable for the construction work on account of its volumetric changes. It swells and shrinks excessively with change of water content. Such tendency of soil is due to the presence of fine clay particles which swell, when they come in contact with water, resulting in alternate swelling and shrinking of soil due to which differential settlement of structure takes place. With development in soil improvement procedures, many constructions over BCS have been possible.

Various innovative techniques such as special foundations that include belled pier, drilled pier, and friction piers have been developed to mitigate the problems posed by expansive soil (e.g., Chen 1975). Apart from these techniques, stabilization of expansive soil with various industrial waste including foundry sand, fly ash, lime, cement also met with considerable success. stabilization of expansive soil with admixtures controls the potential of soil for a change in volume.

Steel slag, a byproduct of steel manufacturing, is Produced during the separation of molten steel from impurities in steel-making furnaces. The slag evolves as a molten liquid and is composed of a complex solution of silicate sand oxides that solidifies upon cooling. Steel slag is a recycled material that can be useful in the construction industry.

Rao and Sridevi [19] performed a laboratory evaluation on utilization of industrial waste in pavement laid over expansive clay subgrades. The waste materials tested were granulated blast furnace slag and fly ash. Detailed laboratory studies have been carried out using these
materials for cushioning soil system. The results indicate a significant increase in the soaked CBR value. This investigation points to the utility of these two waste materials for use in subbase of flexible pavement.

Yaduand Tripathi [20] presented that stabilization of soft soil can be improved by the addition of blast furnace slag and fly ash. According to that study, it was concluded that, by the addition of slag waste and fly Ash at different proportion, the properties of the soft soil may get changed. It has also been observed that there is an improvement in the strength characteristics of soft soil.

1.1 OBJECTIVES

1. To provide a solution for waste industrial waste of steel slag soil as disposal in a sustainable manner
2. To minimize the problems associated with Expansive soil for the land development of roads in rural areas.
3. To check the characteristics such as free swell, plasticity index, compaction, CBR of modified soil.

Influence of Layered Reinforced Industrial Waste on CBR of Expansive Soil Subgrade

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Abstract. Construction of structures over expansive soils possesses difficulties like differential settlements, poor strength and high compressibility. Expansive soils are poor in strength and that they will lead to poor pavement support and ultimately affects the pavement performance and its life period. The existing subgrade may not always be strong, hence may require up-gradation in terms of improvement of strength. On the other hand, due to rapid industrialization throughout the world, a large amount of waste materials is generated. This creates an environmental hazard. So, utilization of waste materials as an additive to poor subgrade soil are often a feasible solution. It will help to utilize those materials by reducing environmental pollution. In the present study, furnace slag in granulated form has been used as a granular fill overlay on expansive soil subgrade. The effectiveness of geogrid- reinforced granular fill overlay on expansive soil subgrade soil has been assessed in this present investigation the effect of inclusion of the geosynthetic reinforcement on California Bearing Ratio (CBR) value of a two-layered soil system with black cotton soil at the bottom and granular soil at the top as a buffer layer, with different thickness configuration was studied by laboratory California bearing ratio tests by soaked CBR.

Keywords: Expansive soil., Geosynthetics., Geo-grid., Laboratory tests., CBR., pavement & Road., Reinforced soil.

1. Introduction

The construction of pavements over clay subgrades is pricey, as they require large pavement thickness because of lower CBR values in wet condition. Pavement failures are often noticeable in pavements constructed over clay soil despite building pavements with large thickness. Swelling of subgrade is seen in low traffic roads whereas heavy traffic roads are suffering from excessive settlements or shear failures within the edge regions. The pavements give poor service when there's volume instability of the subgrade and that they also require periodic maintenance after every season. The service-life and performance of the pavements depend to an outsized extent on the strength and stiffness characteristics of subgrade, there's a requirement to concentrate on the standard of the subgrade. IRC-37 guidelines are used for the planning of flexible pavements in India consistent with these guidelines subgrade soil strength is measured in terms of CBR value, therefore CBR value is one among the important parameters so as to attenuate the pavement failure and to maximize the lifetime of pavement. On the opposite hand, thanks to rapid economic process and industrialization, huge quantities of waste materials are being produced per annum, creating an incredible threat to public health and ecology. So, there's a requirement for correct disposal of waste materials.

Weak sub-grade soil reinforced with Geogrid material -A Review

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Abstract. Pavement design on weak subgrade soils is to a certain extent challengeable and challenging for transportation and geotechnical engineers. Weak soil is vastly compressible clayey soils so the life of the pavements is less and effect of the weakening of the paved or unpaved surface. The development of such soil are substitutes such as replacement and excavation of unsuitable soils, compaction, Mechanical and chemical stabilization, Pre-compression and reinforcement of soil, etc., are used typically at such locations. During the recent historical utilization of reinforcement of soil by various methods has been increased to progress the strength properties and bearing capacity of poor subgrades. Field signals indicate that geosynthetic reinforcements will expand pavement performance. From this, the employment of various geosynthetics to pavement surface is testified by several researchers. Geosynthetics has numerous applications such as separation, reinforcement, filtration, drainage, and containment, etc. This paper targets to study the conclusions from various studies on weak subgrade soils using reinforcement.
Keywords—Ground improvement, Reinforced soil, weak subgrade soil, Geosynthetics, Geogrid

1. Introduction

The Pavement design and construction work are aiming to get reliable pavement by reducing maintenance and reduction in thickness of the pavement layers. The subgrade is the in-situ material, which should support all the load coming from the road structure. The lower layer of pavement is the foundation material in pavement performance. Pavement performance depends upon the subgrade's characteristics such as its load-bearing capacity, its stiffness. weak subgrade soil can have exchange and remove with a stronger subgrade or stabilized with cement, lime, fly ash to decrease the layer thickness of the pavement. Geo-synthetics help strengthens the weak soil and to construct pavement economically with good quality and less periodical maintenance. Geo-synthetics are found to be a worth operative substitute to improve weak sub-soils in such a location where there may be a poor quality of soil and non-availability of good soils with applications in the geotechnical engineering projects such as highway pavement, railway, and airport. Geo-synthetics includes a large number of products with reinforcement function solve many geotechnical and transportation problems. Major applications of reinforcement in improving weak soil subgrades.

2. Material

Geosynthetic materials are successfully used in pavement design, separation, filtration, reinforcement.

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Newspaper text recognition of Gurumukhi script using random forest classifier

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Abstract
Newspapers consist of very crucial information related to current as well memorable events. So, newspaper text needs to be preserved in a computer processable form for indexing of headline or making possible the search operations on newspaper text. For accurate results of recognition of text, appropriate classification of text based on extracted features is very important. Random Forest classifier is a widely used classifier in the field of pattern recognition and computer vision applications. In this paper, we have presented the recognition results using random forest classifier for newspaper text printed in Gurumukhi script. Different kinds of feature extraction techniques are used to extract the feature of characters that are fed to the random forest classifier. Standard k-fold cross validation and dataset partitioning strategy has been used for experimental work. Using the proposed method, maximum recognition accuracy of 96.9% and 96.4% has been achieved, using 5-fold cross validation and dataset partitioning strategy, respectively.

Keywords Newspaper text · Feature extraction · Classification · Documents analysis and recognition

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TxtLineSeg: Text Line Segmentation of Unconstrained Printed Text in Devanagari Script

Rupinder Pal Kaur, M. K. Jindal, and Munish Kumar

Abstract Most of the reports either printed or handwritten comprised of significant data that can be helpful in the future. The papers generally rot with time that can lose data totally or up to some extent. Optical character recognition is the process which is used in sparing information from paper for further processing. Text line segmentation is a significant phase in character recognition because incorrectly divided text lines can cause errors in the recognition stage. In this paper, single-column and multi-column documents from different books, magazines and papers imprinted in Devanagari script had been considered. As a result of the low quality of papers in few documents and the unpredictability and complexity of these documents (background noise, paper decay due to aging, short lines, justified lines, distorted text lines), programmed text line segmentation remains an open research field. In this article, the authors have presented a new technique for unconstrained text line segmentation of Devanagari text using a combination of headline detection and median calculation of text line heights.

Keywords Books · Magazines · Newspapers · Line segmentation · Headline detection · Median calculation

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XGBoost: 2D-Object Recognition Using Shape Descriptors and Extreme Gradient Boosting Classifier

Monika, Munish Kumar, and Manish Kumar

Abstract In this chapter, the performance of eXtreme Gradient Boosting Classifier (XGBClassifier) is compared with other classifiers for 2D object recognition. A fusion of several feature detector and descriptors (SIFT, SURF, ORB, and Shi Tomasi corner detector algorithm) is taken into consideration to achieve the better object recognition results. Various classifiers are experimented with these feature descriptors separately and various combinations of these feature descriptors. The authors have presented the experimental results of public datasets, namely Caltech-101 which is a very challenging image dataset. Various performance measures, i.e., accuracy, precision, recall, F1-score, false positive rate, area under curve, and root mean square error, are evaluated on this multiclass Caltech-101 dataset. A comparison among four modern well-known classifiers, namely Gaussian Naïve Bayes, decision tree, random forest, and XGBClassifier, is made in terms of performance evaluation measures. The chapter demonstrates that XGBClassifier outperforms rather than other classifiers as it achieves high accuracy (88.36%), precision (88.24%), recall (88.36%), F1-score (87.94%), and area under curve (94.07%) when experimented with the fusion of various feature detectors and descriptors (SIFT, SURF, ORB, and Shi Tomasi corner detector).

Keywords Object recognition · Feature extraction · Gradient boosting · XGBoost

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Writer Identification System Based on Offline Handwritten Text in Gurumukhi Script

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***Abstract*—Writer Identification (WI) based on handwriting is an amazing application under the wide spectrum of machine learning and document based identification and recognition. Its most acknowledged applications include forgery detection, investigating forensic crimes and resolving other suspects. This paper is concerned with the development of WIS based on the handwritten text in Gurumukhi script. Through this paper, authors presented a contemporary and experimental move in Gurumukhi script, its framework, characteristics of handwriting modality, differences between writer identification and verification, text independent and text dependent systems, script dependent Vs script independent, character set of Gurumukhi script, latest survey on WIS based on offline handwritten text in Gurumukhi (Punjabi) script and experimental findings. A dataset of 100 writers i.e. 100×53×10=53000 Gurumukhi characters has been taken for the experimental study. Feature extraction techniques such as Zoning, Transition, Diagonal and Peak Extent based were used and for the classification part Multi Layered Perceptron (MLP), Artificial Neural Network (ANN), and Random Forest (RF) classifiers were implemented. The proposed experiment reported 93.06% writer identification accuracy rates along with performance evaluation metrics with 93.2% True Positive Rate (TPR) and 0.39% False Positive Rate (FPR). The reported result outperforms in comparison to the literature survey and also poses futuristic and upcoming directions to the researchers such as age, gender, handedness, physiological autopsy, personality, stress and even nationality identification based on handwriting.**

Keywords-Zoning features; diagonal features; transition features; peak extent features; ANN; MLP; random forest.

I. INTRODUCTION

Writer Identification System from an individual handwriting is a novel direction in forensic biometric sciences in which one can identify an individual based on the behavioural modality i.e. handwriting or handwritten text [1, 2]. Handwriting based writer identification is a novel move and attracting many handwriting research communities to prove someone's authenticity. There are many existing applications based on physiological and behavioural biometrics traits but this is a challenging and stimulating move for the Gurumukhi (Punjabi) script [3]. Biometric is the branch of biology that deals with human body measurements and statistical analysis. It is based on physical or behavioural biometric identifier. Physiological biometric traits include facial features, fingerprint, palm print, hand images and are linked with the physical characteristics of an individual. Behavioural biometric traits [1,3] include handwriting, signature, DNA and so on that are based on the behavioural characteristics of an individual. . It is really a challenge to identify the writer based upon the handwritten text. Further this research can be extended to develop innovative applications such as identifying age, classification of gender, nationality, autopsy, personality, handedness, based on the handwriting.

Handwriting: A Behavioral Biometric Modality

Handwriting as we all know is the art of writing something by hand and is different from calligraphy or typeface [4]. As every individual has his/her own writing style, so it can be taken as a great tool to identify an individual. Handwriting is such an expression or skills of anybody personality that cannot be imitated. It frequently attracts the attention in litigation and is an art of representing physically, thoughts and ideas. Handwriting is deeply concerned with the attitude, sentiments and mind of an individual. Two persons cannot have identical handwriting, even twins sharing hereditary qualities and appearances do not share same handwriting. It is an effective strategy for biometrics by examining the writing behavior and individualities.

Attributes of handwriting skill includes:

- Regular or Irregular gaps between letters
- Size, shape and orientation of the letters
- Rhythmic repetition of the elements or not
- Slope of the letters
- Average size of letters
- Pressure on paper
- Thickness and width of letters

Gurumukhi script:

Gurumukhi (Punjabi) script is the earliest form and is the poetic language used for praying. Gurumukhi is the official language of Punjab and is present in list of the 22 official languages of India, which is spoken by approximately 100 million people. Khalsa [4] explained the beauty of Gurumukhi script and said that it is the script spoken from our Guru mouth. Guru Angad Dev ji recited the scripture of Guru Granth Sahib ji everyday in Gurumukhi script [5]. It is so structured and systematic script as it consists of 32 Gurumukhi consonants, 6 Gurumukhi consonants with subscript dot, 10 vowels or 10 laga matra and 5 Auxiliary symbols. Lehal and Singh [5] proposed a

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Multi-Area Dynamic Dispatch Mathematical Formulation Incorporating PEVs/BEVs and Renewable Energy Sources

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***Abstract*— Multi-area Dynamic load dispatch problem is a vital issue in power system scheduling, processing, organizing, and managing. This issue in the power system is explored with the combination of electric utilities of various different regions. The mathematical formulation of multi-area dynamic dispatch problems utilizing plug-in electric vehicles (PEVs), battery electric vehicles (BEVs), and renewable energy sources have been explained in this paper. This work of mathematical formulation will be useful for the research work on multi-region economic load dispatch problems with electric vehicles (EVs) and Renewable Energy Sources (RES).**

***Index Terms*— BEVs, Economic Load Dispatch, PEVs, Renewable Energy Sources.**

I. INTRODUCTION

To achieve the high reliability, economical power generation, and best working performance in terms of stability, reserve power sharing and operation under critical situations requires the interconnection of electric utility systems. The power producing units can be divided into number of groups and tied up by transmission lines. Multi-area dynamic load dispatch determines the economical power generation in one region and interexchange of power to another region which reduces the fuel cost in all regions by meeting operational and network imperatives. Multi-area dynamic load dispatch gives an optimized plan for dispatching the real power and swaps the same among multiple regions by contemplating the boundaries of operations like transmission losses, generator output imperatives, tie-line capacity limitation, and balance between generation and consumption. At the outset, a two-area multi-source power system interconnected is considered as well as employed to optimize for a modified objective function. The resultant is compared with other performances. Fluctuations in power in distributed regions are often, and therefore a coordinated multi-area dynamic economic dispatch may enable. High variability of generations poses a puzzle to secure the cost-effective operation of power systems, especially in terms of scarcity.

II. LITERATURE REVIEW

Jayabharathi et al.,[1] developed an evolution programming-based algorithm to resolve multi-region economic load dispatch problems including tie lines imperatives as well as tested the results with other programming methods and proved that the developed method has excellent convergence pattern. The authors concluded to implement the existing method to complex or large size systems that the convergence pattern will occur for less number of iterations and it is to be explored. Basu [2] implemented an artificial bee colony algorithm for multi-area economic load dispatch problems including operational and network imperatives. The test results were given better cost convergence characteristics compared to differential evolution (DE), genetic algorithm (GA), and evolutionary programming (EP) methods. Cai Jie jin et al.,[3] introduced an innovative strategy called chaotic used particle swarm optimization (CPSO) on the way to solve convergence of particles prematurely. The proposed technique is the combination of (CLS) chaotic local search and (AIWF) adaptive inertia weight factor. It is a two-stage iterative method that performs global exploration and local exploitation. Chun-Lung Chen and Nanming Chen [4] handled the economic dispatch problems effectively with a direct search model along with transmission capacity imperatives. The multi convergence technique is integrated into demand-side management (DSM) to reduce the multiplicity of iterations during exploration progression. Manoharan et al.,[5] explored different evolution algorithms among which the covariance matrix adaptive evolution algorithm (CMAES) provides the best results in terms of economic generation and stability of operation compared to other algorithms. To claim the optimality for obtained results Karush-Khun-Tucker (KKT) conditions are applied. Jong-Bae Park et al.,[6] introduced the customized (PSO) particle swarm optimization for economic dispatch including non-smooth price functions. The proposed method reduces the search space if the solution is not obtained in a pre-specified time and it is terminated as soon as the iterations match to the predefined maximum number of iterations. Safari et al., [7] employed a repetition based particle swarm optimization (IPSO) scheme to study economic dispatch with different generator imperatives. Compared to the classical PSO method the control equation in IPSO includes iteration best component to avoid the trapping of particles into local optima. Ling Feng Wang and Chanan Singh [8]studied environment and economic issues in dispatching power economically by using multi-objective particle swarm optimization along with local investigation algorithm, which

To study the corrosion behavior of friction stir processed magnesium alloy AZ91

Haramritpal Singh Sidhu [a], Balwinder Singh [b], Pardeep Kumar [c]

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https://doi.org/10.1016/j.matpr.2020.10.920

Abstract

The main aim of the study is to investigate the effect of the corrosion behaviour of Friction Stir Processed (FSPed) AZ91 magnesium alloy. The corrosion testing was performed by immersing the FSPed samples in 3.5 % (by weight) sodium chloride (NaCl) solution. It is originally proved that the corrosion rate of AZ91 FSPed samples decreased significantly with a square pin profile as compared to the round pin profile. It is attributed that the pulsation effect of the flat-faced tool helped to improve the flow of material. Also, Friction Stir Processing (FSP) modified the surface morphology and uniformly distributed the β-$Mg_{17}Al_{12}$ phase particles that helped in improving the corrosion rate of AZ91 alloy.

Previous article in issue Next article in issue

Keywords

Magnesium alloy; Friction stir processing (FSP); Corrosion behaviour; β-$Mg_{17}Al_{12}$ phase

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Effect Of Surface Alloying On Wear Behaviour OF En-47 Steel

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https://doi.org/10.1016/j.matpr.2020.01.172

Abstract

Reducing wear would ensure minimize material loss, change over time and labour in different branches of industries. Hardfacing plays a major role in an industry and agriculture in reducing losses due to wear. In the present work three different types of hardfacing electrodes namely H1, H2 and VB were used to enhance the wear resistance of EN-47 steel, used for tillage application in agriculture sector by manual metal arc welding (MMAW) process. The abrasive wear behaviour of bare and hardfaced steel was evaluated by using dry sand rubber wheel tester according to procedure A of ASTM G65 standard. Microstructural characterization and surface analysis of worn out and fresh samples were made by using Optical and scanning electron microscopy. It is found that hardfaced steel (H1, H2 and VB) has significantly shown better wear resistance than bare steel. The wear resistance indices (WRI) of different steel hardfacings i.e. H1, H2 and VB were found to be 1.58, 1.37 and 1.82 respectively. The microstructure of VB hardfaced steel was found

2019

Benchmark Datasets for Offline Handwritten Gurmukhi Script Recognition

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Abstract. Handwritten character recognition is an imperative issue in the field of pattern recognition and machine learning research. In the recent years, several techniques for handwritten character recognition have been proposed. Due to the lack of publicly accessible benchmark datasets of Gurmukhi script, no extensive comparisons have been undertaken between those techniques, especially for this script. Over the years, datasets and benchmarks have proven their fundamental importance in character recognition research, and objective comparisons in many fields. This paper presents a collection of seven benchmark datasets (HWR-Gurmukhi_1.1, HWR-Gurmukhi_1.2, HWR-Gurmukhi_1.3, HWR-Gurmukhi_2.1, HWR-Gurmukhi_2.2, HWR-Gurmukhi_2.3, and HWR-Gurmukhi_3.1) with different sizes for offline handwritten Gurmukhi character recognition collected from various public places. A few exploratory outcomes based on precision, False Acceptance Rate (FAR), and False Rejection Rate (FRR) using different classification techniques, namely, k-NN, RBF-SVM, MLP, Neural Network, Decision Tree, and Random Forest are also presented in this paper.

Keywords: Handwritten character recognition · Gurmukhi dataset · Benchmarking · Classification

1 Introduction

Document Analysis and Recognition (DAR) systems play a major role in data transfer between human beings and computers. Optical Character Recognition (OCR) system is an essential part of a document analysis and recognition system. In the recent years, applying machine learning techniques in the field of optical character recognition have

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Benchmark Dataset: Offline Handwritten Gurmukhi City Names for Postal Automation

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Abstract. Handwriting recognition delineate the computer's ability to convert human handwriting into text that can be processed by machine. Postal automation plays a significant role in image processing and pattern recognition field. Handwritten city name recognition is the part of postal automation. For assessing the performance of the existing techniques for handwritten city name recognition, a standardized dataset proves useful. But due to lack of publicly accessible benchmark dataset in Gurmukhi script, a systematic comparison of the existing techniques for Gurmukhi city name recognition is not feasible. In this paper, we have presented a dataset for Gurmukhi postal automation named as HWR-Gurmukhi_Postal_1.0 which contains total 40,000 samples of names of various cities which are written in Gurmukhi script. This dataset can be seen as a benchmark for comparison among existing techniques for handwritten city name recognition.

Keywords: Postal automation · Gurmukhi words · City names · Gurmukhi dataset · Benchmarking

1 Introduction

At present, many paper documents are converted into electronic form that makes it easy to process information. Researchers proved that the identification of both barcodes and printed text through Optical Character Recognition (OCR) is reliable and significantly accelerates data processing. OCR can be defined as the process of transforming scanned images of typed, printed or handwritten text into machine form, either in the form of plain text or a word document that can be interpreted by the computer. Recognition of Offline handwritten documents is an imperative domain in the pattern recognition field. Offline Handwritten Word Recognition (HWR) principally entails OCR and finds its real world applications in many areas, which make it a prospective dominant research field in document analysis and recognition. Offline HWR recognizes words after it was written on paper and extract the information about these words from a digitized image. It comprises documents processing that contains scanned images of handwritten text on paper sheets. In Offline HWR, two dimensional images are acquired after digitization.

There are mainly two approaches to recognition of handwritten words, namely, analytical approach and a holistic approach. An analytical approach is also known as

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A Benchmark Dataset of Online Handwritten Gurmukhi Script Words and Numerals

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Abstract. This paper presents an online handwritten benchmark dataset (OHWR-Gurmukhi) for Gurmukhi script. TIET, Patiala released the unconstrained online handwriting databases, OHWR-GNumerals and OHWR-GScript, which contain isolated strokes samples produced by 190 writers. The OHWR-GNumerals covers 10 stroke classes and OHWR-GScript covers 95 stroke classes to represent the Gurmukhi character set. For data collection, two data sets of Gurmukhi words have been finalized after having a consultation with language experts in order to collect the balanced stroke samples. The preprocessing methods used to prepare these datasets include: size normalization, removing duplicate points, interpolating missing points and re-sampling. The purpose of this benchmark is to create a common platform and make the benchmark dataset publically available for research endeavors in the area of online handwriting recognition. The dataset is available as supplement at https://sites.google.com/view/ohwr-gurmukhi-script/.

Keywords: Online handwriting recognition · Gurmukhi script · Another benchmark dataset

1 Introduction

Online handwriting recognition is an evolving area of pattern recognition. Online handwriting recognition assumes a key role in several human-machine interfaces, including cell phones, smart pads, pen based digital tablets and computers. These devices help us in capturing information with the help of a digital

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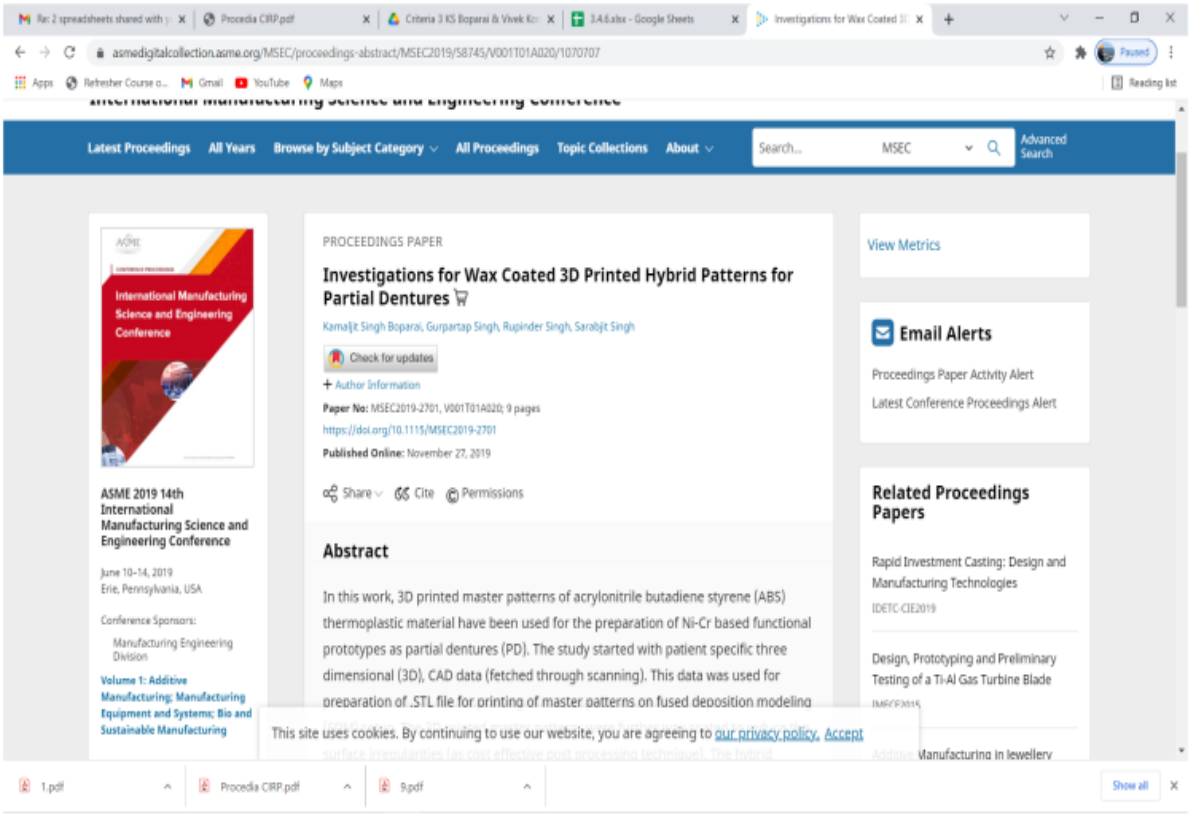
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Investigations for Wax Coated 3D Printed Hybrid Patterns for Partial Dentures
Kamaljit Singh Boparai, Gurpartap Singh, Rupinder Singh, Sarabjit Singh
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Abstract
In this work, 3D printed master patterns of acrylonitrile butadiene styrene (ABS) thermoplastic material have been used for the preparation of Ni-Cr based functional prototypes as partial dentures (PD). The study started with patient specific three dimensional (3D), CAD data (fetched through scanning). This data was used for
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Zinc Phthalocyanine Nanowires based Flexible Sensor For Room Temperature Cl_2 Detection

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Abstract. We have fabricated highly sensitive and Cl_2 selective flexible sensor by depositing solution processed zinc phthalocyanine nanowires onto the flexible PET substrate and studied its Cl_2 sensing characteristics in Cl_2 concentration range 5-1500 ppb. The flexible sensor has a minimum detection limit as low as 5 ppb of Cl_2 and response as high as 550% within 10 seconds. Interestingly, the sensor exhibited enhanced and faster response kinetics under bending conditions. The gas sensing mechanism of sensor has been discussed on the basis of XPS and Raman spectroscopic studies which revealed that zinc ions were the preferred sites for Cl_2 interactions.

INTRODUCTION

Flexible gas sensors have shown their great potential for environmental monitoring in the recent years due to their characteristics like flexibility, softness, space saving and lightweightness etc. There have been an increasing number of reports on organic as well as inorganic films deposited on flexible substrates for their applications in chemical sensors. Most of the flexible sensors reported in literature are based upon semiconducting oxides, inorganic materials and their composites [1]. However, they generally require high operational temperature which limits their application for room temperature gas detection. Besides it, most of these materials have drawback of lack of selectivity at room temperature [2]. On the other hand, organic materials like phthalocyanines have shown their potential as room temperature gas sensors and it has also been demonstrated that bending stress significantly improved the NH_3 sensing characteristics of cobalt phthalocyanine films deposited on flexible BOPET substrates [3]. Recently, phthalocyanine based nanostructures have shown their potential as highly sensitive and selective room temperature ppb level Cl_2 sensors [4-6]. Keeping these facts into consideration, we have fabricated gas sensor by depositing solution processed nanowires (NWs) of substituted zinc phthalocyanine (Zn (II) 1,4,8,11,15,18,22,25-octabutoxy-29H,31H-phthalocyanine)) over the flexible polyethylene terephthalate (PET) substrate. We have selected substituted zinc phthalocyanine molecule due to its solubility in organic solvents and low steric hindrance of the side chains which provides an ideal balance between the solubility and intermolecular π-π stacking for the molecule [5]. It has been demonstrated that these NWs were highly selective and sensitive towards Cl_2 with minimum detection as low as 5 ppb. Cl_2 sensing characteristics of NWs sensor showed a drastic improvement under bending conditions.

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Zone Segmentation of a Text Line Printed in Gurmukhi Script Newspaper

Publisher: IEEE Cite This PDF

Rupinder Pal Kaur ; M. K. Jindal ; Munish Kumar All Authors

Abstract:
Newspapers consist of essential information and many efforts have been done for digitization and recognition of newspaper text. Few Gurumukhi script newspaper articles are available in digital form but searching of text is not possible on digital images. So, text processing is required for making searching possible on the text and also indexing of headlines. To recognize any text, segmentation of text into individual line is an important phase. As per characteristics of Gurmukhi script, text line can be divided into three zones namely upper zone, middle zone and lower zone. So, segmentation of an individual line into different zones is a preliminary phase for segmentation of text. Zone division is possible through detection of headline and baseline. Baseline detection is a tedious task because of the uneven presence of on and off pixels in a baseline. In this paper, authors have presented an algorithm for zone segmentation of Gurmukhi script newspaper text based on headline and baseline.

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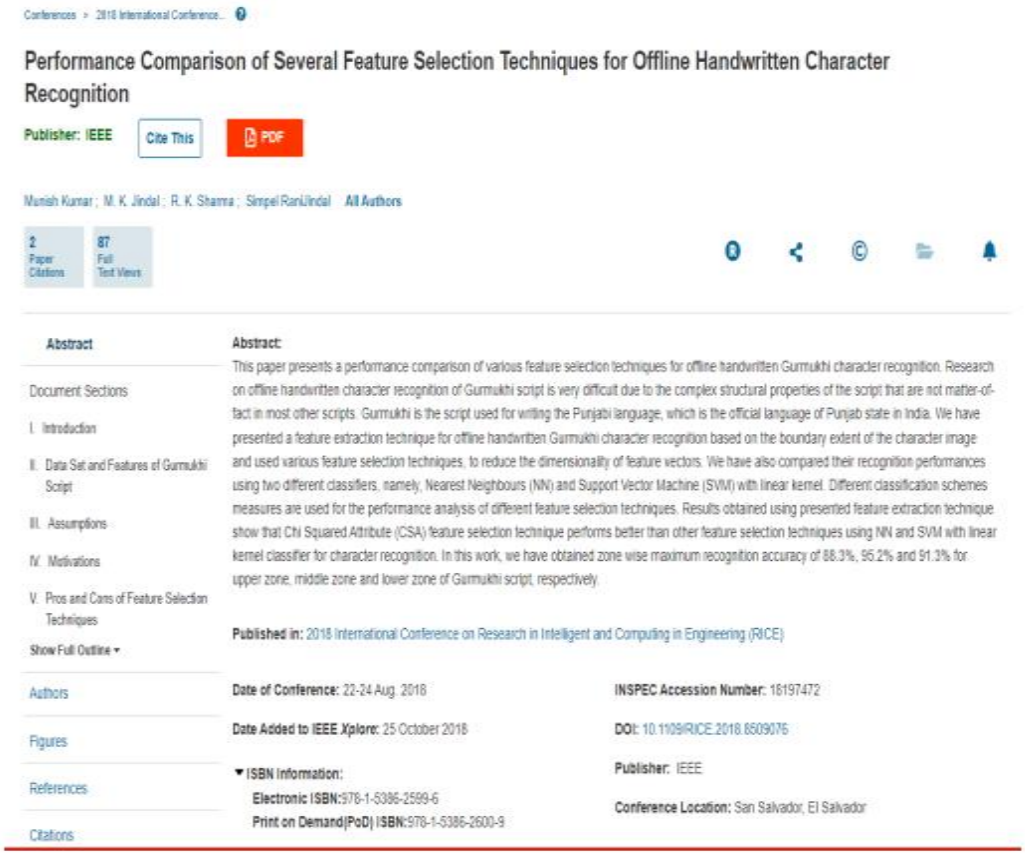
There is a dire need of newspaper digitization so that information can be retrieved from the desk of the client. Each headline is printed only once in a lifetime [1]. So, such information should be digitally stored, but only digital images will not serve the purpose. Text should be recognized through OCR to make the text searchable. Making OCR of newspaper is not an easy task; many problems are raised [2] due to time decay of paper or quality of paper etc. To recognize text of newspaper article, text should be segmented into columns, columns into lines, lines into words and words further into characters. After that, features are extracted from the segmented character to identify its class. Extracted features of each segmented character are feed to the



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Performance Comparison of Several Feature Selection Techniques for Offline Handwritten Character Recognition

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Munish Kumar ; M. K. Jindal ; R. K. Sharma ; Simpel Rani Jindal All Authors

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Abstract

Document Sections

I. Introduction

II. Data Set and Features of Gurmukhi Script

III. Assumptions

IV. Motivations

V. Pros and Cons of Feature Selection Techniques

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This paper presents a performance comparison of various feature selection techniques for offline handwritten Gurmukhi character recognition. Research on offline handwritten character recognition of Gurmukhi script is very difficult due to the complex structural properties of the script that are not matter-of-fact in most other scripts. Gurmukhi is the script used for writing the Punjabi language, which is the official language of Punjab state in India. We have presented a feature extraction technique for offline handwritten Gurmukhi character recognition based on the boundary extent of the character image and used various feature selection techniques, to reduce the dimensionality of feature vectors. We have also compared their recognition performances using two different classifiers, namely, Nearest Neighbours (NN) and Support Vector Machine (SVM) with linear kernel. Different classification schemes measures are used for the performance analysis of different feature selection techniques. Results obtained using presented feature extraction technique show that Chi Squared Attribute (CSA) feature selection technique performs better than other feature selection techniques using NN and SVM with linear kernel classifier for character recognition. In this work, we have obtained zone wise maximum recognition accuracy of 88.3%, 95.2% and 91.3% for upper zone, middle zone and lower zone of Gurmukhi script, respectively.

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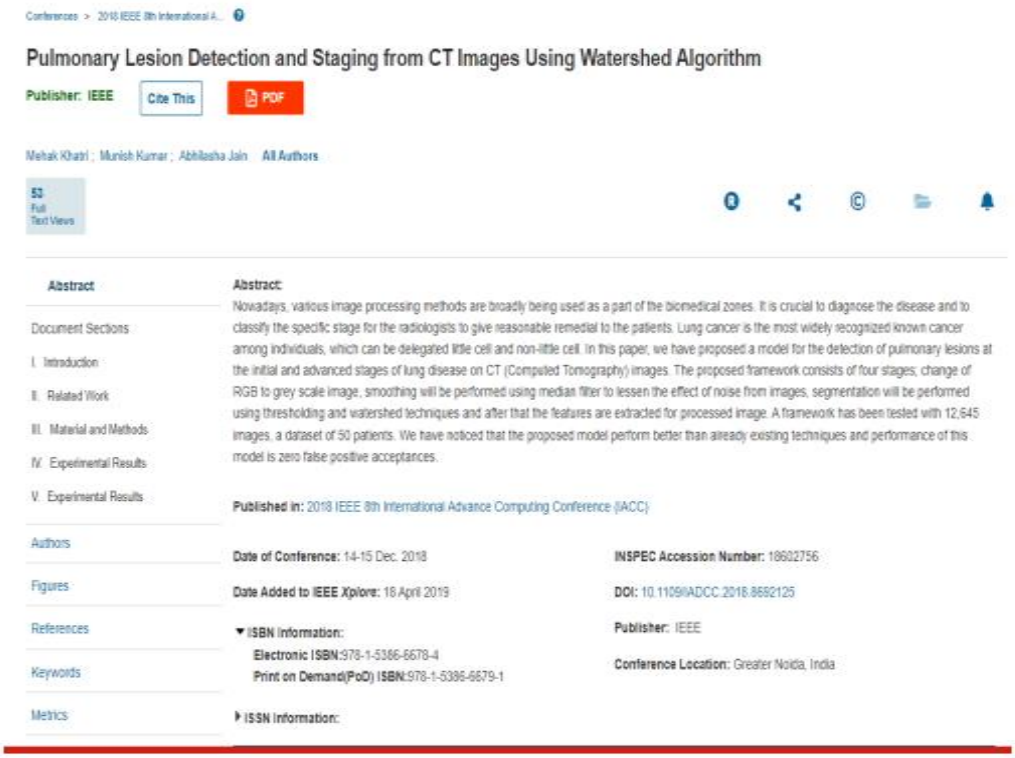

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Pulmonary Lesion Detection and Staging from CT Images Using Watershed Algorithm

Publisher: IEEE | Cite This | PDF

Mehak Khatri ; Munish Kumar ; Abhilasha Jain All Authors

53 Full Text Views

Abstract

Document Sections

I. Introduction

II. Related Work

III. Material and Methods

IV. Experimental Results

V. Experimental Results

Authors

Figures

References

Keywords

Metrics

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OP15: Low Stress Mechanical Properties of Wool- Cotton Union Fabrics

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ICAR-Central Sheep Wool Research Institute, Avikanagar, Rajasthan

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Nine types of woolen Khadi union fabrics were woven on Handloom using wool-cotton blended yarns (10:90; 20:80 and 30:70) as warp and yarns of HP crossbred, JK merino and JK crossbred wool as weft; which are suitable for winter shirting and jacket applications. The influence of wool-cotton blend and type of wool on low stress mechanical properties of fabric is studies in detail. The linear density of warp and weft yarns are 2/32 Nm and 24 Nm and the fabric sett was 46 EPI X 36 PPI.

The low stress mechanical properties of union fabrics were determined using SIRO-FAST. Fabrics made from HP crossbred and JK merino wool show that weft extensibility are higher than warp extensibility at different loads viz. 5, 20,100 g/cm. The WC20HPC & WC30HPC and WC20JKM & WC30JKM union fabrics had lower extensibility than WC10HPC and WC10JKM fabrics, respectively. However, among JK crossbred union fabric, WC10JKC fabric shows higher extensibility than WC20JKC and WC30JKC fabrics. The WC20HPC

Zinc Phthalocyanine Nanowires based Flexible Sensor For Room Temperature Cl_2 Detection

Pooja Devi[1*], Rajan Saini[2], Rajinder Singh[3], A. Mahajan[3], R.K.Bedi[3], D.K. Aswal[4] and A.K. Debnath[5]

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Abstract. We have fabricated highly sensitive and Cl_2 selective flexible sensor by depositing solution processed zinc phthalocyanine nanowires onto the flexible PET substrate and studied its Cl_2 sensing characteristics in Cl_2 concentration range 5-1500 ppb. The flexible sensor has a minimum detection limit as low as 5 ppb of Cl_2 and response as high as 550% within 10 seconds. Interestingly, the sensor exhibited enhanced and faster response kinetics under bending conditions. The gas sensing mechanism of sensor has been discussed on the basis of XPS and Raman spectroscopic studies which revealed that zinc ions were the preferred sites for Cl_2 interactions.

INTRODUCTION

Flexible gas sensors have shown their great potential for environmental monitoring in the recent years due to their characteristics like flexibility, softness, space saving and lightweightness etc. There have been an increasing number of reports on organic as well as inorganic films deposited on flexible substrates for their applications in chemical sensors. Most of the flexible sensors reported in literature are based upon semiconducting oxides, inorganic materials and their composites [1]. However, they generally require high operational temperature which limits their application for room temperature gas detection. Besides it, most of these materials have drawback of lack of selectivity at room temperature [2]. On the other hand, organic materials like phthalocyanines have shown their potential as room temperature gas sensors and it has also been demonstrated that bending stress significantly improved the NH_3 sensing characteristics of cobalt phthalocyanine films deposited on flexible BOPET substrates [3]. Recently, phthalocyanine based nanostructures have shown their potential as highly sensitive and selective room temperature ppb level Cl_2 sensors [4-6]. Keeping these facts into consideration, we have fabricated gas sensor by depositing solution processed nanowires (NWs) of substituted zinc phthalocyanine (Zn (II) 1,4,8,11,15,18,22,25-octabutoxy-29H,31H-phthalocyanine)) over the flexible polyethylene terephthalate (PET) substrate. We have selected substituted zinc phthalocyanine molecule due to its solubility in organic solvents and low steric hindrance of the side chains which provides an ideal balance between the solubility and intermolecular π-π stacking for the molecule [5]. It has been demonstrated that these NWs were highly selective and sensitive towards Cl_2 with minimum detection as low as 5 ppb. Cl_2 sensing characteristics of NWs sensor showed a drastic improvement under bending conditions.

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Pulmonary Lesion Detection and Staging from CT Images Using Watershed Algorithm

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***Abstract*— Nowadays, various image processing methods are broadly being used as a part of the biomedical zones. It is crucial to diagnose the disease and to classify the specific stage for the radiologists to give reasonable remedial to the patients. Lung cancer is the most widely recognized known cancer among individuals, which can be delegated little cell and non-little cell. In this paper, we have proposed a model for the detection of pulmonary lesions at the initial and advanced stages of lung disease on CT (Computed Tomography) images. The proposed framework consists of four stages; change of RGB to grey scale image, smoothing will be performed using median filter to lessen the effect of noise from images, segmentation will be performed using thresholding and watershed techniques and after that the features are extracted for processed image. A framework has been tested with 12,645 images, a dataset of 50 patients. We have noticed that the proposed model perform better than already existing techniques and performance of this model is zero false positive acceptances.**

Keywords- Cell; Computed Tomography; Image Enhancement; Lung; Segmentation.

I. INTRODUCTION

Lung cancer is a deadly and most normal leading reason for the cause of deaths around the world. It might create in light of hereditary inclination, abnormal gene mutation which builds the patient's vulnerabilities to cancer-causing stimuli, for example, cigarette smoking, radon gas or different cancer-causing agents. Out of which smoking is the key guideline to contaminate the lungs. There were around 1.69 billion deaths brought about because of lung disease, as indicated by the World Health Organization (WHO). The American Cancer Society (ACS) has evaluated the events of lung disease for 2017 in the United States as; near about 222,500 new cases, out of which 116,990 will be for men and 105,510 will be for women. What's more, near about 155,870 deaths from lung growth, out of which 84,590 will be in men and 71,280 will be for women [1]. Lung carcinoma another name for lung cancer is characterized among little cell and non-little cell. Non-Small Cell Lung Cancer (NSCLC) can be recognized with the proposed model by scanning CT images. There are different frameworks accessible to recognize the infected nodule inside the lung zone, yet likewise we have attempted to accomplish the suitable phase of cancer by using different feature extraction techniques. The proposed model consists of pre-preparing, segmentation, feature extraction and classification of risk stage. The proposed framework is presented by using different image processing techniques. Image processing in the field of medical science is formally known as medical imaging. Various techniques of image processing are being used with medical sciences as to detect and examine the foundation of the infection or issue of the patients. Cancer is a terrible disease which is crucial to detect in early stages, so that specialists or experts to manage the patients and analyze the disease timely. Image processing is also called as imaging science is the handling of images by using a few strategies, operations and methods. There are different operations can be executed as sharpening, image smoothing, image enhancement, image segmentation and so forth. In the planned framework the CT scanned image is the input for the model, the picture is then pre-processed, segmentation is performed after pre-preparing, Feature are extracted by using distinct properties and by diagnosing these properties, classification of stages is assessed. The public dataset has been used for training the model which is obtained from public lung imaging library. Database contains a number of CT scan images that highlight a hefty portion of the key issues in measuring infected nodules or clusters in the lung. The model has the functionality to upload image for detection. The proposed framework has been tested with public dataset provided by VIA and I-ELCAP. It comprises of images of 50 patients caught in single relax.

II. RELATED WORK

Penedo et al. [2] have presented an automatic CAD system for radiographic images of the thorax using artificial neural network based approach. The proposed system is intended for detecting nodules in the early or initial stages. The curvature peak space has been exhibited for order of different anatomical structures. Werghi et al. [3] have proposed techniques for sputum cell detection in their initial stages of lung disease. The detection has been proposed by using Bayesian classification, by using thresholding approach and histograms. By observing colour quantization in bigger histograms, the cell detection is performed. The mean shift technique and k-mean clustering is used for the segmentation of sputum cell. Taher et al. [4] have presented a CAD system for early lung cancer detection based on analysis of sputum colour images. The artificial neural network and support vector machine classification techniques have been used for training and testing the system. Different parameters are used for performance analysis such as sensitivity, precision, specificity and accuracy. The ROC (receiver operating characteristic) curve has been used for the assessment purpose. A set of different features like nucleus to cytoplasm ratio, curvature, eigenvectors ratio and density of nucleus region were extracted from nucleus region. 97% high accuracy was evaluated by SVM over ANN technique.

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Performance Comparison of Several Feature Selection Techniques for Offline Handwritten Character Recognition

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***Abstract*— This paper presents a performance comparison of various feature selection techniques for offline handwritten Gurmukhi character recognition. Research on offline handwritten character recognition of Gurmukhi script is very difficult due to the complex structural properties of the script that are not matter-of-fact in most other scripts. Gurmukhi is the script used for writing the Punjabi language, which is the official language of Punjab state in India. We have presented a feature extraction technique for offline handwritten Gurmukhi character recognition based on the boundary extent of the character image and used various feature selection techniques, to reduce the dimensionality of feature vectors. We have also compared their recognition performances using two different classifiers, namely, Nearest Neighbours (NN) and Support Vector Machine (SVM) with linear kernel. Different classification schemes measures are used for the performance analysis of different feature selection techniques. Results obtained using presented feature extraction technique show that Chi Squared Attribute (CSA) feature selection technique performs better than other feature selection techniques using NN and SVM with linear kernel classifier for character recognition. In this work, we have obtained zone wise maximum recognition accuracy of 88.3%, 95.2% and 91.3% for upper zone, middle zone and lower zone of Gurmukhi script, respectively.**

Keywords- Handwritten character recognition; Feature extraction; Feature selection, Classification; NN; SVM.

I. Introduction

Offline Handwritten Character Recognition usually abbreviated as Offline HCR is one of the oldest methods in the history of document analysis system and pattern recognition using computers. As compared to non-Indian scripts, research on optical character recognition of handwritten Indian scripts has not achieved that perfection yet. A few attempts have been made for the recognition of Indian scripts, *i.e.*, Bangla, Devanagari, Oriya *etc*. Most of the published work on optical character recognition of Indian scripts deals with printed characters, whereas a few articles deal with the handwritten character recognition problem. For example, online handwritten Devanagari character recognition system has been proposed by Joshi *et el*. [1]. They have proposed structural features based algorithm for online handwriting recognition. Wang *et al*. [2] have presented a technique for recognition of Roman alphabets and numerals. They achieved a recognition accuracy of about 86.0%. Pal *et al*. [3] have set into motion, a system for offline handwritten Devanagari character recognition. They have achieved a recognition accuracy of 94.2% with the five-fold cross validation test. Bhattacharya *et al*. [4] have proposed an approach for online handwritten Bangla character recognition. They presented a solution for a 50-class recognition problem and achieved an accuracy of 92.9% and 82.6% for training and testing dataset, respectively. Sundaram and Ramakrishnan [5] have presented a technique based on Two Dimensional Principal Component Analysis (2D-PCA) for online handwritten Tamil character recognition. They achieved a recognition accuracy of 81.1% for Tamil characters using 2D-PCA. A comparative study of handwritten Devanagari character recognition has been presented by Pal *et al*. [6]. Bhowmik *et al*. [7] have presented a SVM based hierarchical classification scheme for recognition of handwritten Bangla characters. They have achieved a recognition of 71.4%, 74.6% and 79.5% with MLP, RBF and the SVM classifiers, respectively. Zhu *et al*. [8] have described a robust model for online handwritten Japanese text recognition. They obtained a recognition accuracy of 92.8% using 35,686 samples. Few efforts have been done for recognition of Gurmukhi script documents. For example, Lehal and Singh [9] have presented a printed Gurmukhi script recognition system. They have achieved a recognition accuracy of 91.6%. Kumar *et al*. [10] have presented a novel feature extraction technique for offline handwritten Gurmukhi character recognition. Kumar *et al*. [11] have also presented a novel hierarchical technique for offline handwritten Gurmukhi character recognition. The work carried out in this paper focuses on the problem of zone wise offline handwritten character recognition for Gurmukhi script and compare the performance of various feature selection techniques for reducing the training time of the model.

II. Data Set and Features of Gurmukhi Script

Gurmukhi is the script used for writing the Punjabi language which is an official language of Punjab state in India. In Gurmukhi script, there is no case sensitivity and the writing style of Gurmukhi script is from top to bottom and left to right. Gurmukhi script has three vowel bearers, thirty-two consonants, six additional consonants, nine vowel modifiers, three auxiliary signs and three half characters. A Gurmukhi word can be divided

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Keywords-Gurumukhi script; newspaper text; upper zone; middle zone; lower zone; baseline; projection profiles.

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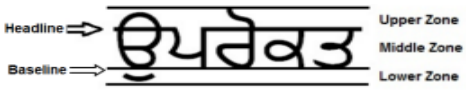

Fig. 1. Zones of Gurmukhi text

So, after segmentation of text into individual lines, a line should be segmented into all three zones before word segmentation for proper recognition. To find baseline is a tedious task because the density of pixels varies due to variant shape of characters. Few characters like a, r, t, h, d, f etc. give higher density as compared to the characters which touch from side line or conjunction lines like p, k, j etc. but without finding baseline we cannot segment middle zone and lower zone. In this paper, authors have presented a technique to find the headline and baseline to segment a line into three different zones.

II. RELATED WORK

Most of the Indian scripts consist of upper zone, middle zone and lower zone. Some scripts are without headline like Gujarati, Kannada, Tamil scripts but most of these scripts have diacritics in the lower zone. So, baseline detection is must in these scripts for segmentation of the lower zone. In literature, many techniques are proposed for segmentation of a text line into three different zones. Strip height method for line segmentation is used by Jindal *et al.* [3]. If height of the strip is less than half of average line height then denote it as the upper zone of the text line. For lower zone continuous vertical projection is used. Authors have counted first line after headline with a minimum pixel density. Kumar *et al.* [4] have proposed a solution for segmentation of handwritten Gurumukhi script document into text lines by using strip based projection profile method. They achieved line segmentation accuracy of 93.7%

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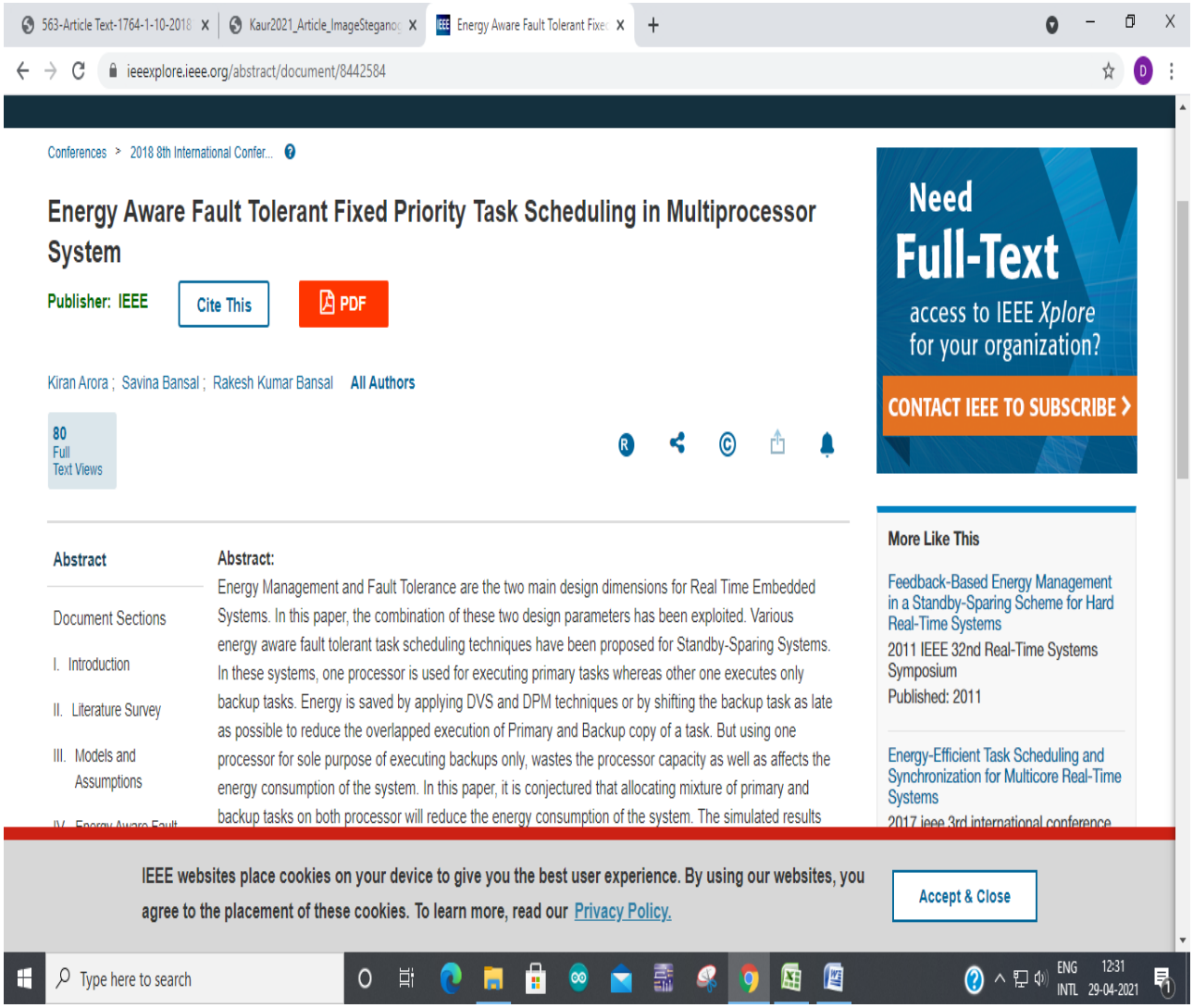
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Abstract
Document Sections
I. Introduction
II. Literature Survey
III. Models and Assumptions
Abstract:
Energy Management and Fault Tolerance are the two main design dimensions for Real Time Embedded Systems. In this paper, the combination of these two design parameters has been exploited. Various energy aware fault tolerant task scheduling techniques have been proposed for Standby-Sparing Systems. In these systems, one processor is used for executing primary tasks whereas other one executes only backup tasks. Energy is saved by applying DVS and DPM techniques or by shifting the backup task as late as possible to reduce the overlapped execution of Primary and Backup copy of a task. But using one processor for sole purpose of executing backups only, wastes the processor capacity as well as affects the energy consumption of the system. In this paper, it is conjectured that allocating mixture of primary and backup tasks on both processor will reduce the energy consumption of the system. The simulated results
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DOI: 10.1109/ICPEICES.2018.8897484 • Corpus ID: 208039065

Design and Analysis of Renewable Energy Based Hybrid Model for RemoteApplications

P. Anand, A. H. Quadri, S. K. Bath, M. Rizwan, Narendra Kumar less • Published 1 October 2018 • Engineering •
2018 2nd IEEE International Conference on Power Electronics, Intelligent Control and Energy Systems (ICPEICES)

India got independence in 1947, but after more than seven decades many of the villages are not either fully electrified or not connected with grid supply. Additionally, there are many rural households in the country still not have access to electricity. Further, In order to meet this challenge and fulfill the Government of India's mission "Power to All" by 2019, it is necessary to generate the electrical power by harnessing locally available green energy resources (GES).In the present study... Expand

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Writer Identification System for Handwritten Gurmukhi Characters: Study of Different Feature-Classifier Combinations

Proceedings of International Conference on Computational Intelligence and Data Engineering pp 125-131 | Cite as

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Conference paper
First Online: 21 December 2017

Part of the Lecture Notes on Data Engineering and Communications Technologies book series (LNDECT, volume 9)

Abstract

In this paper, we are exploring various features and classifiers for writer identification in light of Gurmukhi text handwriting. The identification of the writers based on a piece of handwriting is a challenging task for pattern recognition. The writer identification framework proposed in this paper includes diverse stages like image preprocessing, feature extraction, training, and classification. The framework first prepares a skeleton of the character so that meaningful data about the handwriting of writers can be extracted. The feature extraction stage incorporates various plans, namely, zoning, diagonal, transition, intersection and open end points, centroid, the horizontal peak extent, the vertical peak extent, parabola curve fitting, and power curve fitting based features. In order to assess the prominence of these features, we have used four classification techniques, namely, Naive Bayes, Decision Tree, Random Forest and AdaBoostM1. For experimental results, we have collected 49,000 samples from 70 different writers. In this work, maximum accuracy of 81.75% has been obtained with centroid features and AdaBoostM1 classifier.

Keywords

Feature extraction Classification Naive bayes Decision tree Random forest AdaBoostM1

Use of Waste Ceramic Tile Aggregates as an Alternative Material of Coarse Aggregates in Cement Concrete

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***Abstract* - Now a days, Climate change is major international issue. It is the time when governments and consumers have to respond through more environment friendly products and policies. Demand of construction material is increasing day by day and due to which degradation of environment occurs. It is a prime time to explore alternative sustainable construction material from industrial as well as domestic waste. The utilization of waste materials such as slag, fly ash, glass, plastic etc. in concrete manufacturing is significant due to its engineering, environmental, ecological and economic benefits. Thus to achieve the goal of sustainable construction utilization of waste material in concrete is very much helpful. So, this study intends to use of waste ceramic tile aggregates as an alternative material of coarse aggregates in concrete production. In this study, reports are prepared on the basis of performance of three different concrete mixes having different ratio of waste tile aggregates as an alternative material of coarse aggregates. Tests for compressive strength of specimen were carried out at different ages of concrete. From different test results, we concluded that in M-20 and M-25 mixes up to 20% replacement of normal 20 mm coarse aggregate with waste ceramic tile aggregates, there is no significant effect on compressive strength of concrete except M-30 mix. But beyond 20% replacement, compressive strength of cubes started decreasing gradually with increase in the ratio of waste ceramic tile aggregates in concrete.**

Keywords: Environment friendly, compressive strength, waste ceramic tile aggregates

I. INTRODUCTION

In concrete production, a large amount of natural aggregates, water and sand are being consumed. Consequently to minimize the use of natural aggregates researchers have concentrated on the use of various waste materials as alternatives in construction industry, especially in concrete construction. One of the prime research interests is utilization of waste material like slag, fly ash, plastics etc. in concrete construction to achieve the goal of sustainable development (construction). Aggregates consist of 70% to 75% of volume of concrete. So reduce the consumption of natural aggregates, waste ceramic tile or broken tiles as coarse aggregates can be a new scientific sobriety in the field of sustainable concrete. A huge amount of tiles get broken in the tile industries and construction projects. The residual and unused wastes are disposed off into the environment without any commercial return.

Large amount of money is spent for their disposal as well as environmental pollution occurs. Addition of waste material in concrete reduces the cost of construction and more or less maintains the properties of concrete. When we add waste material properly processed, it is effective as construction material and meet the design specifications.

The study focuses on producing concrete of acceptable strength with ceramic tile waste as an alternative material for coarse aggregates and determining the mix ratio of coarse aggregates to achieve the required strength.

II. MAIN OBJECTIVE OF STUDY

- Utilization of waste material properly to provide safeguard to environment
- To strength of concrete by use of waste ceramic tiles as an alternative material of coarse aggregate
- To reduce the waste from the environment
- To find an alternative of aggregates to achieve the sustainable development.
- To reduce the overall environmental effects of concrete production using waste tiles material as partial replacement.

III. LITERATURE REVIEW

Marcio performed experiments on water absorption, modulus of elasticity and compressed stress on the concrete which is made up of ceramic tile aggregates. In concrete casting crushed ceramic blocks were used as coarse aggregates. For 0 to 100 percent replacement specific density of aggregates changes from 2630 to 2310 kg/m^3.When replacement upto 20 percent compression resistance and young's modulus of elasticity was same as the conventional concrete.

Senthamarai concluded that based on strength of ceramic waste aggregates, it can be used effectively as a coarse aggregates in concrete. The crushing value, impact value, abrasion value for natural coarse aggregates 24, 17 and 20

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2016 Fourth International Conference on Parallel, Distributed and Grid Computing (PDGC)

Object Detection using Multiple Shape-Based Features

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***Abstract*- The study proposed a method of object recognition using different shape-based geometrical features and partitioning strategies of input images.The system extracted meaningful features of an object. Several features such as sub-window, diagonal, non-connected, connected, and chord features etc are extracted for recognition. These features help in detecting the shape of an object further which helps in recognizing the object. The study also adopts different five partitioning strategies for sampling the input images. The image classification is performed using Linear-SVM and *k*-NN classifiers. The study used 1020 images (total 51 objects contain 20 images of each object) for the purpose of training and testing. The uses of different features and partitioning strategies, the study could achieved a recognition accuracy of 81.0% and 84.0% using Linear-SVM and *k*-NN classifiers respectively for object recognition using proposed technique.**

Keywords: object; feature extraction; chord; connected; non-connected; SVM.

I. INTRODUCTION

Object detection and recognition is a part of image processing and becomes a major research area in the field of image processing and pattern recognition. Object detection is to find an object with their geometrical shape. Object recognition system includes of activities, namely, digitization, pre-processing (removing noise), segmentation (number of objects in an image), feature extraction, classification, recognition and interpretation. The block diagram of object detection is depicted in figure 1.

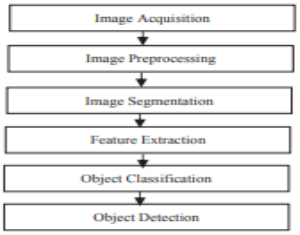

Figure 1: Block diagram of object detection system

II. RELATED WORK

Object detection system typically includes Hough transformation [1], pyramid matching [3], hierarchical shape representations [7-9], shape contexts [2, 10], pictorial structures [4], codebook approaches [5, 6] and zoning based features [11]. In shape context each point is associated with descriptor and remaining points are described relative to the shape [10]. Partition the edges of the image for object model into clusters of adjacent contour segments and for matching these objects, they detect paths through the contour segments which are similar to the outline of the modeled categories [12]. A shape codebook is used for the purpose. Normally a shape codebook has two components: (a) a shape codeword and (b) a group of associated vectors that specify the object. Shape code words can be easily extracted from possible objects. The correstponding vectors store the geometrical relationships between the shape code words, which specify the characteristics of a particular object category.

R. Girshick et al. [13] proposes a simple and scalable detection algorithm which improves mean average precision. They combine two key insights i.e. one can apply high-capacity convolutional neural networks (CNNs) to bottom-up region proposals. This is used to localize and segmented objects. As the study combine region proposals with CNNs, the method is call R-CNN that is Regions with CNN features. M. M. Cheng et al. [14] introduces a regional contrast based salient object detection algorithm, which simultaneously evaluates global contrast differences and spatial weighted coherence scores. A. Nabout [15] uses wavelet descriptors and includes periodical angle function. Joao Nunes et al. [16] studies on solidity, axis ratio, area ratio, perimeter area ratio, Eccentricity, Extent, Invariant moment functions for image retrieval. Toshev et al. [17] introduced a novel shape descriptor, called chordiogram, and a shape-based segmentation and recognition approach, called Boundary Structure Segmentation (BoSS). Chordiogram is based on structural relationships within the boundary edgesof an object, whereas the perceptual saliency cues as coherent regions distinctive from the background. Y. Zhong [18] defines a new 3D shape descriptor called Intrinsic Shape Signature (ISS) to describe a local or semi-local region of a point cloud. An intrinsic shape mark proposes a view independent depiction of the 3D shape to match shape

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Design and Optimization of RES based Standalone Hybrid System for Remote Applications

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***Abstract*— In the developing countries like India there are around 20% villages are not electrified yet. However, there is a lot of opportunity to harness the renewable energy sources at these locations. In this study a remote area of Haryana, India has been considered to fulfill the demand of a village using renewable energy sources. The proposed hybrid system consisting of solar photovoltaic, biomass, biogas and battery storage system is developed and presented. In addition, techno-economic analysis with greenhouse gas analysis has also been presented. The developed system has least net present cost, cost of energy with negligible green house gas emission.**

Keywords—solar photovoltaic; biomass; biogas; HOMER; green house gas emission

I. INTRODUCTION

In order to achieve the goals of United Nations Sustainable Development of Sustainable Energy for All and diminishing greenhouse gas (GHG) emissions to alleviate climate change, the maximum use of renewable energy based power generation is utmost important [1]. These renewable energy sources (RES) include wind energy, solar energy, small hydro and biomass etc. In India, the above renewable energy resources are available abundantly. However, wind energy and small hydro are mainly site dependent and solar energy and biomass is easily available at most of the places. India is seventh largest country in terms of total land mass area which gives a lot of opportunities in harnessing the locally available renewable energy potential. Still around 20% of the total population has no access to electricity [2]. Total installed capacity in India is 308834.28MW as on 31.09.2016 [3] in which fossil fuels contributes 69% whereas renewable energy contributes about 15%. Therefore, there is urgent need of tapping locally available renewable energy sources for utilizing in power generation and achieving the target "electricity to all" [1]. Moreover, Government of India is also promoting it by fixing a target of 175 GW power generations from different renewable energy sources by 2022 [4]. The contribution of various energy sources to the generated power is depicted in Fig. 1. As per the demand and locally available renewable energy sources, hybrid renewable energy system composed of two or more renewable energy sources could be more appropriate solution for electrification of rural areas due to their flexibility in selecting energy sources, reliable, sizing, longer life cycle and economically more feasible in comparison of using single energy system [5]. Investigation and utilization of locally available renewable energy sources is necessary before designing and development of hybrid system. In this direction, a lot of work has been done by various researchers by doing case studies in different location of globe by using several simulation techniques and devised methods [6-25].

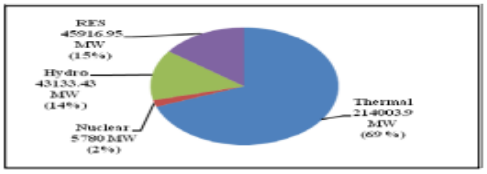

Fig. 1. Contribution of energy sources to the generated power in India

Keeping in view of all above, the aim of this work is to design and optimization of hybrid solar photovoltaic/biomass/biogas system for a rural area of Sonipat district of Haryana state of India. This hybrid system will ensure continuous supply to 424 un-electrified rural households and other future requirements of rural area. HOMER software has been used to select most feasible hybrid system on the basis of least net present cost, cost of energy and green house gas emission.

II. METHODOLOGY

In this study, a modeling methodology adopted includes identification of site, electrical load assessment, renewable energy sources assessment and optimization method which are described in the following sections

A. Study Area Identification

Khanpur Kalan is a village located in Gohana Tehsil of Sonipat District, Haryana State in India. This village has a 29.15° N, 76.75° E latitude and longitude respectively. As per census 2011, this village has 2014 households with total population of 12544. Presently, this village has 424 un-electrified households and no street lights. The detailed description of the study area is given in Table I.

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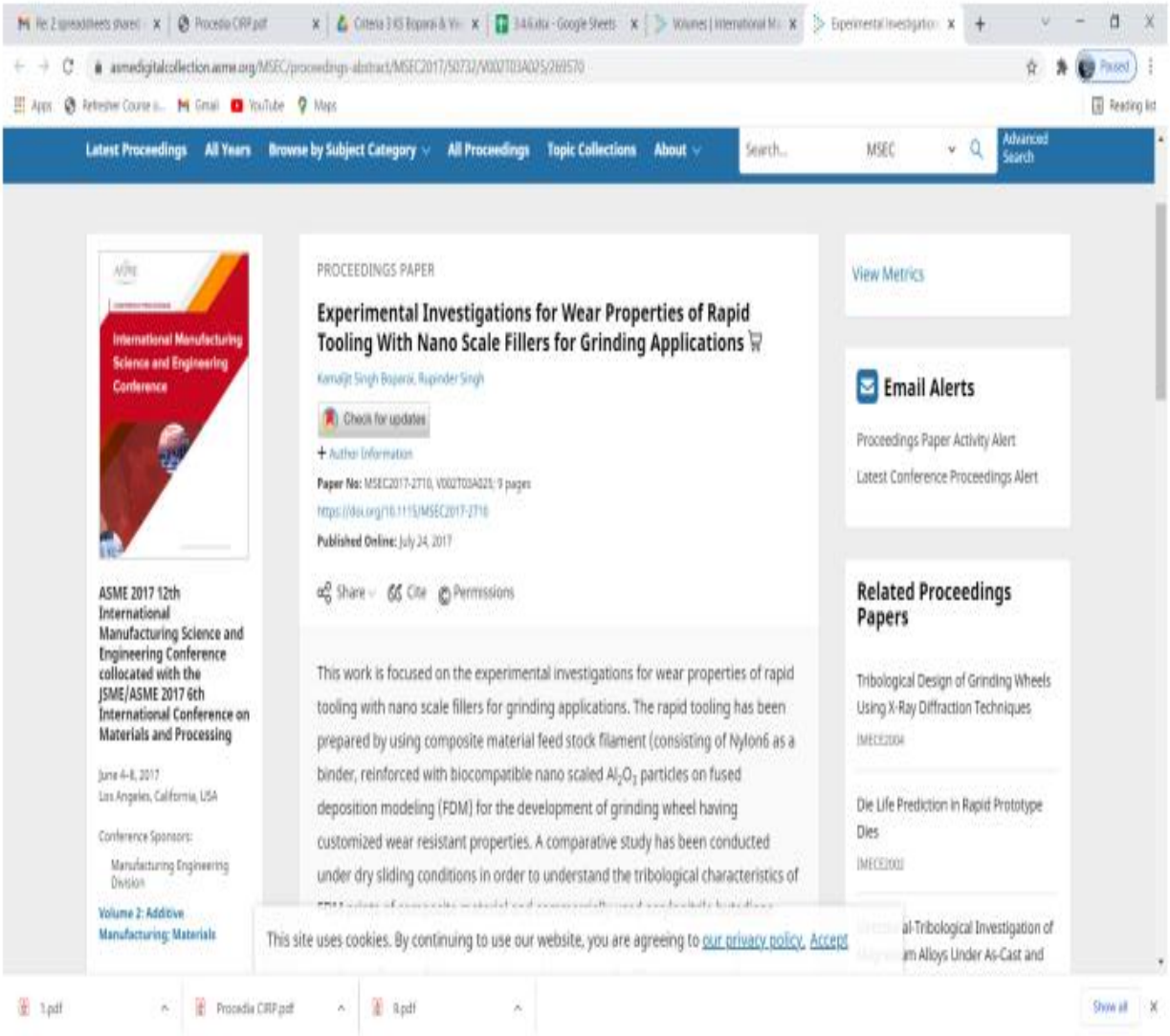
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This work is focused on the experimental investigations for wear properties of rapid tooling with nano scale fillers for grinding applications. The rapid tooling has been prepared by using composite material feed stock filament (consisting of Nylon6 as a binder, reinforced with biocompatible nano scaled Al_2O_3 particles on fused deposition modeling (FDM) for the development of grinding wheel having customized wear resistant properties. A comparative study has been conducted under dry sliding conditions in order to understand the tribological characteristics of
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Keystroke dynamics based user authentication using numeric keypad

Publisher: IEEE Cite This PDF

Baljit Singh Saini ; Navdeep Kaur ; Kamaljit Singh Bhatia All Authors

Abstract:
Keystroke dynamics is the study to identify/authenticate a person based on his/her typing rhythms, which are inferred from keystroke events like key-press and key-release. A lot of research work has been done in this field where the researchers have used either only alphabetic or alphanumeric or only numeric inputs. In this paper we address the question - What is the best possible numeric input for authentication using keystroke dynamics. We accomplished this by making the users enter four different numbers. Each number consisted of 8-digits. Out of these four numbers two were random numbers while the other two were formed using digits which had some pattern to them. Random Forest and Naive Bayes were used as classifiers. The results showed that using Random Forest classifier yielded best results when a random number is taken as input. The study also proved that a combination of hold time and latency as features yielded improved results. We achieved an average false acceptance rate of 2.7% and false rejection rate of 35.9%.

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I. Introduction

In modern times all the information is stored and shared using computers or mobile devices. With increased use of mobile devices the risk of theft of sensitive data has also increased. To protect data we use password but these passwords can be easily cracked by the hackers [2]. For better security, measures like finger scan, retina scan etc. are used which are a form of physical biometric. But these measures are very costly to implement. Keystroke dynamics is a behavioural biometric method which identifies the user on the basis of his/her typing pattern [1]. The characteristics of a keyboard has cognitive qualities [6] and hence can be used very effectively for identification purposes. This biometric system works by extracting features from the collected data. Then a classifier is used to build up the user profile. The same process is repeated while testing and if the profile

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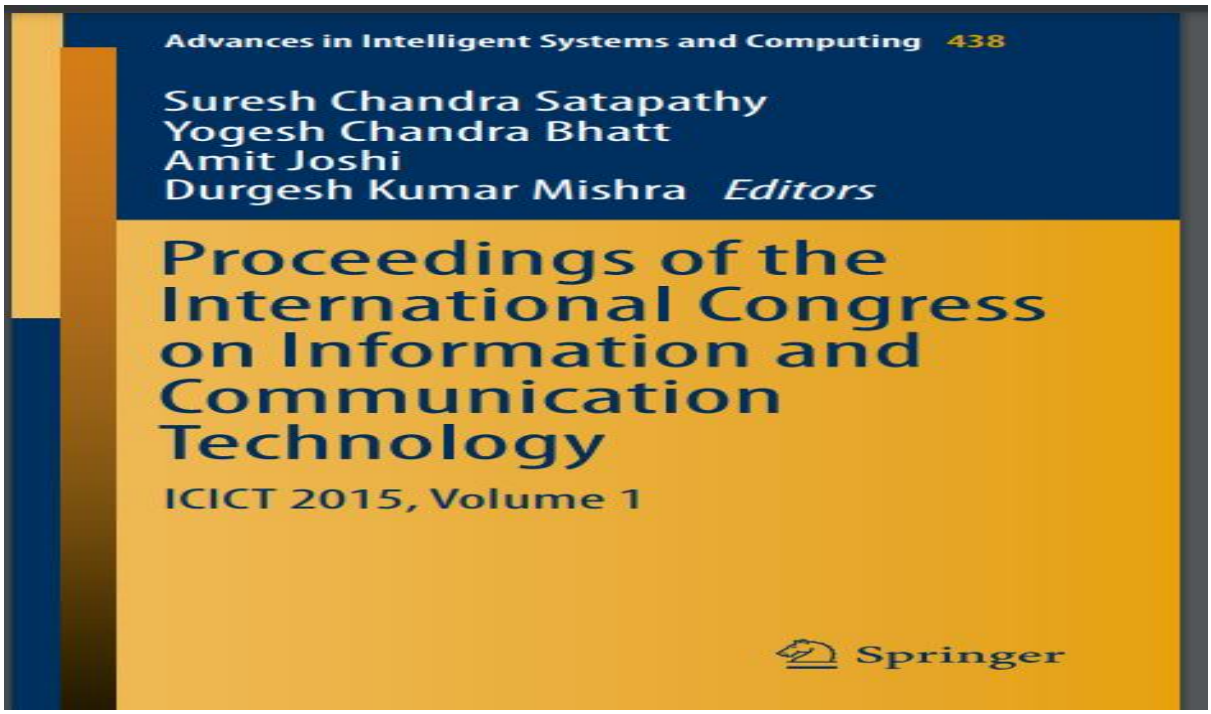

WASTE WATER MANAGEMENT AND THE INFRASTRUCTURE REQUIRED

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ABSTRACT

To be at par with the growing water demands, a sustainable use of water resources is required. Majority of the water is consumed to meet the basic human requirements and for carrying out operations such as irrigation. Waste water management is established and improved upon to help tackle the crisis. Since newly introduced, a lot of improvements are to be made in order to make the management more effective. This paper reviews the various aspects in which the waste water can be reused and helps recommend alterations for the waste water management that can be taken into consideration to make effective use of our resources.

KEY WORDS: Water management, sewage treatment plant (STP), management practices.

INTRODUCTION

Only 3% of the total water quantity available is fit for carrying out daily activities. Due to increasing population there is a need to manage this resource judiciously. The exponential growth of demands has led to a limit being set on the wastage that could be allowed. Waste water is classified based on the fact that it is not usable due to the presence of anthropogenic influence. It has various origins which may include waste generated from household or industrial activities, surface runoff and sewer. Waste water management is a term long associated with humans especially in areas suffering with scarcity of rainfall. The term management got associated with it after its wide publicity due to the shortage of clean usable water around the world. Institutions were set up by the governments to regulate the consumption of water and to carry out research so as to help bring back the lost quantity by adopting various methods and programs. As it turns out that the waste water can be used for various other purposes before discarding it thereby increasing the efficiency of the system. The unstable characteristic of waste water due to the various contaminants calls for a need of more advance design and methods for treatment. Around 90% of the wastewater produced globally remains untreated which causes serious harm to life and damage to property and also leads to widespread water pollution. The depleting water resources due to the increase usage by industry and municipal users has forced the farming operations to be performed on waste water. Watershed management helps establish plans, programs and projects in order to help tackle the water scarcity problems within a watershed boundary. Watershed management practices command on water supply, water quality, water rights and the overall planning and utilisation of the watersheds. There can be significant health hazards if the wastewater is not properly treated before being disposed of. Waste water collected from cities contains biological and chemical pollutants, while that from the developing countries contains high levels of organic and inorganic chemicals apart from pathogens from excreta. The World Health Organisation in association with Food and Agriculture Organisation (FAO) and the United Nations Environment Program (UNEP) laid down the guidelines for the safe use of waste water in 2006. Following the awareness generated by various environmental groups, there has been an increase in the research areas regarding the treatment of waste water and to utilise the sludge in various ways economically possible. By practicing proper control on the usage of water for irrigation purposes and making maximum use out of the sewage collected, we can help establish a balance that the nature so loves to maintain.

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MID 5012

Health and Environmental Hazards of E-Waste-A Brief Study

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by day as the electronic and electrical products obsolete in short span of life because of rapid changes in technology. Lack of formal disposal practices and improper product design are adversely affecting human health and environment to unbearable extent. E-waste contains a large number of valuable recyclable materials that can provide lucrative business opportunity. Environmentally sound management practices involving multidisciplinary approach keeping in view the complexity, diversity and uncertainty of waste needs to be adopted to tackle this menace.

Keywords- E-waste, health hazards, environmental impacts, environmentally sound practices.

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MID 5027

Solar Power: A Green Future

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Abstract-With rising energy demands and alarming rate of global warming, many energy sources which were thought to be reliable few decades ago now need to be excluded from the picture. Solar Power which just comprises only 1% of world's energy demand is seen to be a reliable source now for the future. And it is expected to fulfil 16% of world's energy demand by 2050 and considerably cutting down carbon emission and decreasing global warming effect for a green future.
Keywords: CSP, Concentrated Solar Power, PV, Photovoltaic, Linear Fresnel Reflectors, Parabolic Trough, Enclosed Trough, Dish Stirling, Solar Power Tower.

1. Introduction

Solar Power is the conversion of the heat and light energy emitted by sun directly or indirectly into electricity. In direct conversion photovoltaic cells convert the directly falling sunlight on them into electricity, while in indirect conversion large system of lenses/mirrors focuses large area's sunlight to a small beam and thus called Concentrated Solar Power (CSP). Being a renewable source of energy, it won't add to the already rising carbon emissions around the globe and thus helping in reduction of global warming effect in one way. As the source of energy is sun in this case, so there won't be a need to look for another source of energy in near future. Solar Power by the end of 2014 reached capacity of 178 GW around the world which is roughly 1% of the total energy consumption of the world[9]. Meanwhile, Europe and China are leading rest of the world in power generation by this

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MID 5028

MACHINERY POLLUTION: ITS IMPACTS AND REASONS

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ABSTRACT: Man-made (anthropogenic) emissions into the air can be called air pollution, because they alter the chemical composition of the natural atmosphere. The increase in the global concentrations of greenhouse gases CO_2, CH_4, and N_2O, can be called air pollution, even though the concentrations have not found to be toxic for humans and the ecosystem.The pollutants in vehicle emissions are known to damage lung tissue, and can lead to and aggravate respiratory diseases, such as asthma. Motor vehicle pollution also contributes to the formation of acid rain and adds to the greenhouse gases that cause climate change.Centre and state governments should encourage and bring the project of Zero-emission Vehicles.Proper maintenance of car and truck emission control systems not only limits harmful emissions, but also can improve fuel efficiency and vehicle performance extending the life of the vehicle.Development of area/city specific policy by taking into consideration problems on the ground level and availability of the resources will cause implementation of pertinent and feasible measure for control of pollution and will bring consideration improvement as compared to implementation of generalized policy (without taking into consideration local problems and resources available).

Keywords: Anthropogenic, CFCs, VOC, Geogenic, Crankcase Emission, PM, Particulate Matter, PUC, PCV.

1. INTRODUCTION:

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Impact of Climate Change On Water Resource

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Abstract

The growing demand for water has led to depletion of one of the most valuable resources our planet is gifted with. To tackle the needs of the increasing water demands as a result of the rapid urbanization and the exponential growth in pollution levels, we need to come up with a system that takes into consideration the needs of present generation and the future keeping in view the sustainable use of the resource. Global warming has led to an increase in the average global temperature which leads to scarcity of water. Arid and semi-arid regions should be made self-sufficient so as to reduce their dependability solely on precipitation. Various methods have been developed and adopted globally to overcome this shortcoming which otherwise would lead to a catastrophe.Methods such as SAT (Soil aquifer treatment) which utilizes the process of separation and filtration of waste water can solve the problems of lowering ground water level (GWL) has been discussed along with the impacts of climate change that are being currently witnessed.

1. INTRODUCTION

Water is required to sustain life on Earth. Due to the population explosion and the water resources being distributed unequally all across our planet, there is a shortage of water resulting in water stress. Fresh water being a finite source adds to the problem. Water is needed to meet with the growing energy needs. Water being supplied for various irrigation purposes through open channels leads to high evaporation loses thereby making it certain that the water is being used in a highly un-proportional way. In order to have a continuous supply of water various steps have been taken up such as the construction of water reservoirs and depending largely on ground water. Water is available to us as ground water and surface water. Surface water is popularly stored in water reservoirs to cater to the needs of a large population of an urban city. These reservoirs impose a strict quality control so as to reduce the cleansing cost thereby imposing restrictions on the catchment area which leads to outbreaks between the authority and the residents. Ground water reserves are developed as a result of water being able to percolate through the porous rocks and forming a reserve deep within the surface of the earth. These resources are widely used in residences, however recent times has seen a decrease in them due to their slow recharge rate. Adding to the problem is the use of fertilizers and pesticides used by the farmers which tends to seep inside the earth thus polluting the underground water. Also the various other sources of contaminants for ground water reserves are spillage, pipe leakage, dumping of waste beneath the surface of water etc. Traditional sources of water is fast becoming unavailable and cannot be relied on completely for future generations hence research is being carried out to provide other reliable sources of water. Desalination of sea water has gained quite popularity in the recent times since its quantity is way more than sufficient to carry out the daily needs on any basis. The one change that affects the quantity of water resources the most is climate change. The best part, we can have it totally under our control.

CLIMATE CHANGE

Climate change is caused as a result of the greenhouse gases (GHGs) moving up in the atmosphere which allow the sun's radiation to enter through the atmosphere but prevents the escape of heat as a result of which the overall temperature of the earth rises. Emission of GHGs has been increasing alarmingly since the boom of industrial growth in the 90's. A massive 53% increase in the global energy levels by the year 2030 has been projected by the IEA World Energy Outlook. Developing countries participate for the70% of the expected increase. The increase in energy demands will be dealt mostly by the fossil fuels thereby increasing the emissions of the GHGs and hence increasing the temperature of the Earth. As per the new report the global temperature increase is not the same as the one projected in the past. GHG is reported to be unstable and is said to be increasing exponentially. Latest studies have shown the amount GHG present in the atmosphere is 430ppm as compared to the previous study of 280ppm, increasing at a rate of 2.5ppm/year. Even if we stabilize the world GHG level at 550ppm, it is noted that at minimum the Earth's average temperature will have a 63% fair chance of being increased by a declared seriousness limit of 2 degrees.

EFFECTS ON HYDROLOGICAL CYCLE

The surface freshwater reserves are limited. Due to the climate change it is expected that there is going to be an

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MID 5028

MACHINERY POLLUTION: ITS IMPACTS AND REASONS

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ABSTRACT: Man-made (anthropogenic) emissions into the air can be called air pollution, because they alter the chemical composition of the natural atmosphere. The increase in the global concentrations of greenhouse gases CO_2, CH_4, and N_2O, can be called air pollution, even though the concentrations have not found to be toxic for humans and the ecosystem. The pollutants in vehicle emissions are known to damage lung tissue, and can lead to and aggravate respiratory diseases, such as asthma. Motor vehicle pollution also contributes to the formation of acid rain and adds to the greenhouse gases that cause climate change. Centre and state governments should encourage and bring the project of Zero-emission Vehicles. Proper maintenance of car and truck emission control systems not only limits harmful emissions, but also can improve fuel efficiency and vehicle performance extending the life of the vehicle. Development of area/city specific policy by taking into consideration problems on the ground level and availability of the resources will cause implementation of pertinent and feasible measure for control of pollution and will bring consideration improvement as compared to implementation of generalized policy (without taking into consideration local problems and resources available).

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1. INTRODUCTION:

87

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MID 5047

Effect of Biomass Ash on The Behavior of Clayey Soil

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Abstract-The soil is the cheapest construction material available in this universe and the properties and composition of soil change from place to place. It may happen that soil available for construction is not suitable for intended purpose. Replacement of soil strata with a good quality soil is very costly process. There is no other option for an engineer to opt for the improvement of the properties of existing soil with various techniques which are cheaper and effective. One of the best options is to opt for soil stabilization. The ministry of renewable sources is considering the biomass as a replacement of coal in thermal power plants, brick kilns, sugar mills, furnace industries and is setting up a number of biomass based thermal power plants. But these biomass power plants and other sectors will produce ash. The utilization of ash produced in biomass based power plants, will reduce the environment pollution. While considering all as discussed above, the effect of addition of biomass ash has been studied on the parameters like Atterberg's limits, OMC, MDD, CBR and unconfined compressive strength of clayey soil by taking lime as stabilizer. In present study, Biomass ash with clayey soil is being tried for experimental work in various proportions (2% to 12%) and lime as stabilizing agent in a fixed proportion (2%) and it is observed that the optimum results are obtained with the addition of 8% of biomass ash to the soil.

1. Review of Literature

The behavior of clay is most unpredictable because clayey soil has small particles and a very high water retention capacity. It is generally considered as the weak soil. It undergoes a considerable settlement due to its swelling and shrinkage characteristics with the variation of moisture content. This soil is also very weak in other engineering properties like permeability, and compressibility and in shear strength. In chemical stabilization the properties of soil are improved with the addition of various binding additive like lime, cement, fly ash, gypsum, rice husk ash, ash from biomass burning etc. So Biomass is any organic matter like crop, seaweed, leaves, wood and animal wastes which can be used as a source of energy. Probably the biomass is the oldest source of energy because people burn the wood and crop waste for cooking their food. Biomass can also be treated with chemicals, converted by micro organisms, or put under high pressures and temperatures to produce gases, liquids and solids that offer the possibility of replacing petroleum-based fuels.As the fossils fuel resources are limited in nature and expected to exhaust in approx 100 years, the biomass is the best option of this to be used as the source of energy. Due to the fast depletion of natural resource of energy and keeping in view the environmental concerns, all over the world the biomass power generation is becoming attractive over the conventional power plants. Its importance is now being reaffirmed even by developed countries in view of its renewable and environment friendly character. India, the fastest growing economy of the world is also opting for biomass based power generation to meet with its power requirements. In our country also, optimum utilization of biomass resources could not only lead to savings in conventional energy but also result in many indirect benefits. In view of this, the Ministry of Non Conventional Energy Resources has been promoting electricity generation from biomass as a means of full exploitation of its inherent energy value. With the efforts of this ministry, India has become the fifth largest producer of biomass power as per Global Status Report on renewable 2014. In India, the annual generation of biomass materials covering residues

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A Review on security issues on routing protocols in Delay Tolerant networks

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Abstract: **In modern world, Delay Tolerant Network (DTN) has significant role in communications. DTN's are used in various applications like military wars and conflicts, earthquakes, volcanic eruptions, terrorist attacks etc.DTN provides environment where two nodes can only exchange messages when they move into the transmission range of each other due to intermittent Connectivity in the network. Security is main challenge in these types of networks. In this paper we have elaborated various DTN routing protocols and its variants along with security issues.**

1 Introduction

DTN used in various situations like wild life tracking systems, traffic controlling systems, military wars, attacks of terrorist, earthquakes, floods, storms, hurricane, rigorous volcanic eruptions, etc .These types of challenging conditions results unwarranted delays, severe bandwidth limitations, significant node mobility, regular power outages and frequent communication difficulties. Therefore, under such conditions wireless networks connectivity becomes considerably irregular and the existence of simultaneous end-to-end connectivity between any source-destination pair can no longer be assured. So, many researchers are carrying out work in this area by considering these issues.

DTN have properties like High latency, low data rate, disconnection, long queuing delay, restricted longevity, limited resources, irregular Connectivity, Long, Variable Delay, High Error Rates.

Depending on the current conditions of the demanding networks, this paper has discussed the various routing protocols in DTN and their security issues. In section 2 related work of previous ten years has been discussed, in section 3 three types of routing protocols Predicting Good Forwarders, opportunistically forwarding messages and Meeting the destinations by schedule have been described. Then in section 4 security in these routing protocols with various attacks and mechanisms that degrade the performance of a network has been discussed .Section 5


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In this era, Computerized field in digital image processing needs efficient MRI image with less noise and improved contrast of image. The main process examined and look at different Histogram based enhancement techniques. Histogram equalization analyze on the bases of Magnetic resonance imaging (MRI) furthermore calculate the metrics parameter of histogram techniques. Image enhancement is a procedure of changing or adjusting image in order to make it more suitable for certain applications and is used to enhance or improve contrast ratio, brightness of image, remove noise from image and make it easier to identify. Magnetic resonance imaging (MRI) is an astounding medical technology provide more appropriate information regarding Human
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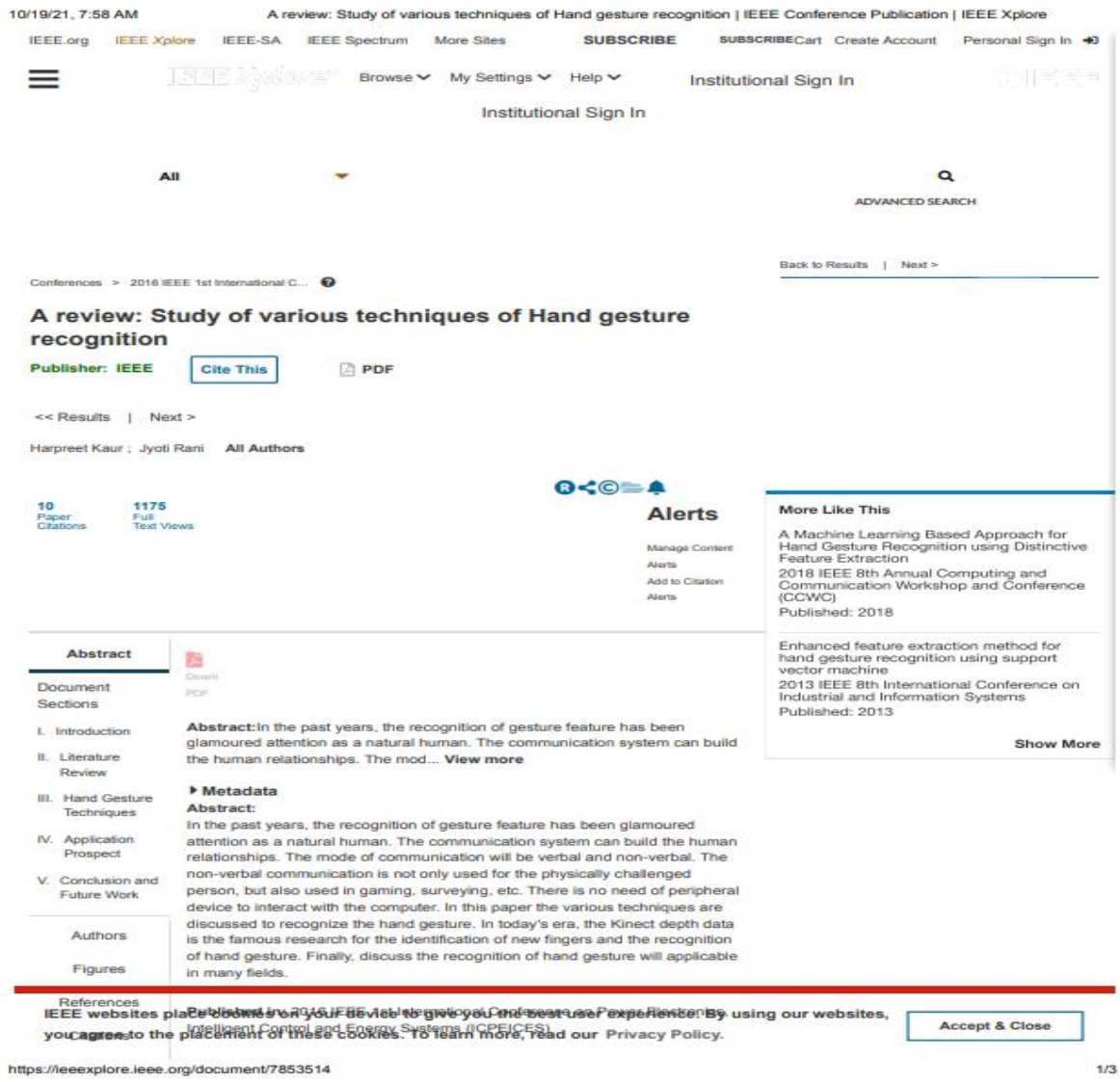
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Abstract:
In the past years, the recognition of gesture feature has been glamoured attention as a natural human. The communication system can build the human relationships. The mode of communication will be verbal and non-verbal. The non-verbal communication is not only used for the physically challenged person, but also used in gaming, surveying, etc. There is no need of peripheral device to interact with the computer. In this paper the various techniques are discussed to recognize the hand gesture. In today's era, the Kinect depth data is the famous research for the identification of new fingers and the recognition of hand gesture. Finally, discuss the recognition of hand gesture will applicable in many fields.
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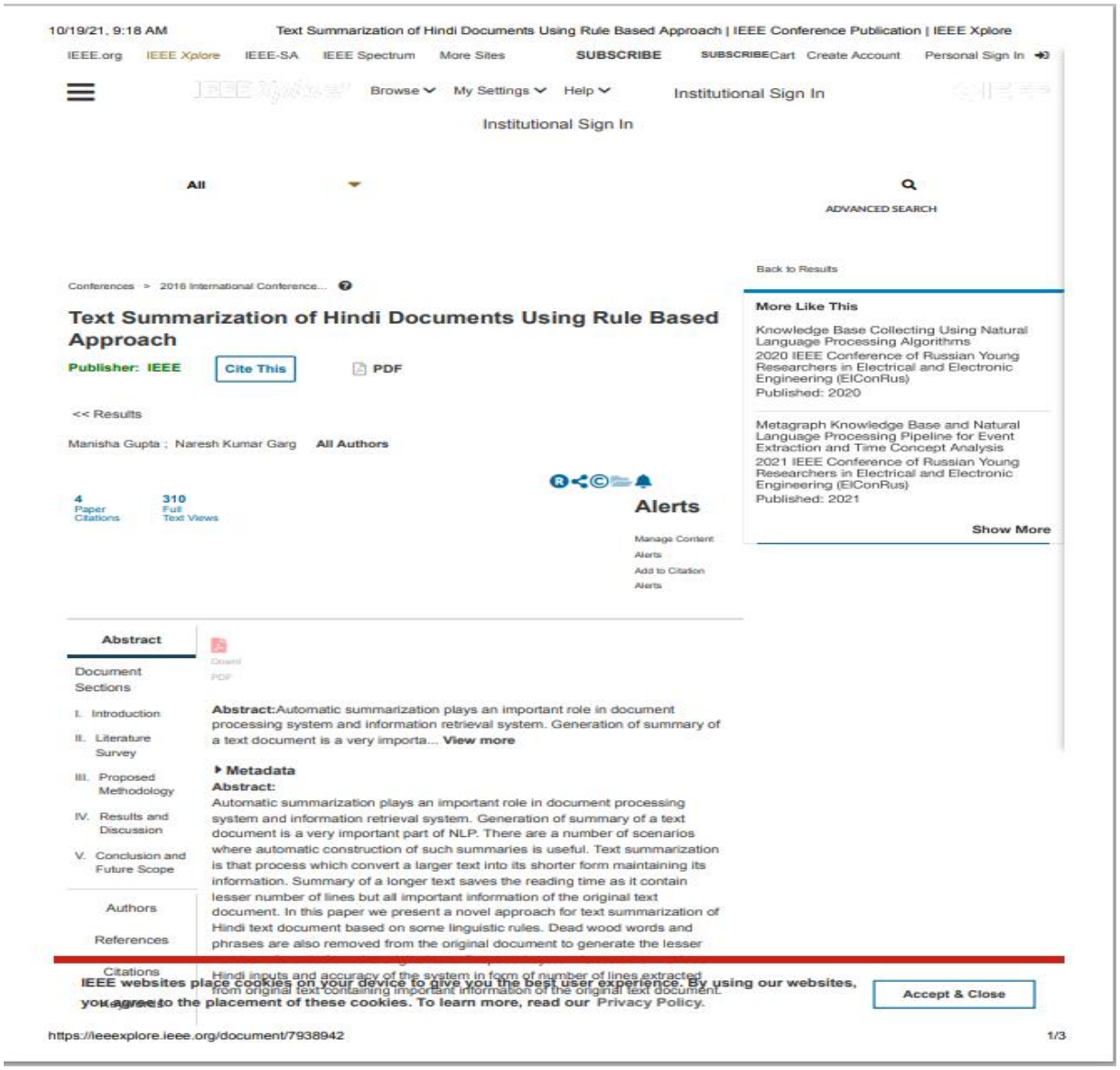
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Automatic summarization plays an important role in document processing system and information retrieval system. Generation of summary of a text document is a very important part of NLP. There are a number of scenarios where automatic construction of such summaries is useful. Text summarization is that process which convert a larger text into its shorter form maintaining its information. Summary of a longer text saves the reading time as it contain lesser number of lines but all important information of the original text document. In this paper we present a novel approach for text summarization of Hindi text document based on some linguistic rules. Dead wood words and phrases are also removed from the original document to generate the lesser
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The image quality assessment techniques are the methods to evaluate the quality of the image matrix. The image quality assessment methods are applied to evaluate the overall quality of the image matrices and indicate the presence of the noise, blur or other dispatternised elements. Using image quality assessment the level of noise, blur and other elements can be studied. The image quality assessment method in the proposed model includes the hybridization of the horizontal and vertical quality assessment along with the diagonal and anti-diagonal quality assessment. Both of the indices play the vital role in the removal of the noise from the input image matrix using the image quality enhancement methods. The image quality is enhanced by using the
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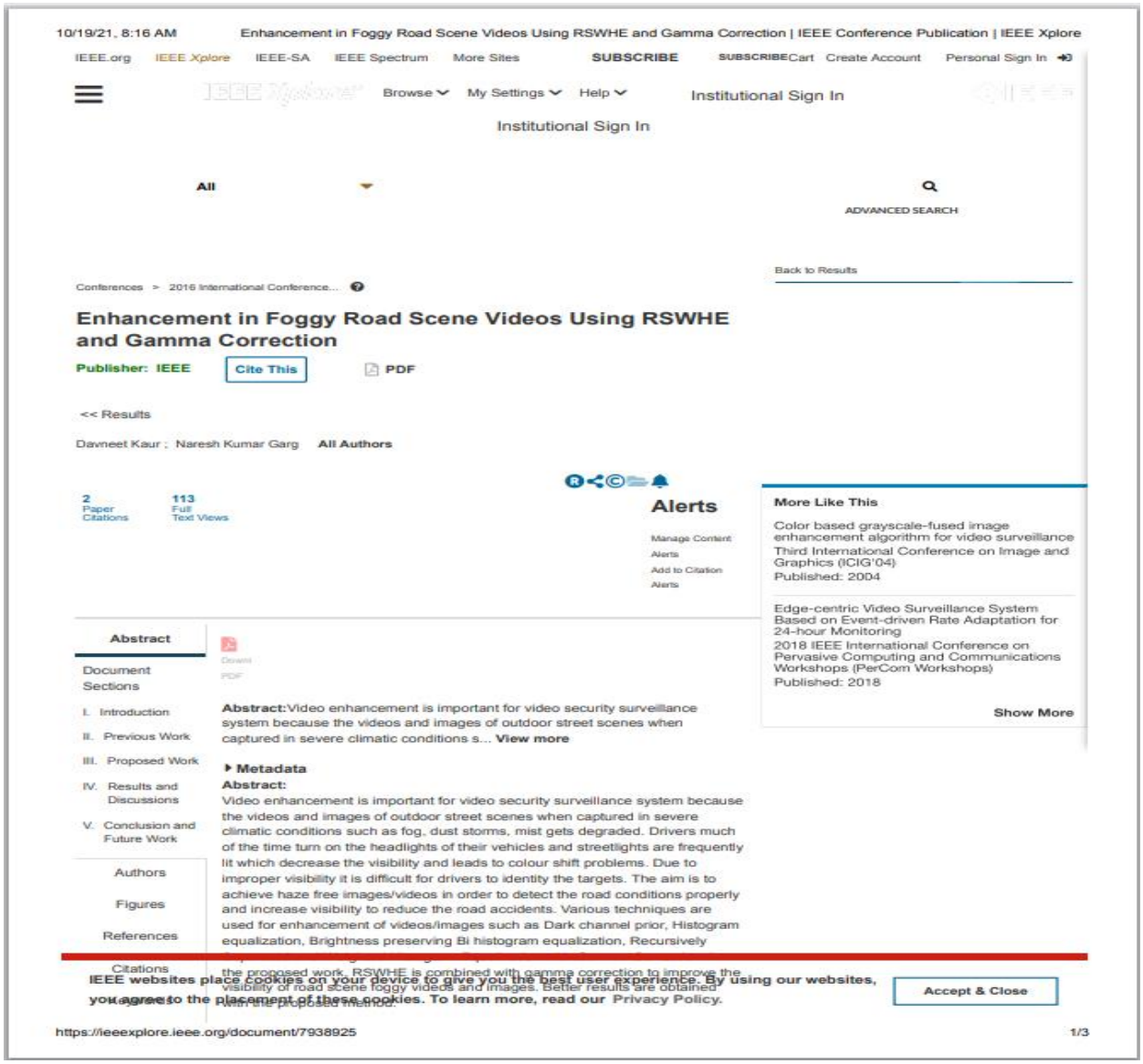
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Video enhancement is important for video security surveillance system because the videos and images of outdoor street scenes when captured in severe climatic conditions such as fog, dust storms, mist gets degraded. Drivers much of the time turn on the headlights of their vehicles and streetlights are frequently lit which decrease the visibility and leads to colour shift problems. Due to improper visibility it is difficult for drivers to identity the targets. The aim is to achieve haze free images/videos in order to detect the road conditions properly and increase visibility to reduce the road accidents. Various techniques are used for enhancement of videos/images such as Dark channel prior, Histogram equalization, Brightness preserving Bi histogram equalization, Recursively
the proposed work, RSWHE is combined with gamma correction to improve the visibility of road scene foggy videos and images. Better results are obtained
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Literature Survey on Various Scheduling Approaches in Grid Computing Environment

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***Abstract*—Grid computing, was developed by computer scientists in the mid 1990's based on ease of use and access geographically distributed resources which are dynamic and heterogeneous for solving difficult problems. These distributed resources are owned by different organizations. Grid computing provides a framework for parallel/ distributed computing. For developing a grid, low-level services (secure access management of resources) and high-level services (application development and scheduling) should be developed. Dynamic nature of resources in grid architecture is the reason for varied load on resources. So for better management of resources, the scheduling concept comes into account. Scheduling means order of jobs which satisfy the metrics like user's satisfaction and completion time & so on. Better scheduling policy in grid computing improves performance, cost of computation, load balancing and increase reliability and availability of resources. This paper presents various approaches for allocation of resources in grid computing environment. This paper ends up with summary of some existing scheduling approaches by taking into account various metrics used to verify usefulness of existing technique.**

***Keywords*—Grid Computing; Load Balancing; Makespan; Utilization; Scheduling; User Deadline; Latency; Cost**

I. Introduction

In this modern world of technology, Computer is the most efficient device for solving complex technical problems.[2] Grid technologies provide the powerful concept to use the computational power of the available computers in a proper manner by managing them in the grid infrastructure. By this technology, we able to develop a scheduling algorithm which minimizes the computing time of gridlets & balance load on resources. Grid provides the capability to share work on available resources which are not under centralized control. There are two types of grid that are: Computational Grid & Data Grid. Computational grid includes those problems which require high processing power and for which it provides proper n/w infrastructure in which resources are jointly worked for providing required level of service[5]. Data Grid includes those problems which concentrate on large amount of data & for which it provides an infrastructure in which distributed data management is done properly.

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Section 1 described the introduction to grid computing. Section 2,3 will describe some basic concepts of grid computing & the various approaches of scheduling respectively. And section 4 will provide conclusion.

II. Basic Concepts of Grid Computing

A. *Architecture of Grid Computing*

There are various entities in grid computing architecture described and showed as:

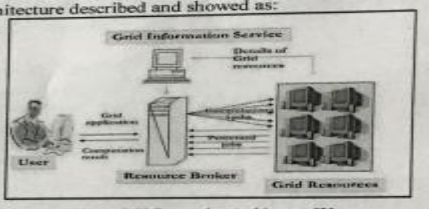

Fig. 1: Grid Computing Architecture[2]

User: End users, who send their applications (computation or data intensive) to global grid with parameters (example: task length, user deadline) in order to make fast execution.

Grid Information Service (GIS): This system collects all information about resources like id, capacity, capability and load factor from global grid.

Scheduler/Resource Broker: It collects information from GIS about resources and schedules the jobs of application according to require quality of service level and characteristics of resources.

Resources: Resources can be camera, PC, supercomputer, hard disk or any device. Connection between resources can be wired or wireless. Any resource can leave grid any time or can fail.

Scheduler plays a vital role in grid computing. A better scheduling policy gives number of benefits like better utilization of resources, increase throughput, reduce cost and makespan. Scheduler consider all the characteristics of resources and then provide best allocation.

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Abstract— **Wireless sensor network is built by deploying sensor nodes in the environment. Sensors perform the monitoring task substituting human presence at the site. Sensor nodes are freely deployed in the real time environment. Sensor nodes work on in-built batteries because it's not possible to provide power in the real time scenarios. Sensor nodes are freely deployed in the network without any supervision. Probability for the occurrence of fault in the network exists. Various techniques and algorithms are introduced to tackle the fault and reduce the energy consumption like Leach, EFDCB, etc. In this paper, we proposed an algorithm to improve life time of WSN by** ***Improved distributed fault tolerant clustering algorithm for fault tolerance (IDFCA). Distributed fault tolerant clustering algorithm (DFCA) for fault tolerance*** **has a drawback as the load on neighbouring CH increase and energy consumption is more. Improved distributed fault tolerant algorithm, IDFCA technique works to reduce the energy consumption by introducing hierarchy formation process of selecting CH and it also overcome the situation of faulty node. The performance of this new algorithm is evaluated by simulating it in NS2 environment and compared with DFCA. Simulation results show that it performs better than DFCA and thus can prolong the lifetime of the network.**

Keywords— ***Wireless sensor network, sensor nodes, fault, fault tolerance, cluster head, clustering, in-built batteries***

I. INTRODUCTION

Wireless sensor network is the one in which various sensor nodes are [1] deployed in the environment. They are deployed to get the information from the environment like temperature, humidity, water level in dams [2], etc. Sensor node is a device with in-built battery designed to perform operations like gathering data and transmitting data to the base station (BS) shown in fig 1. The wireless network consists of sensor nodes, BS and the end user. The data sent from node to BS can be one hop or multi hop. The CH is chosen to perform the forwarding of data after receiving from nodes. Nodes are deployed in the remote area which is unfriendly. So it is prone to many types of failures like due to harsh environment or energy depletion. Energy depletion is one of the main parameters that need to be focused. As power backup is only once provided to the sensor nodes. To use that power for as maximum time duration as one can is a challenge. When node transmits data to base station it consumes more power and thus its life time is reduced. By introducing the concept of clustering in Leach, [3] a cluster head (CH) is selected between the nodes and the BS. CH is responsible for all the data transmission that too on time because the untimely data is of no use. CH performs transmission for longer distance thus its energy consumption is more. Clustering enhances the lifetime and performance of the network [7] [14]. By clustering the load is balanced all over the network [8]. In the situation when the CH dies, this leads to the network failure as nodes are connected to the BS through CH's. When the transmission is not reliable [5] and quality of data transmitted is not appropriate, [9] these two factors also impact the performance of the network.

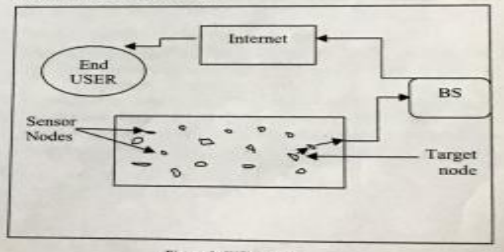

Figure 1. WSN model

To tackle the fault and recover it as fast as a network can is the main objective of any network. Various techniques are introduced like relay nodes (nodes with initially provided more energy than other nodes) are added to network to act as CH to make the network work for more time. But still when relay node dies due to any reason [10] like environment factor or energy depletion, then network failure occurs. The CH which is indulged in more work is more prone to failure [13]. Even the energy consumption is more as only the relay nodes can act as CH so at one point they die. [14] In some neighbour CH negotiate to take the charge when CH fails.

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August 23, 2016

Mr. Vikram Kumar (Passport No.-G4607332)
C/o Department of Electrical Engineering
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Jalandhar, Punjab-144012, India

Dear Mr. VIKRAM KUMAR,

RESEARCH TITLE
Binary Grey Wolf Optimizer for Economic Load Dispatch Problem

AUTHOR/S:	Vikram Kumar, S.K. Bath, J.S. Dhillon
RESEARCH ID	DE6C249
REGISTRATION FEE:	$375 (if one registers for the full conference); $575 (if two co-authors register)
REGISTRATION DEADLINE:	October 14, 2016

We are pleased to inform you that the reviewers accepted your submission for oral presentation at the International Journal of Arts & Sciences (IJAS) *International Conference for Multidisciplinary Research*. The double-blind reviewed conference will run from 29 November to 2 December 2016.

The conference will be held on the University of Freiburg campus, just outside the train station *Freiburg Messe/Universität* (which station is a 3-minute ride from Freiburg's main train station, *Freiburg-Hbf*). The conference will be in the University's ETAGE building at Emmy-Noether Strasse 2, Freiburg. Click here for the directions from the *Freiburg Messe/Universität* train station to the ETAGE building (a 4-minute walk). Alternative means of transport include public bus lines #11 and #22, stopping at the *Technische Fakultät* bus stage.

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Solution of Non-Convex and Dynamic Economic Load Dispatch Problem of Small Scale Power Systems Using Dragonfly Algorithm

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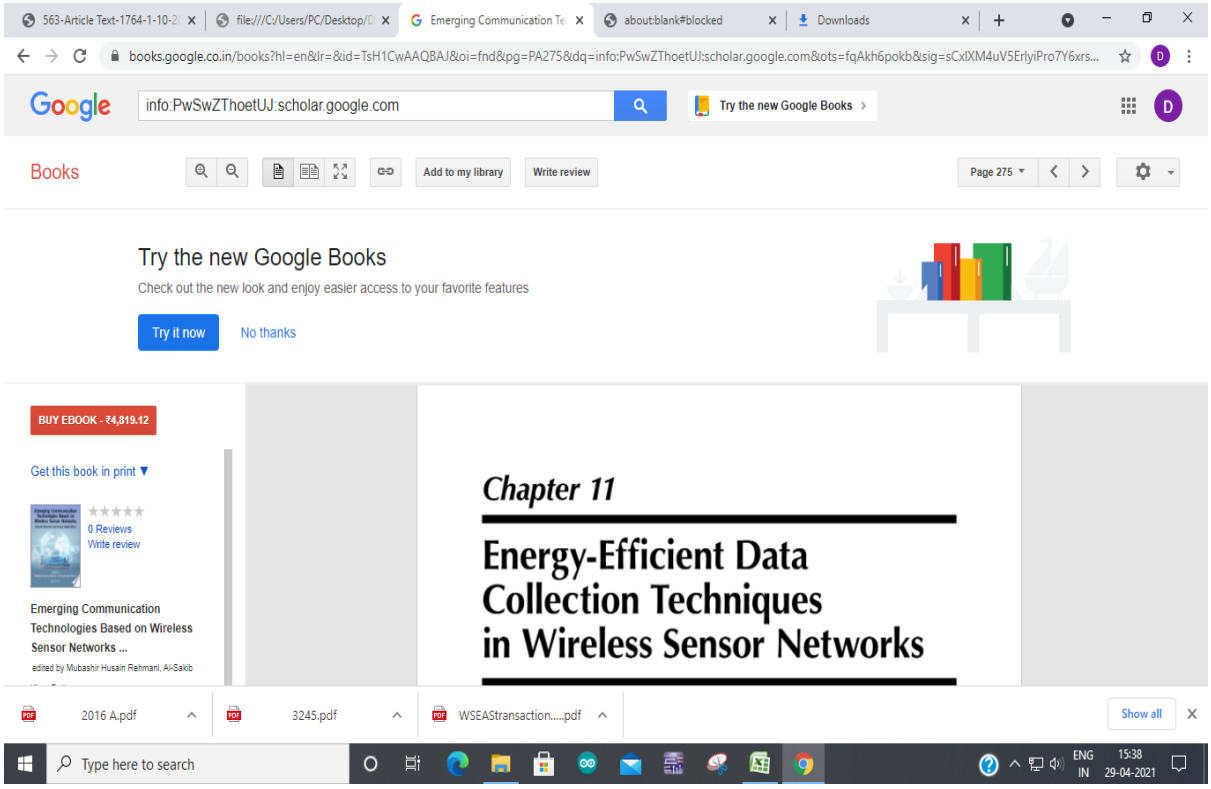
Abstract: Dragonfly algorithm is a novel intelligence optimization technique, which simulates the static and dynamic swarming behaviours of dragonflies in environment. Exploration and exploitation in dragonfly algorithm is achieved by modelling the social interaction of dragonflies in navigating, searching for foods and avoiding enemies when swarming dynamically or statistically. This paper presents the application of dragonfly algorithm for the solution of non-convex and dynamic economic load dispatch problem of electric power system. The performance of dragonfly algorithm is tested for economic load dispatch problem of six IEEE benchmarks of small scale power systems and the results are verified by a comparative study with Lambda Iteration Method, Particle Swarm Optimization (PSO) algorithm, Genetic Algorithm (GA), Simulated Annealing(SA), Artificial Bee Colony (ABC), Evolutionary Programming (EP) and Grey Wolf Optimizer(GWO). Comparative results show that the performance of Dragonfly algorithm is better than recently developed GWO algorithm and other well known heuristics and meta-heuristics search algorithms.

Keywords: Economic Load Dispatch Problem (ELDP), Dragonfly Algorithm (DA), Grey Wolf Optimizer (GWO)

1. Introduction

In modern power system networks, there are various generating resources like thermal, hydro, nuclear etc. Also, the load demand varies during a day and attains different peak values. Thus, it is required to decide which generating unit to turn on and at what time it is needed in the power system network and also the sequence in which the units must be shut down keeping in mind the cost effectiveness of turning on and shutting down of respective units. The entire process of computing and making these decisions is known as unit commitment (UC). The unit which is decided or scheduled to be connected to the power system network, as and when required, is known to be committed unit. Unit commitment in power systems refers to the problem of determining the on/off states of generating units that minimize the operating cost for a given time horizon. Electrical power plays a pivotal role in the modern world to satisfy various needs. It is therefore very important that the electrical power generated is transmitted and distributed efficiently in order to satisfy the power requirement. Electrical power is generated in several ways. The most significant crisis in the planning and operation of electric power generation system is the effective scheduling of all generators in a system to meet the required demand. The Economic Load Dispatch (ELD) problem is the most important optimization problem in scheduling the generation among thermal generating units in power system.

Economic dispatch in electric power system refers to the short-term discernment of the optimal generation output of various electric utilities, to meet the system load demand, at the minimum possible cost, subject to various system and operating constraints viz. operational and transmission constraints. The Economic Load Dispatch Problem (ELDP) means that the electric utilities (i.e. generator's) real and reactive power are allowed to vary within certain limits so as to meet a particular load demand within lowest fuel cost. The ultimate aim of the ELD problem is to minimize the operation cost of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Analyzing block type channel estimation for OFDM based digital communication system

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Abstract. Orthogonal frequency division multiplexing (OFDM) is a promising technique in the current broadband wireless communication system due to the high data rate transmission capability and the ability to combat frequency selective fading of the channel. Channel estimation is mainly implemented by sending pilot symbols in the transmitted bit streams. In this paper, channel estimation based on block type pilot arrangements is analyzed using Least Square (LS) and Minimum Mean Square Error (MMSE) channel estimators. Performance is analyzed in terms of Bit Error Rate and Mean Square Error by varying pilot energy levels and by varying channel length. It is gathered that performance gets affected considerably with change in pilot energy levels implying there exist an optimum value for pilot energy for getting better performance.

1 Introduction

In OFDM system many sub-channels are used in parallel. The channels are overlapping in frequency, but the distance between them is chosen so that the different channels anyhow are orthogonal. OFDM is a promising technique in the current broadband wireless communication system due to the high data rate transmission capability and the ability to combat frequency selective fading of the channel. OFDM, which is the recent trend in wireless technology, is a multicarrier modulation scheme having high data stream splitting into low data stream that are transmitted simultaneously over a number of subcarriers. OFDM is widely used in the wireless systems such as wireless LAN, terrestrial digital television broadcasting, cell-phone and Wi-MAX.
Wireless channels used for transmitting the high data rate digital signals usually suffers from various impairments due to multipath propagation of the signals owing to different types of obstacles present, and frequency dependent channel characteristics. As a result the received signal gets corrupted leading to misjudgment of the signal transmitted and hence reducing the system fidelity and utility for high data rate transmissions. To recover the signal correctly at the receiving end it becomes crucial to apply the inverse channel characteristics at the receiver to nullify the non-linear channel effects. So, channel estimation is an important aspect of high speed data transmission systems before applying demodulation at the receiving end. Channel estimation is mainly implemented by sending pilot symbols in the transmitted bit streams. The channel estimation has been performed by inserting pilot tones into each OFDM symbol. In this paper, channel estimation based on block type pilot arrangements using LS and MMSE channel estimators is studied. This paper is organized as follows. In this section 2, simulated system description is described. Section 3 discusses channel estimation. Performance analysis and conclusion are given in section 4 and section 5.

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2 Simulated system description

In figure 1, the information data in binary form are first grouped and mapped into mutiamplitude multi-phase signals according to the type of modulation used in the signal modulator. After inserting pilots uniformly between the information data sequence, IFFT block is used to transform and multiplex the complex data sequence into time domain signal. Following the IFFT block, a guard interval (larger than the expected delay spread), is inserted in order to prevent possible inter-symbol interference (ISI) in OFDM systems. The transmitted signal is then sent to a frequency selective multi-path time varying slow fading channel.
At the receiver, the guard insertion is removed first and the received samples are then sent to the FFT block for de-multiplexing the multi-carrier signal. Following FFT block, the pilot signals are extracted from the demultiplexed samples. The transmitted data samples can then be recovered from the knowledge of the channel responses by simply dividing the received signal by the channel response. After signal demodulation at the demodulator, the binary data could be reconstructed at the receiver output.

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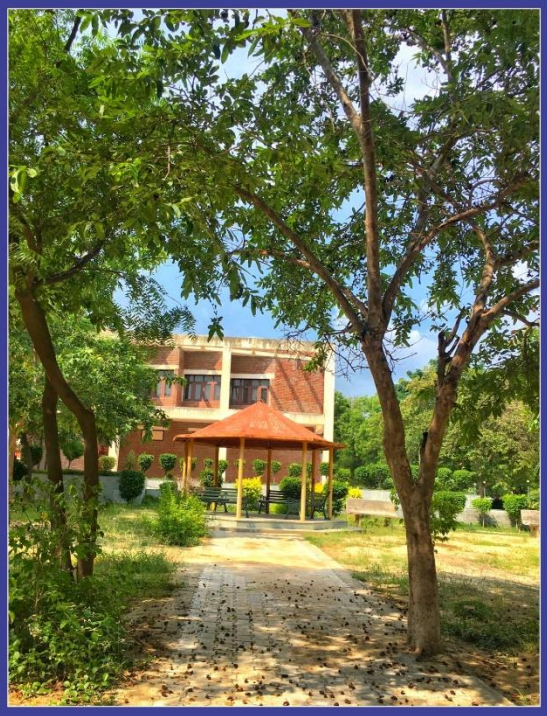

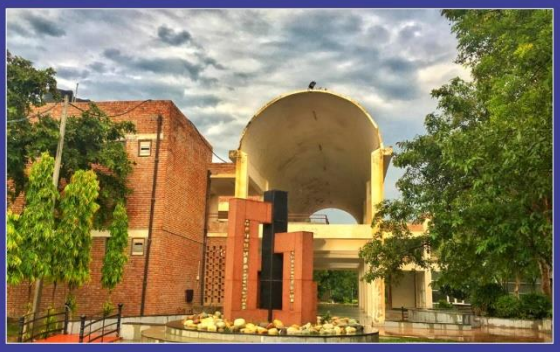

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