3.3.1 Number of research papers published per teacher in the Journals notified on UGC CARE list during the academic year 2021-22.

SI.No.	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Calendar Year of publication	ISSN number	Link to the recognition in UGC enlistment of the Journal /Digital Object Identifier (doi) number		
							Link to website of the Journal	Link to article / paper / abstract of the article	Is it listed in UGC Care list
1	Erosion Wear Behavior of Glass Fiber Hybridized Flax and Sisal Fabric Hybrid Composites With Taguchi Experimental Design	Dr. Rajayateesh Yadav, Dr. H. Udaya Prasanna, Ganesh Kalagi,	Mechanical Engineering	Elsevier Materials Today Proceedings	2021	2214-7853	https://www.sciencedirect.com/journal/materials-today-proceedings	https://doi.org/10.1016/j.matpr.2021.04.430	Yes
2	Investigation on the performance of an IDI engine using a novel dual swirl combustor	Mr. Manjunath S,	Mechanical Engineering	Elsevier Materials Today Proceedings	2021	2214-7853	https://www.sciencedirect.com/journal/materials-today-proceedings	https://www.sciencedirect.com/science/article/abs/pii/S2214785321070966	Yes
3	Solid Particle Erosion Behavior of Plasma Sprayed (WC-Co)/ (Cr3C2-NiCr) Coatings	Dr. Gajanan Anne.	Mechanical Engineering	Journal of Bio- and Tribo-Corrosion, Springer Nature	2022	ISSN: 2198-4239	https://link.springer.com/journal/40735	https://doi.org/10.1007/s40735-022-00629-5	Yes
4	Fabrication of Mg-Zn/Al and Mg-Zn/Anodized Al Multilayered Composites by Accumulative Roll Bonding, Investigation of Corrosion Behavior	Dr. Gajanan Anne.	Mechanical Engineering	Materials International,Volume 4, Issue 1, April 2022	2022	ISSN: 2668-5728	https://materials.international/	https://doi.org/10.33263/Materials41.003	Yes

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5	Surface modification of multi-directional forged biodegradable Mg-Zn alloy by ball burnishing process: Modeling and analysis using deep neural network	Dr. Gajanan Anne, Nagaraj Bhat, Ganesh Aithal,	Mechanical Engineering	Journal of Manufacturing Processes, Volume 68, Part A, August 2021, pp:423-434	2021	ISSN: 1526-6125	https://www.sciencedirect.com/journal/journal-of-manufacturing-processes	https://doi.org/10.1016/j.jmapro.2021.05.049.	Yes
6	Performance, Emission and Exergy Analysis of an IDI Dual Swirl Combustor Diesel Engine with Blended Waste Chia Seed Oil as a Biofuel	Mr. Manjunath S.	Mechanical Engineering	International Journal of Ambient Energy,June 2022, pp:1-15	2022	2162-8246	https://www.tandfonline.com/journals/taen20	https://doi.org/10.1080/01430750.2022.2080266	Yes
7	Investigation of Tribological Property of Coconut Shell Powder Filled Epoxy Glass Composites	Thirumaleshwara Bhat.	Mechanical Engineering	American Journal of Materials Science	2021	2162-9382	http://www.sapub.org/journal/aimsandscope.aspx?journalid=1001	10.5923/j.materials.20170705.10	Yes
8	Fabrication and Analysis of Jute, Glass and Flax Hybrid Composites Using Rice Husk Charcoal as Filler Material	Thirumaleshwara Bhat.	Mechanical Engineering	American Journal of Materials Science	2021	2162-9382	http://www.sapub.org/journal/aimsandscope.aspx?journalid=1001	DOI: 10.5923/j.materials.20170705.03	Yes
9	Development and Characterization of Low Cost Bamboo Fibre Reinforced Polymer Composites	Thirumaleshwara Bhat.	Mechanical Engineering	American Journal of Materials Science	2021	2162-9382	http://www.sapub.org/journal/aimsandscope.aspx?journalid=1001	DOI: 10.5923/j.materials.20170705.02	Yes

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10	Comparative Studies of infiltration at Coastal Districts for better management practices	Dr. Sandeep J Nayak	Civil Engineering	IFERP	2021	ISSN 2456-1290	https://www.iferp.in/	https://www.technoarete.org/common_abstract/pdf/IJERMCE/v8/i11/Ext_52809.pdf	Yes
11	Study of Mechanical Characteristics of Concrete with Shredded Rubber Tyre Aggregate	Mr. Sooraj Kumar	Civil Engineering	Civil Engineering Trends and Challenges for Sustainability	2021	2366-2557	https://link.springer.com/book/10.1007/978-981-16-2826-9	https://link.springer.com/chapter/10.1007/978-981-19-1862-9_42	Yes
12	An efficient algorithm for predicting crop using historical data and pattern matching technique	Sharath Kumar, Nagaraj Bhat	Computer Science & Engineering	Global Transitions Proceedings (2021),	2021	2666-285X	https://www.sciencedirect.com/journal/global-transitions-proceedings	https://doi.org/10.1016/j.gltp.2021.08.060	Yes
13	Protection of data using image watermarking technique	Sowmya S, Sahana Karanth, Sharath Kumar	Computer Science & Engineering	Global Transitions Proceedings (2021),	2021	2666-285X	https://www.sciencedirect.com/journal/global-transitions-proceedings	https://doi.org/10.1016/j.gltp.2021.08.035	Yes
14	Pest Control Management System using Organic Pesticides,	Ms. Ramyashree	Computer Science & Engineering	Global Transitions Proceedings (2021),	2021	2666-285X	https://www.sciencedirect.com/journal/global-transitions-proceedings	doi: https://doi.org/10.1016/j.gltp.2021.08.058	Yes
15	Agroxpert-Farmer Assistant	Sowmya NH.	Computer Science & Engineering	Global Transitions Proceedings (2021),	2021	2666-285X	https://www.sciencedirect.com/journal/global-transitions-proceedings	https://doi.org/10.1016/j.gltp.2021.08.016	Yes

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16	AGRIC: A Quality Farming,	Rukmini Bhat B,	Computer Science & Engineering	Global Transitions Proceedings (2021),	2021	2666-285X	https://www.sciencedirect.com/journal/global-transitions-proceedings	https://doi.org/10.1016/j.gltp.2021.08.020	Yes
17	Facial Recognition using Haar Cascade and LBP Classifiers),	Ramyashree	Computer Science & Engineering	Global Transitions Proceedings (2021),	2021	2666-285X	https://www.sciencedirect.com/journal/global-transitions-proceedings	https://doi.org/10.1016/j.gltp.2021.08.044	Yes
18	Identification of Aromatic Coconuts using Image Processing and Machine learning Techniques	Sneha N S	Computer Science & Engineering	Global Transitions Proceedings (2021),	2021	2666-285X	https://www.sciencedirect.com/journal/global-transitions-proceedings	https://doi.org/10.1016/j.gltp.2021.08.037	Yes
19	Building Dataset and Deep Learning-Based Inception Model for the Character Classification of Tigalari Script.	Sachin Bhat, Rajashree Nambiar, Nagaraj Bhat	Computer Science & Engineering	Recent Advances in Artificial Intelligence and Data Engineering	2021	2194-5357	https://link.springer.com/book/10.1007/978-981-16-3342-3	https://doi.org/10.1007/978-981-16-3342-3_20	Yes
20	Crop Yield Forecasting using Data Mining	Sowmya S,	Computer Science & Engineering	Global Transitions Proceedings (2021),	2021	2666-285X	https://www.sciencedirect.com/journal/global-transitions-proceedings	https://doi.org/10.1016/j.gltp.2021.08.008	Yes
21	Identification of weeds in Maize crops using CNN	Shrinivasa	Computer Science & Engineering	International Journal of Scientific Research and Engineering Development,	2021	2581-7175	http://www.ijsred.com/	http://www.ijsred.com/volume4/issue4/IJSRED-V4I4P41.pdf	Yes

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22	Application to aid hearing and speech impaired people	Deepthi G pai	Computer Science & Engineering	Recent Advances in Artificial Intelligence and Data Engineering	2021	2194-5357	Recent Advances in Artificial Intelligence and Data Engineering: Select Proceedings of AIDE 2020 | SpringerLink	https://doi.org/10.1007/978-981-16-3342-3_12	Yes
23	Traffic violation detection in India using genetic algorithm	Deepthi G Pai	Computer Science & Engineering	Global Transitions Proceedings (2021),	2021	2666-285X	https://www.sciencedirect.com/journal/global-transitions-proceedings	https://doi.org/10.1016/j.gltp.2021.08.056	Yes
24	An Efficient Algorithm for Fruit Ripeness Detection.	Sharath kumar, Ramyashree	Computer Science & Engineering	Recent Advances in Artificial Intelligence and Data Engineering	2021	2194-5357	Recent Advances in Artificial Intelligence and Data Engineering: Select Proceedings of AIDE 2020 | SpringerLink	https://doi.org/10.1007/978-981-16-3342-3_30	Yes
25	Design of a Secure Blockchain Based Privacy Preserving Electronic Voting System.	Sneha N.S	Computer Science & Engineering	Emerging Research in Computing, Information, Communication and Applications,	2021	E-ISSN: 1876-1119	https://link.springer.com/book/10.1007/978-981-16-1342-5	https://doi.org/10.1007/978-981-16-1338-8	Yes
26	Comparative Analysis of Brain Tumor Segmentation with Fuzzy C Means using Multi-core CPU and GPU	Sahana, Sowmya S	Computer Science & Engineering	Cyber Intelligence and Information retrieval	2021	2367-3370	https://link.springer.com/book/10.1007/978-981-16-4284-5	https://doi.org/10.1007/978-981-16-4284-5	Yes

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27	Evaluation Of Era5 And Imerg Precipitation Data For Risk Assessment Of Water Cycle Variables Of A Large River Basin In South Asia Using Satellite Data And Archimedean Copulas	Dr. Nagaraj Bhat	Computer Science & Engineering	Water Conservation & Management (WCM)	2021	ISSN: 2523-5672	https://www.watconman.org/	http://doi.org/10.26480/wcm.01.2022.61.69	Yes
28	Unsurpassed Image Surveillance System	Dhanya Shenoy	Computer Science & Engineering	International Journal for Research Trends and Innovation,	2021	ISSN: 2456-3315	https://www.ijrti.org/	https://ijrti.org/viewpaperforall.php?paper=IJRTI2206112	Yes
29	Comparative Study of Quasi Steady and Unsteady Damping Derivatives for Delta Wings in Hypersonic Flow and Half Sine Wave	Ms. Renita Sharon Monis	Mathematics	Journal of Advanced Research in Fluid Mechanics and Thermal Sciences	2021	ISSN: 2811-3950	https://semarakilmu.com.my/journals/index.php/fluid_mechanics_thermal_sciences	https://www.sciencedirect.com/science/article/pii/S2214785321005058	Yes
Total count as per the SOP of the metric i e paper per teacher = 29+11 = 40									

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Research Article

Performance, emission, and exergy analysis of an IDI dual swirl combustor diesel engine with blended waste Chia seed oil as a biofuel

S. Manjunath

a Shri Madhwa Vadiraja Institute of Technology and Management, Udupi, India

01430750.2022.2080266

Abstract

This study aims to investigate the performance characteristics of an IDI engine with a novel dual swirl chamber and using biodiesel from waste chia seed oil blended with diesel. To the author's best knowledge, this is the first study on waste Chia seed oil as a fuel in IDI engine. The injection pressure and CR of the test engine were increased from ecommended values. Biodiesel blends BC05 to BC25 with diesel in volumetric

ScienceDirect

Materials Today: Proceedings

Volume 47, Part 17, 2021, Pages 5901-5906

Erosion wear behavior of glass fiber hyb sisal fabric hybrid composites with tagu design

Ganesh Kalagi [a], Abdulrajak Buradi [b], Abdul Razak Kaladgi [c], H.K. Madhusudha Raja Yateesh Yadav [a], Asif Afzal [c], C. Ahamed Saleel [e]

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Abstract

An attempt has been made in the present experimental research work to invest varying composition of glass fiber on erosion wear characteristics of flax and si composites (FSHC) by varying epoxy resin (polymer matrix) loadings. All the cc wear tests based on ASTM standards. Using Taguchi principle design of experin properties for different proportion of reinforcement and matrix material so as t erosion rate. The theoretical erosion wear properties are determined by applyir (DOE) using Taguchi principle. The experimental results were found to have go results. The tested specimens are examined through SEM. The erosion wear me the SEM images.

Introduction

Currently people around the globe are using composites made from synthetic f materials are not biodegradable and also health hazardous. Hence there is lot o using natural fibers.

Polymer reinforced composites finds many industrial applications. Especially ir carried along with sand or dust materials, there will be an erosive on the inner such systems, the material used must have good erosion characteristics. Simila hot fluid gases guild over gas turbine blades and dusty air passes over the rotor around the globe are working on developing materials having good erosion we

ScienceDirect

Journal of Manufacturing Proce
Volume 68, Part A, August 2021, Pages 423-434

Surface modification of multi-direction biodegradable Mg-Zn alloy by ball burn Modeling and analysis using deep neur

S. Ramesh [a], Gajanan Anne [b], Nagaraj Bhat [c], Ganesh Aithal [d], H. Shivanand

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https://doi.org/10.1016/j.jmapro.2021.05.049
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Highlights

- Surface integrity of the MDF processed Mg-2%Zn alloy enhanced by bal burnishing technique
- Artificial deep neural network model adopted to predict and analyses s roughness and microhardness
- Trained DNN can be used to predict intermediate results that were not in the experiments
- Maximum mechanical properties was achieved in MDF + Ball burnishec
- MF-5 + BB-1 sample exhibited higher corrosion resistance due to grain refinement and compressive residual stresses

Abstract

This research investigates the feasibility of improving surface integrity of the M process of multidirectional forging (MDF) with ball burnishing technique. Mg-2 multidirectional forging up to 5 passes at 280 °C and same sample is ball burnis of 300 mm/min and force of 250 N for 1 pass. Microstructure (optical and transı ray diffraction), roughness (atomic force microscope) and mechanical propertie analyzed for cast, MDF processed and MDF+ball burnished samples. The study

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Materials Today: Proceedings

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Volume 52, Part 3, 2022, Pages 1361-1367

Investigation on the performance of an novel dual swirl combustor

Manjunath S. [a], Ramakrishna N. Hegde [b 1]

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Abstract

Indirect injection of Diesel fuel using swirl chambers is an interesting research coined by the researchers across the globe. In this typical concept, fuel is spray in the cylinder head of engine for primary combustion for the obvious benefit low injection pressure.Typical systems use a single swirl chamber for this purp chamber which can produce dual swirl leading to higher turbulence, better mi proposed and tested. Comparative performance and exergy analysis are done w newly developed dual swirl chamber. Performance testing on both the single a showed that at higher loads both designs have equally good. At a load of 10kgf identical and experimental results showed that dual swirl has lower NO_x emiss slightly higher SFC (as compared to single swirl chamber) respectively by 11.18 analysis of the novel dual swirl chamber and the single swirl chamber shows t higher compared to SSC, though input availability is more in DSC. This is the ar done, to minimize it.

Introduction

Diesel engine ever since its invention is used in transportation, power generati increasing population has led to the increasing demand for power. At the same been imposed by regulating bodies every year in most of the countries. This ha combustion analysis, un-conventional and non-polluting fuel. It is well establis fuel consumption as compared to indirect injection (IDI). Lot of research work efficiency of direct injection (DI) diesel engine. In an IDI engine, lower NOx and chamber. In IDI diesel engine, a swirl chamber or Simple pre-combustion cham

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Solid Particle Erosion Behaviour of Plasma-Sprayed (WC–Co)/(Cr_3C_2–NiCr) Coatings

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Volume 8, article number 40, (2022) Cite this artic

Gajanan Anne

Department of Mechanical Engineering, Shri Madhwa Vadiraja Institute of Technology and Management, Udupi, 574115, India

G. Madhu Sudana Reddy, S. Ramesh ✉, Gaja

Pradeep Patil

Abstract

This study reports the high-temperature erosion behaviour of plasma-sprayed 35% (WC–Co)/65% (Cr_3C_2–NiCr) coating on MDN-420 alloy. Plasma spray coatings have always played a pivotal role in enabling industries to combat problems of premature degradation of components that operate in harsh environments. (WC–Co) + (Cr_3C_2–NiCr) coating is investigated for erosion under various laboratory-simulated conditions. Coating surface is characterized by using an optical microscope, scanning electron microscope (SEM), and X-ray diffraction (XRD). Porosity, microhardness, surface roughness, and adhesion strength of

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Article
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https://doi.org/10.33263/Materials41.003

Fabrication of Mg-Zn/Al and Mg-Zn/Anodized Al Multilayered Composites by Accumulative Roll Bonding, Investigation of Corrosion Behavior

Ramesh Sampath [1], Gajanan Anne [2,*], Gajanan Manjunath Naik [1], Shamanth Vasanth[3] Madhu Sudana Reddy [4]

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Scopus Author ID 57211503636

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Abstract: Mg-2%Zn/Al and anodized Mg-2%Zn/Al multilayered composites were developed from wrought Mg-2%Zn alloy with aluminum and anodized aluminum by accumulative roll bonding (ARB). The grain size was found to be 700-750 nm and the lowest density of 2122 kg/m^3 after roll bonding. The corrosion behavior of the multilayered composites has been examined using electrochemical polarization, zero resistance ammeter, and hydrogen evolution tests. Low corrosion current density, high induction time to passive film breakdown, and low hydrogen evolution are the significant features of multilayered Mg-2%Zn/Al and anodized Mg-2%Zn/Al composites. This feature is because of grain refinement, formation of additional β phases ($Al_{12}Mg_{17}$ and $AlMg_4Zn_{11}$), and presence of Al_2O_3.

Keywords: magnesium; accumulative roll bonding; ultrafine grain; multilayered composites; corrosion.

1. Introduction

Lightweight materials are the most demanding materials in aviation, transportation, electronics, and construction. They possess high strength and low weight, good damping capacity, thermal & electrical conductivity, and optimum corrosion resistance. Mg alloys are considered highly promising materials for lightweight applications [1-4]. However, the corrosion behavior of Mg alloy has been a major challenge due to the high electronegative potential of Mg metal which limits to use in many engineering applications [5]. Conventional methods used to enhance mechanical properties and corrosion behavior is either by an alloy design or severe plastic deformation (SPD) [6,7]. Accumulative roll bonding (ARB) is one of the SPD techniques to produce high strength as well as corrosion resistance by reducing the grain size. ARB is used to develop multilayered composites using similar and dissimilar materials with high productivity, low cost, and defect-free microstructure [8].

Corrosion behavior has been reported by many researchers, who have worked on various Mg alloys like AZ(Mg–Al– Zn), AM(Mg–Al–Mn), and ZK (Mg-Zn-Zr) series, and it

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Investigation of Tribological Property of Coconut Shell Powder Filled Epoxy Glass Composites

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Abstract Many of our modern technologies require materials with unusual combination of properties that cannot be met by the conventional materials like metals, alloys, ceramics etc. For this purpose a new class of materials known as composite materials is being used. Among the different types of composite materials available, polymer matrix composites are very important and are used in many of the weight sensitive applications. They are known for their properties such as high strength-to-weight ratio, high stiffness-to-weight ratio, corrosion resistance etc. Through this work, the development and investigation of tribological property of epoxy glass composites filled with coconut shell powder (CSP). The CSP were reinforced in epoxy resin to prepare organic fiber reinforced composites of different compositions. Dry sliding wear and abrasive trials were conducted using a standard pin-on-disc test set up following a well-planned experimental schedule based on Taguchi's orthogonal arrays. Taguchi's technique helps in saving time and resources for large number of experimental trials and predicts the wear response of epoxy composites within the experimental domain. The findings of the experiments indicate that the wear rate is greatly influenced by various control factors. Analysis of variance (ANOVA) is performed on the measured data and signal-to-noise (S/N) ratios. An optimal parameter combination is determined which leads to minimization of the wear rate. The results showed that inclusion of the CSP in epoxy resin improved the wear resistance of the composites greatly. On the other hand presence of coconut shell powder (CSP) had a detrimental effect on the mechanical properties of the specimens.

Keywords Epoxy, Organic Fiber, Taguchi Method, Dry Sliding, ANOVA

1. Introduction

In the present world situation as a result of increasing demand for environment friendly materials and the desire to reduce the cost of traditional fiber reinforced petroleum based composites, new natural fiber reinforced composites have been developed. Researchers have begun to focus attention on natural fiber composites which are composed of natural or synthetic resins, reinforced with natural fibers. Natural fibers exhibit many advantageous properties; they are a low density material yielding relatively lightweight composites with high specific properties. These fibers also have significant cost advantages and ease of processing along with being a highly renewable resource, in turn reducing the dependency on foreign and domestic petroleum oil.

J. Olumuyiwa et al. [4] found the possibility of using coconut shell reinforced polyethylene composite as a new material for engineering applications by conducting research on the morphology and mechanical properties of it. Coconut shell reinforced composite was prepared by compacting low density polyethylene matrix with 5% - 25% volume fraction coconut shell particles and the effect of the particles on the mechanical properties of the composite produced was investigated. The result shows that the hardness of the composite increases with increase in coconut shell content though the tensile strength, modulus of elasticity, impact energy and ductility of the composite decreases with increase in the particle content. Scanning Electron Microscopy (SEM) of the composites (with 0% - 25% particles) surfaces indicates poor interfacial interaction between the coconut shell particle and the low density polyethylene matrix.

Chinthani et al. [7] conducted a study in which the coconut shell powder (CSP) has been analysed both physically and chemically to have a better understanding of the material its properties. Laser diffraction showed a broad distribution of sizes with a mean particle size of 34.2 microns, and by using scanning electron microscopy it was possible to recognize a variety of sizes, shapes and structures. The thermo-chemical character of CSP was studied over a temperature range of 30°C – 800°C using a thermogravimetric analyser. CSP was seen to pyrolyse best between 220°C - 380°C with a residue of 16.2% left at the end of the pyrolysis. In order to

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Fabrication and Analysis of Jute, Glass and Flax Hybrid Composites Using Rice Husk Charcoal as Filler Material

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Abstract This work mainly focuses on development and evaluation of mechanical and tri-bological behavior of epoxy based composites with different hybrid reinforcement and filler materials. Two specimens combining jute mat and glass mat (J-G-J-G) are fabricated with one containing 5% rice husk charcoal as filler material. Similarly two specimens combining jute, glass and flax mat (G-J-F-G) are fabricated with one containing 5% rice husk charcoal. Composite panels are prepared by hand layup process and specimens are prepared to carry out various tests according to ASTM standard.

Keywords Rice husk charcoal, Jute mat, Glass mat, Flax mat, Tensile test, Flexural test, Mechanical properties, Tribological properties

1. Introduction

Natural fiber reinforced composite materials are considered as one of the new class of engineering materials. Among all the natural fiber reinforcing materials, jute appears to be a promising material because it is relatively inexpensive and commercially available in the required form. Glass Fiber Reinforced Polymers (GFRP) is a fiber reinforced polymer made of a plastic matrix reinforced by fine fibers of glass. Fiber glass is a lightweight, strong, and robust material used in different industries due to their excellent properties. Fiber-reinforced composites are being increasingly used as alternatives for conventional materials primarily because of their high specific strength, specific stiffness and tailorable properties.

Using natural fillers to reinforce the composite materials offers the following benefits in comparison with mineral fillers strong and rigid, light weight, environmental friendly, economical, renewable and abundant resource.

2. Materials and Methods

2.1. Materials

In this study jute, flax and glass fibers were used as reinforcement material in mat form were purchased from Gogreen Products, Chennai. The epoxy resin Araldite LY556 is used for the processing of the composite in the presence study. Its density is around 1.15 to 1.20g/cc with viscosity between 10000-12000MPa-s at 25°C, and Ardur HY951 hardener were purchased from Renuka Enterprises Bangalore. Rice husk charcoal used as a filler material was purchased from Kanhangad.

2.2. Fabrication of Composites

Composite laminates were prepared with a dimension of 270mm x 270mm x 3mm using hand layup technique. Wax was applied to the metal mould for the easy removal of the composite after curing. Mixture of epoxy resin and hardener in the ratio 10:1 is mixed. A little amount of this mixture put on the material using brush. Then one fibre mat was placed over the poured resin and again resin is poured over it. Similarly two more layers are laid. After this the covering plate was placed over the material and weight is put on the plate. Four composites each of J-G-J-G and G-J-F-G combination with rice husk charcoal (5%) and without rice husk charcoal were prepared. Jute fabrics and E-Glass fibers are cut as per the mould size and placed at the surface of mould. Epoxy in liquid form is mixed thoroughly in suitable proportion with a prescribed hardener (curing agent) and poured onto the surface of mat placed on the mould. The process is repeated for each layer of epoxy and mat, till the required layers are stacked.

2.3. Preparation of Sample for Testing

Once the composite material is prepared, next important step is to cut them into test samples of sizes according to ASTM standards. Cutting was carried out using high speed cutter and 24TPI hacksaw blade. Five samples of each type

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Development and Characterization of Low Cost Bamboo Fibre Reinforced Polymer Composites

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Abstract This work is mainly focused on development and evaluation of physical, mechanical, tribological and hydrophilic behavior of epoxy based composites filled with different percentage of Bamboo Fiber (BF) and Coconut Powder (CP). Composite panels were made by hand lay-up process and properties are tested as per ASTM standards. Hardness of the composites was found to decrease with the increase in percentage of BF and CP. Tensile test revealed that the composite 20% BF has the maximum strength and it was found to increase as we increase the percentage of BF. Similarly, for CP 20% showed the highest strength. Water absorption test reveal that, the minimum water absorption was observed for the composite of 10% CP. It is also found that with the increase in BF and CP, the water absorption rate increases. Abrasive wear test revealed that, composite BF 20% has the minimum wear loss. Dry sliding wear test reveals that weight loss increases with increase in sliding distance, but wear rate differs for different specimen. The wear loss for 20% BF was found to be smallest among other wear loss and 30% CP has the highest wear rate among another specimen.

Keywords Bamboo fibers, Coconut Powder, Epoxy Resin, Water absorbtion test, Tensile test, Mechanical properties, Tribological properties

1. Introduction

Polymer resins are one of the most important classes of thermosetting polymers which are widely used as matrices for fiber-reinforced composite materials and as structural adhesives. They are amorphous, highly cross-linked polymers and this structure results in these materials possessing various desirable properties such as high tensile strength and modulus, uncomplicated processing, good thermal and chemical resistance, and dimensional stability. However, it also leads to low toughness and poor crack resistance, which should be upgraded before they can be considered for many end-use applications, one of the most successful methods of improving the toughness of polymers. Resin is to incorporate a second phase of dispersed rubbery particles into the cross-linked polymer. Using natural fillers to reinforce the composite materials offers the following benefits in comparison with mineral fillers strong and rigid, light weight, environmental friendly, economical, renewable and abundant resource. On the other hand, the disadvantages of the materials are degradation by moisture, poor surface adhesion to hydrophobic polymers, non-uniform filler sizes, not suitable for high temperature application, susceptibility to fungal and insect attack various works on the application of natural fillers and fibers in composites like pineapple, sisal, coconut coir, jute, palm, cotton, rice husk, bamboo, and wood as the reinforcements in composites have been reported in the literature. Sisal fiber is fairly coarse and inflexible. It has good strength, durability, ability to stretch, affinity for certain dye stuffs, and resistance to deterioration in seawater. Sisal ropes and twines are widely used for marine, agricultural, shipping, and general industrial use.

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2. Literature Review

G. Meenambika Bai, H. Raghavendra Rao [1], studied the chemical resistance of Bamboo/Glass reinforced polyester hybrid composites to acetic acid, Nitric acid, Hydrochloric acid, Sodium hydroxide, Sodium carbonate, Benzene, Toluene, carbon tetrachloride and water. The flexural properties of these composites were also studied. The effect of alkali treatment of bamboo fibers on these properties was studied. It was observed that the flexural properties of the hybrid composites increase with glass fiber content. These properties found to be higher when alkali treated bamboo fibers were used in hybrid composites. The hybrid fiber composites showed better resistance to the chemicals mentioned above.

Kolli Balasivarama Reddy S, Abburi Lakshmankumar [2] The objective of this research was to investigate the feasibility of using bamboo fiber mat with different filler like

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Study of Mechanical Characteristics of Concrete with Shredded Rubber Tire Aggregate

Sooraj Kumar & Aishwarya Lakshmi

Conference paper | First Online: 27 June 2022

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Comparative studies of infiltration at Coastal Districts for better management practices

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***Abstract*—In the hydrological cycle, infiltration is one of the ways which precipitation reaching the earth's surface is disposed of. In recent times the groundwater is getting depleted due to various reasons. This research work aims at augmenting the groundwater recharge in Puttur. Groundwater recharge mainly depend upon infiltration capacity of the soil. Infiltration is the movement of water into the soil from the surface. The water is driven into the porous soil by force of gravity and capillary attraction.**

The objectives were to analyse the infiltration rates at two districts of coastal Karnataka (in Puttur Dakshina Kannada and Bhatkal in Uttara Kannada) to get overall picture of typical soil infiltration capacity.

Even though different models are available for finding infiltration capacity Horton's model is used in the present analysis and infiltration value are compared with 26 tests. General infiltration capacities are proposed for both the stations.

The paper presents results of infiltration tests carried out at 10 sites in Bhatkal regions of Uttar Kannada District, Karnataka and 16 sites of Puttur regions of Dakshina Kannada District, Karnataka state. The double ring infiltrometer method was used for measurement of infiltration rates. The study aimed to determine constant infiltration rate at different places in Puttur & Bhatkal and comparing it with infiltration model obtained by Horton's model. The results shown that the infiltration rate depends upon soil type, Porosity, Bulk density, Temperature and Antecedent moisture content. The infiltration equations help to find the groundwater recharge method.

***Index Terms*— Infiltration, Groundwater Recharge, Horton's model**

I. INTRODUCTION

Water is the most essential part of life; clean and safe water for daily use is the basic need of human being. Government and other organisation giving emphasis in supply of portable water to everyone, but it is not yet achieved. Increasing demand of water due to rapid urbanisation has shown extensive use of groundwater. Natural replenishment of groundwater is terribly slow. The amount of exploitation is more than replenishment, this causes decline in groundwater table. This rate is not corrected eventually leads to mining of deep water from the sub surface. Artificial recharging increases the water in aquifer [1].

Water is constantly evaporated from the earth and is returned to earth in the form of precipitation mainly in the form of rainfall. One part of this rainfall sinks into the ground, forming groundwater reservoir, second major part flows as runoff in the form of rivers, and the rest is the evaporation and transpiration.

The rate of infiltration is governed by soil characteristics. The process of infiltration can only happen if the space for additional water at surface of soil. The available excess volume of water in the soil depends upon porosity, rate of infiltration, density of soil, texture of soil and type of soil. The maximum rate that water can enter a soil in each condition is the infiltration capacity [6], [9]. Typical rate of infiltration for different type of soil is given in Table-1 and Figure-1.

Table 1-Typical Infiltration rates [7]

Soils	f(cm/hr)
High (Sandy soil)	1.25-2.54
Intermediate(Loom/clay/ silt)	0.25-1.25
Low (Clay- Clay Loom)	0.025-0.25

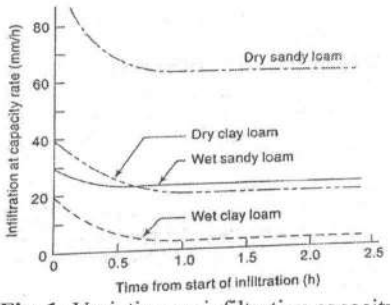

Fig. 1: Variation on infiltration capacity

II. METHODOLOGY

Puttur is a town in Dakshina Kannada district in Karnataka state of India. It features a Tropical Monsoon Climate. The average annual rainfall in Puttur is about 4300 mm (170inches). The average humidity is 75 percent and peaks in July at 89 percent [10]. The soil in this area is generally lateritic soil which is high in iron and aluminium.

Bhatkal is a small city situated in the coastal region of Karnataka state. Although the region receives more than 3500-4000 mm of rain fall every year, people face acute shortage of water in the months of February to may because

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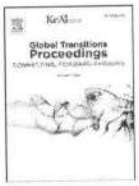

An efficient algorithm for predicting crop using historical data and pattern matching technique

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ARTICLE INFO

Keywords:
Crop Predictor
Dataset
Parameter preference
Pattern matching
Xarray

ABSTRACT

As agriculture seems to be a crucial part in food security as well as economic development of a country, selecting crops for cultivation is a most important aspect in an agricultural planning. It relies on variety of parameters which includes weather condition, soil property and government policies. The suggested system helps the farmers to select suitable crop based on season and region of sowing. It will in-turn help the farmers by improving the net profit to them. By considering different datasets with respect to five parameters such as rainfall, temperature, slope, humidity and soil moisture of horticulture data, the system builds a model or method using which can suggest list of crops which is mainly helpful for the farmers in his/her decision making.

1. Introduction

In the economic development of a country like India, agriculture shows a vital role as it provides income and employment to the rural population and it acts as a main source of food. With the time, the need for the crop production is also increasing. In India, it devotes around 20% to the GDP of the country. Today the farmers cultivate the crops depending on the experience picked up from the past age. Because of the old techniques the farmers are not aware about the interest that happens in the current horticultural economy. This results in the misfortune to the farmers. Selection of crop is a most important aspect in agricultural planning. When the farmers know the accurate information on the best crop in their field as per season, it minimizes the loss. The rate of production of a crop relies on many factors [1] like weather specific parameters (e.g. rainfall, temperature, humidity etc.), soil parameters (e.g. soil moisture) and geography of a place (e.g. slope). Different datasets of these attributes are collected and then analysed. Collecting the data from right source plays an important role in building a prediction model as it effects on accuracy of the model.

The process of analysing data using various analytical and logical reasoning to evaluate each component of the data plays a very important role. This type of examining is just one of the many steps that must be performed when conducting a research analysis. Xarray can be used as one of the techniques to analyse and process the data. There are several existing models [2] for crop prediction about which farmers are unaware, may be due to its complexity or cost-effectiveness. Hence there is a need of developing such a model that is simple, user-friendly, and cost-effective and reach desired accuracy. All the existing methods [3] are only region (location) based but, in our algorithm, region is embedded with season so that the accuracy of the prediction can be improved. Here crop yield forecast models are prepared based on crop weather studies for estimating yield much before actual harvest of the crops.

2. Related works

About 70% portion of India's residents are dependent upon farming as its occupation. The paper [4] focuses on predicting and prognosticate the yield of the crop by learning the farming land's past data. Numerous factors such as rainfall, temperature, soil type and supplementary entities are contemplated by the process to develop a forecasting model by utilizing machine learning techniques. Various machine learning algorithms such as Polynomial Regression, Random Forest and Decision Tree is used. The system can be enhanced by combining this with other departments like sericulture, horticulture and many more who work towards the growth of agriculture of a country.

In paper [5] the dataset is built from former historic statistics which incorporates various influencing parameters like rainfall, humidity and temperature. Here Random Forest is used for prediction which is a well reputed machine learning algorithm. The chosen algorithm had capabilities to predict best crop by taking a smaller number of models. The proposed method assists the farmers while selecting which crops to grow in the field. This approach works for organized dataset. As a future enhancement same work can be extended to work with inputs of independent system as well.

Understanding spatiotemporal variability of soil moisture is important for amplifying the forecasting power of hydrological models, cli-

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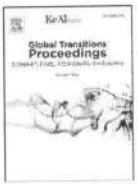

Pest control management system using organic pesticides

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ARTICLE INFO

Keywords:
CNN approach
Early pest detection
Feature extraction
Image analysis
Image processing
Object detection

ABSTRACT

Pest detection is the biggest challenge for the farmers in the field of agriculture. Farmer have to take proper measures to fight against pests by using organic pesticides. This project describes a software prototype system for pest control by identifying the name of the pest. Farmers have to capture the image of the pest using the Android application. Then they have to upload the pest image to the software. Identifying pests over crops is one of the major challenging tasks for the crop technicians and farmers in the field of agriculture. This also causes damage to crops leading to low yield and to the farmers. Image database of the pests is also taken for consideration. Set of training images are compared with the testing images to enable. The convolutional neural network classification approach is adopted to identify the class of Pests.

1. Introduction

India is a land of Agriculture. Many peoples are directly dependent on Farming. Agriculture also plays a very important role in a nation's economy. Farmers come from rural backgrounds. They completely depend on Agricultural activity. It contributes 17% of GDP. It will help the nation by resolving unemployment problems. Some pests like Bacteria, virus, fungus cause harm to the crops. Which results in decrease of quality and quantity of yields of crops. So without using chemical pesticides it is possible to control the Quality as well as quantity of crops. Yes, this is done by organic pesticides. It is better to use Organic Pesticides, which kills pests without causing any side effects to plants and also increases good quality and quantity. But Identifying of pests is a major challenge to farmers. a manual method for analyzing consumes more time. By the help of applications of Image processing recognition technique, there is a way to Pest identifications as well as provide particular pesticides organically. First thing is pest images are captured using cameras or through an android app. Then the captured image has to be processed to the software. The main focus of this project is on the identifications of pest image for taking biological precautions.

Identification of the pest and applying proper organic pesticides in agriculture is the main key way to stop the losses in the yields of the farmer and Quality of the food. It becomes very difficult to identify particular pests and provide proper organic pesticides manually, so Digital Image Processing used for early detection of pests [1]. This process also involves few steps like Image-acquisition, Image pre-processing, Image segmentation, Feature extraction and at the end Classification. Systems are intelligent computer programs that are capable of providing solutions and advice related to specific Problems in a given area, it compares the given images with the datasets. Advantage of system is to perform tasks more consistently than human experts. In agricultural mass production, it is needed to identify the pests at beginning stages of plant. It avoids damages in production costs and increases the yield [9].

2. Literature Survey

David Headrick.2021 [2] The Future of Organic Insecct Pest Management: this paper mainly focuses on Federal(NOP) national organic program guidelines for pest management which can be viewed to certified organic growth in their approach at economically successful management of a varieties of pests situations and knowledge required mainly entomology, for successfully implement present management techniques is overwhelming, and also there are significant gap in guidelines in which resolved could make aid in growth adoption of practices that informs good decision making and accuracy.

Mayank Mishra, Tanupriya Choudhury and Tanmay Sarkar in 2021, [3] they proposed pest control system which use IOT and Image processing technologies. CNN based efficient image classification system for smartphone device. System use infrared sensors for detecting pest. pests detected by using sensor and ultrasonic wave equipment with the help of Image processing which keeps insects away from the field.

Yaowei Wang, Haihong Pan, Zaijun Pang Yijue Wang in 2020, [4] New Image Recognition and Classification Method by Combining Transfer Learning Algorithms. In this paper they propose the importance of TL-MobileNet for welding defects detections. In this experiment of welding defects classification using 'Weld' datasets verify that the TL-MobileNet can be able to correctly identify specific defects in a

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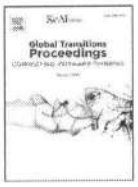

Protection of data using image watermarking technique

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ARTICLE INFO

Keywords:
Encryption
Modified LSB
Nested watermark
Watermark embedding
Watermark extraction

ABSTRACT

Digital watermarking is one of the techniques used for copyright protection as well as authentication purpose. In this paper, digital watermark embedding and extraction techniques have been used in which a nested type of watermarking (a watermark inside another watermark) has been presented. The main purpose of using the nested watermarking method is, it increases the embedding capacity so that a large amount of information could be embedded. In this method, one watermark is embedded into another watermark. The resultant watermark is considered as main watermark. The main watermark is encrypted and then embedded into the main image. The main goal in encrypting the watermarks before embedding is increased safety. A5/1 encryption algorithm is used for the encryption and decryption purpose. Therefore, our research work focuses on two important things i.e., increased watermark embedding capacity and increased safety.

1. Introduction

The more usage of Internet as well as quick improvement in IT industry have made the digital media files could be accessed in an easier way and obtained in daily life from the internet. Because of this, original digital contents suffer from various issues like infringement of copyrights, modification in a very easier manner and content delivery over the Internet in a faster way. Due to this, in order to protect ownership rights, data piracy and copyright protection has become serious issue. Hence in order to resolve these issues some protection measures need to be taken. There are so many new techniques have been developed with respect to information hiding and security. Steganography is the powerful tool in which, any information could be hidden inside any object [1].

Digital watermarking is a technique of inserting data into the multimedia file. The embedded data is referred as a watermark or a label. The embedding is done in such a way that that it can be detected or extracted by the owner. Hence he can make necessary assertions about the modifications which are illegal. Illegal modifications are nothing but the modifications which are done without the approval of the owner. The media file can be any of the digital file. Examples for digital files are image, video, audio or text files. The watermark can be classified into two types. One is the watermark which can be viewed by the user. Another one is the watermark which cannot be viewed by the user.

A watermark can be an image or text. This watermark can be impressed on paper. Hence proof of its authenticity could be obtained. Now days, due to the more usage of Internet, there is no security for the digital files which will be transmitted over the Internet. Hence proper mechanism should be provided to protect the data which are getting transmitted over the network. Digital watermarking is one of such techniques. There is also web based authentication to protect the data over the Internet [2].

Digital watermark is the data inserted to digital data which can be audio, video, or images. It is possible to insert the data into binary images [3]. These data or information can be detected or extracted in the coming days to make an assertion about the data such as who is the owner of that data. This information can be in the form of text which gives the information about the owner, copyright information; or it can be in the form of image. If someone has to identify the original owner, or in the case of any material is duplicated, the contents of digital data inside which the information that has to be hidden is embedded, will get manipulated. Under transmission or transformation, the digital data will remain to be unbroken. Hence ownership rights could be protected in a digital form. More number of watermark bits could be embedded into the main image [4].

Watermarks may be visible. In this case there are two uses of this kind of watermark. One is to intimidate unauthorized usage. Other one is to advertise. In daily life, more concentration is on watermark which is not visible. If invisible watermarks are used then degradation in the original quality of the images could be avoided. Invisible watermarks can be first detected and later it can be extracted so that whatever information has been embedded could be obtained. Watermarks can also be categorized into two types. They are robust and fragile. Robust watermarks are such watermarks which are difficult to remove from the images where it is embedded. That is why the term "Robust" has been used. Fragile watermarks are such watermarks which can be easily removed using any kind of attacks. Hence the protected information will

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Agroxpert - Farmer assistant

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ARTICLE INFO

Keywords:
Agriculture
Chatbot
Chatterbot
Django
Farming assistant
Natural language processing(NLP)

ABSTRACT

Agriculture occupies an important position in the Indian economy. Indian farmers today are facing the problem of low income due to the lack of information about government schemes, fertilizers, farming equipment etc. Some smallholders and marginalized farmers have low awareness as most of them live in remote areas and don't have access to information about soil properties, seeds, recently used tools, fertilizers, etc. The document proposes an intelligent, portable system that uses natural language processing methods to help farmers use different farming methods, and further help them to answer their queries and solve their basic and intermediate level doubts using chatbot which will save their time. To meet all the requirements of farmers, a chatbot is proposed using natural language processing technology. The system will act as an interactive virtual assistant for farmers, answering all queries related to agriculture. This paper will go through the implementation of the chatbot using the chatterbot libraries and Django framework.

1. Introduction

Farming plays a major role in the development of the country. It provides employment opportunities to a large number of people around the world. Day-by-Day the technology is developing in the agriculture field [1]. Nowadays the government is collecting data regarding rainfall and crop production but it is of no use for farmers. Analysing and collecting the data can only be useful to farmers to provide relational trends. There is also some software to teach farmers about technologies. But most of these technologies are not feasible as they do not give accurate answers to the queries asked by the farmers [2].

There are farmers who live in remote areas of the country, who do not have any information related to new technological trends and agricultural practices, who do not have access to sufficient information on crops, soil properties, seeds, latest tools used, fertilizers, etc. Lack of access to agriculture knowledge and information about the latest farming practices leads to poor crop and livestock productivity. To overcome the drawbacks, a chatbot is proposed using the pattern matching technique that provides an interface, where the users, in this case farmers, can communicate with the chatbot efficiently. The project is a web-based application that has Farmer and Admin login for privacy purposes. This system "Agroxpert" is basically a chatbot, which acts as a farming assistant that clears all the doubts of the farmers in an efficient manner. Using Machine learning algorithms query responses are generated [1,2,5]. If the proposed system does not respond to the farmers' queries, these queries are forwarded to experts. Apart from farmers, it will also help the people who are beginners and interested in farming [1].In future sentiment analysis and language translation can be applied to this application [3,7]. The Chatbot has some unique features like adding the question and retraining, updating the existing question, mailing the unanswered queries to escalate those query to higher level via expert. These operation makes the chatbot reply efficiently.

2. Related work

Arora et al. [4] has proposed a chatbot which in addition to assisting the farmers, also aims at detecting crop diseases and weather prediction. For detecting crop diseases, a CNN model is used which would segregate the images of plants into various classes. Results are generated in telegram messenger naming the crop disease that infected it. Good results with an accuracy of 98% for the chatbot module and an accuracy of 94% for the crop detection module were obtained. The future scope would be to enable language translation feature for chatbot module and location feature for weather prediction module. In this the chatbot is created in the telegram app to find out the disease.

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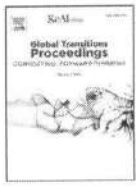

AGRIC: A quality farming

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ARTICLE INFO

Keywords:
Agricultural information
Biogas
Financial schemes
GDP
Livestock

ABSTRACT

Around half of the Indian population depends on agriculture as a livelihood. Still, the share of agriculture in GDP is only 19.9% in 2020–21. This is mainly due to a lack of agricultural skills and a lack of an advisory system for farmers. Indian farmers have led to technological backwardness and a low rate of income to carry out modern agricultural activities. Agricultural information is essential for agricultural businesses.

In this article, agriculture information is used in the following ways: One way is to provide livestock information and farming advice, this is one of the agricultural activities that generate economic benefits for agriculture. Another way is to provide direct interaction with the government by keeping them updated with the financial schemes available to them and the daily market prices of farm products. The final approach is to use a centralized waste collection point based on a wireless sensor network to send waste and residues from the farms to generate biogas, which may be another source of income for the farmers.

1. Introduction

India's agriculture is currently ranked second in the world's agricultural production. Agriculture has a crucial role within the Indian economy. Over 58% of rural households depend on agriculture for their livelihoods. Agriculture, together with fisheries and forestry, is certainly considered one of the biggest members to gross home product (GDP) [1]. Farmers face a lot of issues be it how to combat specific crop diseases, fertilizer choices, pest infestations or unpredictable weather [2]. Sometimes crops can fail due to poor farmer decisions and natural disasters. Of all the suicides recorded in India, farmer suicides account for about 7.4% of all suicides. Farmers commit suicide due to flooding, financial problems, poor harvests, or lack of water, and in some cases, government plans may not reach farmers. The main reason is the farmers are not able to repay the loan [3].

This can be controlled by making available to farmers relevant information about the government system, how they can benefit from it, and what links they can apply to benefit. Sometimes the farmers will get low prices for their crops, it is a loss for the farmers by providing daily price updates of their crops which they are not cheating, and they match their crops, you will get a good price. The farmers can be provided with relevant information on crop and livestock growth, appropriate weather conditions, and how to deal with fertilizers, feeds, and common livestock diseases [4].

If the harvest fails, farmers can throw away the garbage or sell it to a biogas cellar to earn money instead of burning it. This creates opportunities for the production of biogas. The biogas produced can be used for various purposes such as cooking. This can provide financial support to farmers. IoT is being used to collect waste from farmers. The IoT is a network of objects connected to the Internet and web services interacting with these objects [5]. You can implement IoT with reduced cost, power consumption, size, and hardware specifications.

2. Related works

Agricultural systems need radical changes to ensure the sustainability of food production and global food security. Digital agriculture [6] services, combined with green farming practices, help farmers use their agricultural resources more efficiently. Agriculture web service can be provided by government or non-governmental organizations [7].

Observations show that farm waste and residues are burned and treated unused everywhere, causing air pollution and environmental imbalances. Meanwhile, India has a demand for green energy. The objective is to bring a connection between these two areas for future profit [8]. India's agricultural sector is no exception to the implementation of digital technologies for precision agriculture (FP), precision irrigation (PI), and livestock management (LM). Through government efforts like

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Recent Advances in Artificial Intelligence and Data Engineering pp 239–252

Building Dataset and Deep Learning-Based Inception Model for the Character Classification of Tigalari Script

Sachin S. Bhat, Alaka Ananth, Rajashree Nambiar & Nagaraj Bhat

Conference paper | First Online: 01 November 2021

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Part of the book

Abs

Imag are i adva techniques, these fields are attracting lot of researchers to develop models with near human

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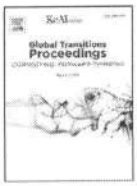

Facial recognition using Haar cascade and LBP classifiers

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ARTICLE INFO

Keywords:
Facial recognition
Haar cascade
Local binary pattern (LBP);Open CV
Radio-frequency identification(RFID)
Support-vector machine(SVM)

ABSTRACT

Facial Recognition is the biometric technique used in face detection. The task for validating or recognizing a face from the multi-media photographs is done using facial recognition technique. With the evolution of advanced society the requirement for face identification has been really important. Detection and identification of faces has been grown worldwide. It owes the demand for security such as authorization, national safety and other vital circumstances. There are number of algorithms for facial detection. This paper aspires to present the comparison of two face recognition techniques Haar Cascade and Local Binary Pattern edified for the classification. As a result the accuracy of Haar Cascade is more than the Local Binary Pattern but the execution time in Haar Cascade is more than Local Binary Pattern.

Introduction

Biometric Recognition is he statistical data analysis of people's unique behavioral and physical characteristics which is mainly used for security and identification which includes fingerprints, facial features, retina, iris, voice, gaits palm print etc. Among these methods face detection is considered to be most precise and safe. Facial recognition is an activity of discovering a peep's face by estimating and evaluating motifs on the exclusive facial markers of the face. Biometric software is used for this purpose.

There are number of strategies for recognizing person's face. Some of them are adaptive regional blend matching method and generalized matching face detection method. The values of the nodal points on the person's face plays crucial task in face recognition system.

Many researches had been done on LBP and Haar cascading techniques [1]. But either they are using only one algorithm or they are detecting a single face in the image. In the current work two algorithmsare used to detect the faces in the image containing many faces to calculate the accuracy then the acquired accuracy will becompared by plotting the curve and bar graph to find the efficient algorithm.

There are two types of image positive image and negative image. Positive images are those images which contain the face in that and negative images are the images which contains non-face image [3]. Classifier is a device which decides whether the taken image is negative or positive. It is trained on hundreds of thousands of face and non-face images to learn to classify a new image as face or non-face image correctly. OpenCV provides two pre-trained classifiers Haar Classifier and LBP Classifier. Both of these classifiers process images in gray-scales as it doesn't need color information to decide if image has a face or not [4].

Haar Cascading

Haar Cascading is the machine learning method where a classifier is drilled from a great deal of positive and negative photos. The algorithm is put forwarded by Paul Viola and Michael Jones [5, 6]. Haar feature-based cascade classifiers are the classifiers implemented for object detection. This classifier chases machine learning procedure in which a cascade operation is inculcated from the photos to discover items in additional photos. Face detection and facial expressions in an image are also successfully detected. The exercise is finished by offering positive and negative pictures to the classifier. Then the characteristics are drawn out from the picture. Each characteristic is an individual value, which is acquired by subtracting sum of pixels in white rectangle from summation of pixels in black rectangle.In which it detects the faces of different individual in different environments. The Haar-like feature of any size can be calculated in constant time because of integral images [2].

Local Binary Patterns

Local Binary Pattern is a kind of visual course used for categorization on computer vision. LBP is the distinct case of the Texture Spectrum imitation put forwarded in 1990.

LBP was first illustrated in 1994. It has since been found to be a strong factor for texture categorization. By utilizing LBP operator, individual photo is examined as a structure of micro-patterns. Then the histogram of LBP is enumerated throughout the face, which encrypts just the circumstances of micro-patterns. The figure of documentation is assembled by splitting face picture toward m minor non over lapping sections such as R0, R1,...,Rm .The original LBP labels the pixels by threshold the 3×3 neighborhood in relation to the central pixel value. In

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Recent Advances in Artificial Intelligence and Data Engineering pp 145–160

Home > Recent Advances in Artificial Intelligence and Data Engineering > Conference paper

Application to Aid Hearing and Speech Impaired People

Akshatha Patkar, Steve Martis, Anupriya, Rakshith & Deepthi G. Pai

Conference paper | First Online: 01 November 2021

Part
book

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inspiring mission. The hearing-impaired and the mute society depends mainly on the hand gestures known as the sign language for communication. The sign

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Identification of aromatic coconuts using image processing and machine learning techniques

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ARTICLE INFO

Keywords:
K-means
Polynomial regression
RGB
Segmentation
Threshold

ABSTRACT

The paper develops an efficient and accurate method for detecting fresh aromatic coconuts. Coconuts have a nearly cosmopolitan distribution due to human action in using them for agriculture. At present, the only way to determine whether a coconut is aromatic or not is by tasting it. By implementing the IAC (Identification of Aromatic Coconuts) method as proposed in this research, it is possible to identify the aromacy through non-invasive mechanisms with the help of image-processing techniques. The brightness of the image has to be adjusted accordingly for actual implementation. The underlying principle is that the color of the region of interest at the bottom part of the coconut shell is correlated to its age. Segmentation is done on the image via K-Means. The region of interest in RGB color is converted in to HSV and the Threshold is applied to it. After that the amount of white pixels in each layer on the image are measured using Polynomial Regression to obtain the predicted value of aromacy.

1. Introduction

Coconuts are grown widely throughout the world and have their unique significance. They are used in various products such as coconut skimmed milk, coconut milk powder, and coconut oil. Since they have low calories and are high in fiber they have their health benefits as well. Coconuts have been grown in tropical regions for more than 4500 years but recently increased in popularity for their flavor, culinary uses, and potential health benefit ("coconut and health" 1). The total world planted area of coconut is about 12 million with the annual estimated potential production of 70 billion nuts. Currently, India, Indonesia and Philippines are the major coconut producers, contributing more than 75% of the total global production ("The Current Scenario and Development of the Coconut Industry" 2). The coconut industry has shown rapid growth in the development of coconut products and is in great demand from the American, European, Middle East and East Asian markets. Nowadays, in the transaction of coconuts from the producers to the consumers, there are a lot of cases of low quality coconuts being sold ("Coconut Products Market Size & Share" 3). The purpose of the research is to help both the farmers and the consumers to identify the aromatic coconuts thereby reducing such cases. The bottom region of the coconut's shell is the region of interest. The texture and color patterns on this region of the coconut are of great significance. The existing issue is the inability to identify the aromacy in the coconut without actually tasting it. The consumers are more concerned with the quality rather than price of the coconut. By using the web application of the proposed research the consumer can easily identify whether the coconut is aromatic or not. The consumer can decide whether buying a particular coconut is feasible or not based on the information obtained from the output of the research. The aim is to provide a simple user-friendly application that will do the same by computing and informing the user about how aromatic the coconut is [11–13].

2. Related work

There are many work done previously, related to sorting agricultural crops using image processing. Watermelons, strawberries, tomatoes, areca nuts, coconuts are some of the examples of crops on which research has been done using Image Processing. In order to identify various stages of coconut and determine the mature coconut, D. Avudai Nayagam T. [1] makes use of Jetson Nano Board and a computing board that compares the captured image and the dataset which is done by the designed Intelligent System. S. K. Niranjan [2] identifies coconut by features like size, shape, color and texture of the image. D. A. Anushya [3] has developed a method to find out the identity and freshness of the coconut which is achieved by determining features like size, shape, color and texture of coconut image that are extracted by Gray Level Coconut Matrices and K-means in image. In H Calacad [4], Advanced Intelligent Systems have been implemented which makes use of three machine learning techniques namely Artificial Neural Network

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RESEARCH ARTICLE OPEN ACCESS

Identification of Weeds in Maize Crop Using CNN

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Abstract*— Deep learning is the nucleus in machine learning discipline which uses knowledge representation of learning. Learning can be supervised, semi-supervised or unsupervised. Many Deep learning architectures are available which includes deep belief networks, deep neural networks and recurrent neural networks of which it has been applied to most of the fields. The commonly used applications of deep learning are vision related, audio, video, language processing, social media, medical, game and many more programs where they have produced a promising accurate result comparable to and in few cases superior to human experts. Smart agriculture is an area that can benefit from the latest advances in expert systems. One of the objectives is to remove the weeds by reducing the use of herbicides used, the risk of pollution of crops and water. The image of the crop field is given as input training examples. By using the extracted feature, the images with weeds are detected and classified. A deep learning model is developed using convolution neural networks to detect weeds with a good accuracy so that the model could be used to detect the weeds in the crop field in a shorter time.

Keyword-Image Segmentation, dataaugmentation, Convolutional Neural Network. Deep learning,RGB extraction. (keywords)

I. INTRODUCTION

Successful cultivation of maize depends largely on the efficacy of weed control. Weed control during the first six to eight weeks after planting is crucial, because weeds compete vigorously with the crop for nutrients and water during this period. Annual yield losses occur as a result of weed infestations in cultivated crops. Crop yield losses that are attributable to weeds vary with type of weed, type of crop, and the environmental conditions involved. Weeds are notorious yield reducers that are, in many situations, economically more harmful than insects, fungi or other crop pests.If weed growth is not stopped at a critical time, it results in massive crop loss, sometimes as varied from 10% to 100%. The presence of weeds at the harvest stage of some crops may reduce the quality and their values. According to Nave and Wax's [1] study the soybean harvesting before weeds was dried out resulted in great threshing and separating losses when the speed increased from 1 to 2 and 3 mph. Stubble, lodging, and stalk losses almost doubled in the pigweed and foxtail infested plots compared with the ones without weeds.

In the present day scenario, the quality of soil is slowly depleting due to the weeds and in some areas the land is completely not fit to grow anything and besides that we have the rising population. Weeds cause annual crop loss of $11 billion in India.

The motivation in this project is to achieve more efficient gardening in agriculture. If we identify weeds early on and can distinguish them from the plants we want to grow we can take action earlier.

II. LITERATURE REVIEW

In a present-day scenario different method have been attempted, among which manual weeding by hand or using simple hand tools has been used for centuries and is still being used in small scale fields nowadays. However, this manual testing is time consuming and needs many labor thus increase in labor cost, making this method not useful for modern weeding. Controlling of weed is a critical farm operation and can affect the crop yield. Herbicides applications have vital importance in weed control and high crop yield. Weeds are not uniformly distributed in the field, they clumped together in patches [2] herbicides are applied to the whole field, representing significant portion of the variable cost of agricultural production. In these days, there

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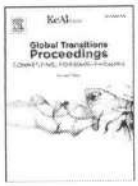

Crop yield forecasting using data mining

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ARTICLE INFO

Keywords:
Accuracy
Agriculture
Crop yield prediction
Data mining
Random forest algorithm

ABSTRACT

India is a heavily reliant on agriculture. Organic, economic, and seasonal factors all influence agricultural yield. Estimating agricultural production is a difficult task for our country, particularly given the current population situation. Crop production assumptions made far in advance can help farmers make the necessary planning for things like storing and marketing. Crop production prediction involves a huge amount of data, making it a perfect candidate for data mining methods. Data mining is method of accumulating previously unseen anticipated information from vast database. Data mining assists in the analysis of future patterns and character, enabling companies to make informed decisions. For a specific region, this research provides a fast inspection of agricultural yield forecast using the Random Forest approach.

1. Introduction

India's primary occupation is agriculture and the country's economy are entirely dependent on it for rural survival. Farming accounts for roughly 70% of the primary and secondary sectors. As a result, many farmers have begun to employ new technology and methods to improve their farming operations. People, on the other hand, are unaware of the importance of cultivating crops at the appropriate time and place. In this situation, using multiple elements that influence production to identify crop adaptability and yield can improve crop quality and yield, resulting in higher economic growth and profitability [2]. Crop development is a challenging phenomenon that agriculture input parameters recommend.

Data mining is method of accumulating previously unseen anticipated information from vast databases. Data mining assists in the analysis of future patterns and character, enabling companies to make informed decisions. The process of analysing, cleaning, and modelling data to generate useful knowledge and conclusions is known as data analysis [6].

Methods are used to convert the customer's raw data into valuable information. This research can be extended to agriculture as well. Most farmers relied on their long-term field experience with specific crops to forecast a greater yield in the coming season. Nonetheless, they do not receive a fair price for their crops. It typically occurs because of insufficient irrigation or poor crop selection, but it may also occur when crop yields are lower than expected. Due to a variety of factors, the farmers who make up the majority do not achieve the predicted Crop yield. That data set of crop yield which consists of many components. By studying the soil and atmosphere for the specific area, by which increase crop production, optimal crop can be estimated [10]. Advantage of our research mainly is Farmers will benefit from this forecast. To determine which crops are best for their farm based on soil type, ph., and fertilizer [11, 12].

2. Related works

Shailesh Shetty S *et al.* [1] This project supports farmers in evaluating which crop to grow in a specific area at a specific time and predicting whether it will be profitable or not. It gives the specifics by specifying whether the crop is profitable. As a result, this device aids farmers in their decision-making process, allowing them to save time.

Suvidha Jambekar *et al.* [2] Regression analysis is applied as a predictive modelling tool to predict crop production for crop production. The regression algorithms applied were, Multivariate Adaptive Regression Splines, and then Multiple Linear Regression, Random Forest Regression. According to the results, Random Forest Regression may be used to accurately estimate wheat, and rice, and maize production.

B. Devika, B. Ananthi *et al.* [3] Agriculture expands yield production to meet demand to limit overlapping, and the government encourages it for crop yield forecast on TamilNadu dataset imports. The regression method is put to the test of yield prediction capabilities in this study.

R. Vidhya *et al.* [4] They observed accuracy rate improves when a dataset with more features is used. As opposed to other approaches, such as Decision trees, linear regression, random forest algorithm is shown to be superior to other prediction algorithms. The included dataset incorporates a lot more variables resulting in more precise prediction.

Hetal Patel, Dharmendra Patel *et al.* [5] They measured performance of the classification algorithms Naive Bayes, J48, and Simple Cart. This crop prediction comparative analysis employs a large dataset and 10-

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Recent Advances in Artificial Intelligence and Data Engineering pp 377–386

An Efficient Algorithm for Fruit Ripeness Detection

Sharath Kumar & Ramyashree

Conference paper | First Online: 01 November 2021

Part of the Advances in Intelligent Systems and Computing

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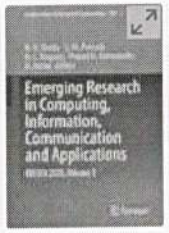
approach applied to the fruit. The identification of good and bad fruits in this analysis illustrates the approaches used by MATLAB. The created approach starts the procedure by taking the image of the fruit



Emerging Research in Computing, Information, Communication and Applications pp 1–9

Design of a Secure Blockchain Based Privacy Preserving Electronic Voting System

R. Shashidhara, M. Indushree & N. S. Sneha

Conference paper | First Online: 16 November 2021

Part of the Lecture Notes in Electrical Engineering book series (LNEE,volume 789)

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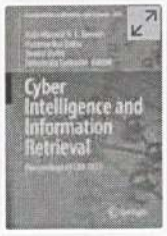
Abstract

Blockchain is an emerging techn
numerous opportunities to devel
and distributed digital services b
and transparency. It has mainly c
legal and technical issues rather
digitized services. In this article, we make use of the



Cyber Intelligence and Information Retrieval pp 581–589

Comparative Analysis of Brain Tumor Segmentation with Fuzzy C-Means Using Multicore CPU and CUDA on GPU

Sahana ✉, S. Sowmya & V. Narendra

Conference paper | First Online: 29 September 2021

Part of the Lecture Notes in Networks and Systems book series (LNNS, volume 291)

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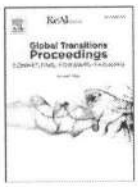

Traffic violation detection in India using genetic algorithm

Akhilalakshmi T Bhat, Anupama, Akshatha, Mahima S Rao, Deepthi G Pai*

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ARTICLE INFO

Keywords:
Background substractor
CCTV footage
Gaussian filter
Genetic algorithm
Haar
Machine learning
Traffic violation

ABSTRACT

The paper speaks about traffic violation detection, which is the most happening topic where the existed system is being automated, or we can say that machines do all the work which includes automatically detecting the vehicle and their violation. Recording of the traffic will be collected through CCTV footages and then violation is detected by the system. Then that clip's image will be displayed showing the violation. This paper discusses detection of the violation that is specifically done by the algorithm that is, Genetic Algorithm. Genetic algorithm is used to optimize input given to machine and that could be the records set gathered from the CCTV footage. These inputs can be similarly transformed into frames (it is far one of the many nonetheless photos which composes the entire transferring picture). Next step is the background subtraction which allows to take the ones frames as inputs and offer pictures foreground to be extracted for similarly processing. Genetic set of rules can be used for the following step to be able to assist us to validate whether a contravention has occurred or not. The most important purpose is to perform via the advent of Genetic set of rules, that complements the enter set of rules with using genetic ideas so one can produce the "fittest" set of rules. Before the detection, background subtraction is done to get the frames from the video, then detecting the vehicles is important so the Haar technology is used, which is mostly used to get the xml files to use in the system.

1. Introduction

The problem of traffic violation has become a serious problem in the present day. The high volume of traffic is due to the increasing number of cars and other vehicles [1]. Day by day, the problem is turning out to be more and more critical. There is an increase in the rate of accidents in cities. It is obvious that people are violating the traffic rules and there is a high need to control it. Genetic Algorithm is an important timing optimization method in the case of traffic [2]. The proposed solution is based on the application of a Genetic algorithm to get the threshold of fitness function so formed. This proposes a machine vision to detect traffic violations, swerving in specific and blocking pedestrian lanes at the traffic.

When it comes to traffic police, they detect the vehicles violating traffic rules by looking into the CCTV footage. It is a tedious job to investigate each camera and find the vehicle that violated the traffic rule [3]. The solution to this alarming problem is automating the process and it can be done using Machine Learning. The process involves acquiring an image which is then subtracted by the reference image, after which violation is detected [4]. Genetic algorithms are now applied to find the threshold of fitness function. Thus, the output is displayed with the corresponding type of violation.

Genetic algorithm is an optimization technique, which is based on the principles of natural selection and genetics. The frequent use of this algorithm is to find near-optimal or completely optimal solutions [5]. It is used in difficult problems for which the solution without a genetic algorithm may take a lifetime. It is widely used today in business, engineering, and scientific studies. For instance, genetic algorithms can be used in image processing, database queries, to find the threshold and so on [6]. Irrespective of the field or stream, it has general steps which involve initializing the population, generating chromosomes, evaluating fitness function and finally the stopping criteria [20,21].

2. Literature survey

Kulkarni and Baligar [7] proposed the classification of various vehicles through computer vision which has been proven to be an effective way to classify cars, vans, taxis, motorcycles as group 1, bus, and trucks as group 2, multi axle trucks for the third category. The main aim of the author is to classify the vehicle into different categories and creating convolutional neural networks which are optimized using genetic algorithm approach. We can see the usage of the open-source tool Deep Neural Network Evolution in development of programs for genetic architecture. Software tool used by the author first generates a random population network which in turn creates a population. Observation from this work is that each member is assigned with the score based on the fit-

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Comparative Study of Quasi Steady and Unsteady Damping Derivatives for Delta Wings in Hypersonic Flow for Half Sine Wave

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Keywords:
Quasi-steady; Unsteady derivatives; Damping derivatives

ABSTRACT

Correlation investigation of quasi-steady and unsteady damping derivatives of delta wing is analyzed and contemplated, with leading edges bent in the current paper. The current paper realizes that the quasi-steady damping derivative considers only the rate of pitch, not the rate of the angle of attack. In contrast, unsteady damping derivatives account for pitch rate and the rate of the angle of attack. Results show a reformist reduction in the damping derivatives as the Mach number increases in quasi-steady and unsteady cases. Outcomes are computed for a varied range of Mach Numbers and deflection angles due to the pitch rate of different amplitudes of half-sine waves. The outcomes for the damping derivative for a fixed pivot position show different behaviour for different values of the flow deflection angles observed here. As in straight leading edge, even in the curved leading edge, steady-state is attained earlier in quasi-steady than unsteady.

1. Introduction

An attempt to derive the calculation of damping derivatives with bent leading edges is carried out [1]. A similar investigation is conducted for a high-velocity stream wing with a curved leading edge for a delta wing. The wing having bent leading edges has countless benefits over the wing having a top straight edge. The delta wing with a straight leading edge has a linear distribution of the wing surface area than the curved leading edges [2]. Nonetheless, the wings have bent leading edges, supplanting a straight driving edge by a half-sine wave in the current case. Theoretical calculation of the stability derivative gives a thought about the performance of aviation vehicles. Subsequently, stability calculation is more significant before going for a model plan. There is a requirement for computing straightforward yet sensible precise techniques to felicitate the design process. The

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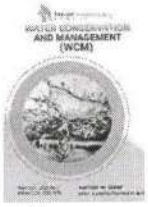

RESEARCH ARTICLE

EVALUATION OF ERA5 AND IMERG PRECIPITATION DATA FOR RISK ASSESSMENT OF WATER CYCLE VARIABLES OF A LARGE RIVER BASIN IN SOUTH ASIA USING SATELLITE DATA AND ARCHIMEDEAN COPULAS

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ABSTRACT

Precipitation as a major water cycle variable influences the occurrences and distribution of terrestrial water storage change (TWSC), evapotranspiration (ET), and river discharge (Q) of a large river basin. However, its relationship with the other water cycle variables using probabilistic dependence structure concept has not been addressed much. Furthermore, precipitation derived from gauge record is plagued by bias due to orography and under-catch. To fill these gaps, bivariate copula and precipitation derived from reanalysis and satellite data were used. In the present study, the basin-wide averages of the precipitation products APHRODITE, ERA5, and IMERG were used as predictors, whereas the areal mean of MOD16 evapotranspiration, GRACE TWSC, and gauge discharge were used as dependent variables (predictants) for the Brahmaputra basin. The bivariate Archimedean copulas were applied to all the pairs of precipitation-TWSC, precipitation-ET and precipitation-Q based on the optimal marginal distributions obtained. Using the best copula for each pair of the variables, the conditional probability was constructed to predict the predictants for different precipitation amounts (5th, 25th, 50th, 75th, and 95th percentiles). The focus of the analysis was on two scenarios of the predictants (i.e.,≤ 5th and ≥ 95th percentiles). The non-exceedance conditional distribution of TWSC, ET, and Q (all predictants ≤ 5th percentile) decreases with precipitation increase. However, the exceedance probability of the predictants (≥ 95th percentile) increases gradually with an increase in precipitation. The results revealed that both ERA5 and IMERG precipitation data could be used to derive probabilistic measures of the water cycle variables in the absence of gauge-based precipitation.

KEYWORDS

APHRODITE, GRACE TWSC, MOD16 ET, discharge, Brahmaputra

1. INTRODUCTION

The relationship between precipitation and hydrologic variables is critical in understanding the occurrence of such variables in a hydrologic system. In order to attain water security and improved flexibility to hydrologic extrema, a pragmatic discernment of water resources evolution at the basin level is necessary (Sheffield et al., 2018). This is evident when dealing with the water budget of large river basins. The Pearson's correlation coefficient has been widely used in hydrology to relate one variable with another, but this statistical metric follows the assumption that the data follows normal distribution and are linear. Moreover, correlation coefficient is very sensitive to outliers (Legates and McCabe, 1999).

However, hydrometeorological variables are often known to be non-linear and rank-based correlation coefficients like Spearman's rho and Kendal's tau are preferred (Li et al., 2015; Uttarwar et al., 2020). Accordingly, prediction of a hydrological variable is carried out using various methods, namely, ordinary least square (OLS), multiple linear regression (MLR), partial least squares regression (PLSR), principal component analysis/regression (PCA/PCR) and geographically weighted regression (GWR), empirical method- Budyko framework (Li and Quiring, 2021), machine learning algorithms, conceptual hydrological model (Poncelet et al., 2017) and semi-distributed/ distributed models (Hasan and Tarhule, 2020; Jato-Espino et al., 2017; Ndehedehe et al., 2016; Sinha et al., 2019; Abudu et al., 2010; Hu et al., 2021; Yuan et al., 2019; Zhou et al., 2020; Abudu et al., 2010; Almanaseer and Sankarasubramanian, 2012; Li et al., 2020; Li and Quiring, 2021; Han et al., 2021; Seyoum and Kwon, 2020; Sinha et al., 2019; Sun et al., 2014; Sahana and Timbadiya, 2020; Sridhar et al., 2019).

For example, researchers investigated the long-term terrestrial water storage anomaly from GRACE data as affected by precipitation, runoff, surface water storage, soil moisture storage and population density using geographically multiple regression (GMR), ordinary least square (OLS) and geographically weighted regression (GWR) (Hasan and Tarhule, 2020). It is reported that GWR is important for accounting the spatial locations to characterize the variability of GRACE TWSA long-term trends in space. In the assessment of watershed characteristics on long term water balances, machine learning algorithms like neural network (ANN)

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Unsurpassed Image Surveillance System

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***Abstract*: People use security measures to protect their property whether it is a house or a company. Current security systems include the use of various motion sensors and video surveillance cameras, namely, Perimeter Intrusion Detection Systems. Most video monitoring systems work with algorithms such as background image removal, duplicate screen filter (DBF), a virtual flow path to detect motion where a video is recorded with a digital video recorder when a moving object is identified for memory retention, but in a proper process. Some missing frames even moving objects are perceived as being treated as stable (without considering the minimal movement of objects below the boundary value), here we suggest a combination method to remove the background image and double screen filtering with open morphological motion identification. Items and improve video quality. This project aims to provide one such perspective to ensure the safety and security of personal property. This system performs face recognition as an authentication procedure and alerts the owner when an unknown face is detected by sending an email with the snapshot of unknown face and a SMS. Live feed from multiple cameras can be viewed through smartphones, computers**

Keywords: CCTV, monitor, face-identification, camera

I. INTRODUCTION

Like any CCTV, CCTV smart works by providing real-time monitoring videos. The days of traditional CCTV are long gone. Like any CCTV, CCTV smart works by providing real-time monitoring videos. However, when the traditional camera only records, intelligent CCTV can understand the feed and can make sense of the recording images. Sure, it's a little annoying; however, it is fair to say that experts may outweigh the disadvantages with such technological advances. It constantly monitors frames and monitors any movement in the frame using a high-pass filter where the image edge is sharpened. It uses the LBPH Face Identification Method: So now we have found the face in the frame and this is the time to identify it and check if it is in the database we used to train our LBPH model. This feature is used to find the sounds in the frames well this is something you can find on most CCTV. Simply put all the frames are continuously analyzed and monitored for sounds and any movement Therefore, it works through the following steps:

1 - Begins to hear sounds in the frame.

2 - Then in the event of any movement, find out which side that happened; either left or right.

3 – At last it checks if motion from left ended to right; then it will detect it as entered and capture the frame, or vice-versa.

II. MOVING OBJECT TRACKING (BACKGROUND SUBSTRACTION)

Since the video sequence consists of several frame sequences with some degree of excessive continuity, the detection of moving objects in the video is performed so that the frame sequence is extracted from the video sequence according to a particular cycle. Increase. Therefore, detecting a moving object in a still image relies solely on tracking the moving object based on the object's motion properties the following is a brief definition of the method of video sequence analysis frequently used in moving object detection. Two or more frames captured at different times contain information about the relative motion between the imaging system and the scene. Therefore, information about motion can be obtained by analyzing and processing frames captured at different times optical flow method reflects frame variability caused by movement at specific time intervals. It is estimated that the moving object will contain similar motion vectors in the frame's motion field. The optical flow method requires solving the transcendental equation. Computational complexity, noise sensitivity, computational load, and poor real-time performance and practicality. Therefore, it is difficult to use this method for real-time video processing. This method splits the image into a foreground and a background. The pixels that correspond to the background model are called the background, and the other pixels are called the foreground.

III. FACE IDENTIFICATION MECHANISM (LBPH ALGORITHM)

This a face identification model which uses LBPH algorithm. Here we have to train the model. Algorithm working: What happens is that the face detection, it works by the principle of LBPH algorithm. Mindy's what happens is that it takes the input, face it. You have to train the model. That means it in the model means takes the photo person. Takes about the 300 photos. To be under photos and then the images. Mr Putin is the folder where it is stored. Then near the training is is model is trained. After that we have give also two button one is the ad and another is the start with the loan. When you if you want to add any personal click on the air button or if you want to start with the lone person means any person in the data set. So likewise, this is about the LBPH working in the face detection model.