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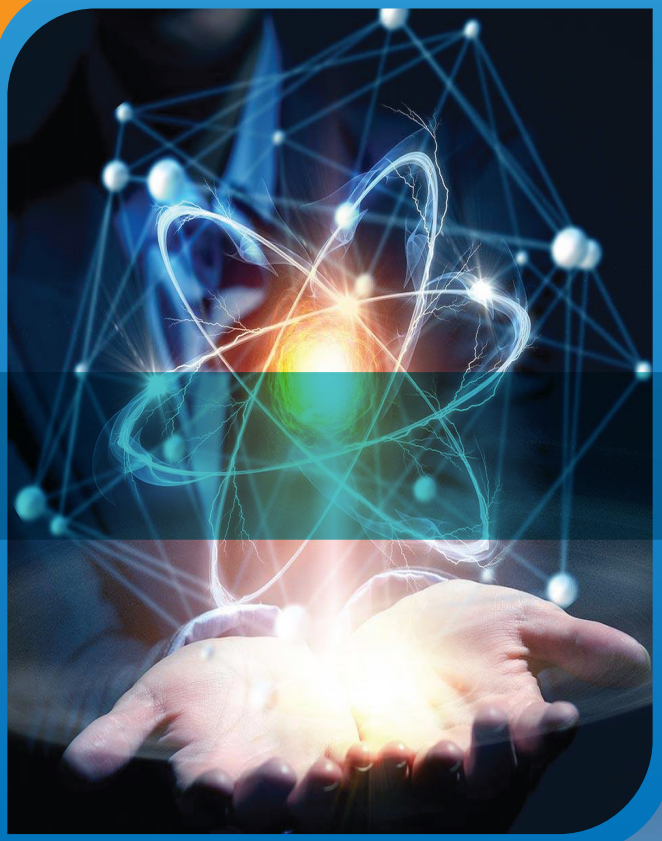

27th & 28th May 2021

Vietnam

WCASET-2021

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35th World Conference on Applied Science, Engineering and Technology

35th WCASET-2021
Virtual Conference

Ho Chi Minh City, Vietnam
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Editorial

We cordially invite you to attend the **35th World Conference on Applied Science, Engineering and Technology (WCASET - 2021)** which will be held on **27th & 28th May, 2021** - Virtual conference. The main objective of **WCASET-2021** is to provide a platform for Researchers, Students, Academicians as well as Industrial Professionals from all over the world to present their research results and development activities in relevant fields of Science, Engineering and Technology. This conference will provide opportunities for the delegates to exchange new ideas and experience face to face, to establish business or research relationship and to find global partners for future collaboration.

These proceedings collect the up-to-date, comprehensive and worldwide state-of-art knowledge on cutting edge development of academia as well as industries. All accepted papers were subjected to strict peer-reviewing by a panel of expert referees. The papers have been selected for these proceedings because of their quality and the relevance to the conference. We hope these proceedings will not only provide the readers a broad overview of the latest research results but also will provide the readers a valuable summary and reference in these fields.

The conference is supported by many universities, research institutes and colleges. Many professors played an important role in the successful holding of the conference, so we would like to take this opportunity to express our sincere gratitude and highest respects to them. They have worked very hard in reviewing papers and making valuable suggestions for the authors to improve their work. We also would like to express our gratitude to the external reviewers, for providing extra help in there view process, and to the authors for contributing their research result to the conference.

Since March 2020, the Organizing Committees have received more than 130 manuscript papers, and the papers cover all the aspects in Electronics, Computer Science, Information Technology, Science Engineering and Technology. Finally, after review, about 77 papers were included to the proceedings of **WCASET-2021**.

We would like to extend our appreciation to all participants in the conference for their great contribution to the success of **WCASET-2021**. We would like to thank the keynote and individual speakers and all participating authors for their hard work and time. We also sincerely appreciate the work by the technical program committee and all reviewers, whose contributions made this conference possible. We would like to extend our thanks to all the referees for their constructive comments on all papers; especially, we would like to thank to organizing committee for their hard work.

Acknowledgement

IFERP is hosting the **35th World Conference on Applied Science, Engineering and Technology** this year in month of May. The main objective of WCASET- 2021 is to grant the amazing opportunity to learn about groundbreaking developments in modern industry, talk through difficult workplace scenarios with peers who experience the same pain points, and experience enormous growth and development as a professional. There will be no shortage of continuous networking opportunities and informational sessions. The sessions serve as an excellent opportunity to soak up information from widely respected experts. Connecting with fellow professionals and sharing the success stories of your firm is an excellent way to build relations and become known as a thought leader.

I express my hearty gratitude to all my Colleagues, staffs, Professors, reviewers and members of organizing committee for their hearty and dedicated support to make this conference successful. I am also thankful to all our delegates for their pain staking effort to make this conference successful.

Er. R. B. Satpathy
CEO (Chief Executive Officer)
Institute for Engineering Research and Publication (IFERP)

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CEO, Decision Options, LLC
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Prof (Dr.) Raj Kumar Singh
Professor, Dean (Research & Development),
HOD (Department of Commerce), School of Management Sciences,
Varanasi India

Mr. Krishna Murari Pandey
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ABSTRACTS

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35th World Conference on Applied Science, Engineering and Technology
27th & 28th May, 2021 - Ho Chi Minh City, Vietnam

Low Velocity Impact Analysis of Laminated Composite Structure using Damage MESO Model Approach

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Abstract

Damage meso-model for laminates (DML) is one the most widely applicable approach in fiber-reinforced polymeric composite analysis. It has been developed over the last two decades considering the various works of authors in both experimental and theoretical that have been carried out in both micromechanics as well as meso-mechanics approaches. The Damage meso-model for laminate is developed based on the micromechanical description that aims predicting the damage initiation, damage evolution until the failure of fiber reinforced composite structure. This work is aimed to connect the micromechanics and meso-mechanics of laminated composite structure. In the model we considered two meso constituents such as composite lamina and cohesive interface for the analysis of intralaminar and interlaminar damage imparted form low velocity impact on laminated fiber reinforced composite structure. The martial model for meso constituents is defined using a user defined material subroutine (VUMAT) and is implemented in finite element modeling tool ABAQUS/CAE. The model predicts the damages in the meso constituents accurately and considered the most effective technique for modeling low velocity impact problem of fiber-reinforced composite structure.

Bactericidal Activity of Mono Phosphate Ester Having C-N-P Linkage

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Abstract

Mono-2-chloroaniline phosphate has been synthesized by the reaction of 2-chloroaniline, with phosphorylating agent P2O5 and characterized by elemental and spectral analysis. Synthesized monoester has been tested for biological activity against bacteria. The isolation of bacteria and their characterization by different methods have been carried out. Different concentrations of mono-phosphate ester in DMSO were applied to examine their bactericidal activity against coccus gram +ve and gram –ve bacteria by paper disc diffusion method. The study reveals that mono-phosphate ester is highly effective against coccus gram –ve bacteria as compared to gram +ve bacteria.

Keywords

Mono-2-chloroaniline phosphate, paper disc diffusion method

Google Classroom's Quadratic Purposefulness and Moderation During Covid-19 Spread

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Abstract

During the COVID 19 epidemic in the Philippines, this research aims to look at the quadratic purposefulness and moderating effects of Google Classroom (GCR) as a learning management system in a few public colleges and universities. An online survey questionnaire was distributed to 1068 respondents from seven colleges and universities; however, only 926 were considered for the achieved model. Twelve of the fifteen hypotheses were supported at $p < 0.01$ or $p < 0.05$ levels of significance, including the following: H1: Intended attitude can affect intention to use GCR; H2: Intend attitude can be affected by assumed purposefulness. H3: There is a quadratic relationship between purposefulness and attitude. H4: GCR trial runs can influence perception of purposefulness in using technology, and H5: GCR trial runs may influence educational policy to LMS adherence among public HEIs in Region III. As a result, organizations should be prepared to recognize methods for fostering and inspiring student participation in Google Classroom, as well as recognizing the importance of learning skills. Students that are unable to properly use technologies due to a lack of access should be given more time. Since Google Classroom is considered a new platform in Philippine education, potential researchers will need to double check the results of this study and examine the influence of different moderator variables.

Keywords

Purposefulness, Moderating Effects, Google Classroom Educational Policy/Advisory, Platform.

Study on Extraction of Biofuel from Selected Algae Species

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Abstract

The rising level of pollution and depleting fossil fuels has compelled every nation to seek a clean and abundant fuel source. Thus the demand for clean energy increases concerning the development of industrialization. With a clean, abundant fuel like algae biofuel, this demand can be counteracted. The main motivation behind this research is that a person as simple as a farmer can be profited along with this fuel preparation. This algae biofuel will be one of the key tools to attain sustainable development in the Energy and environment sectors. As algae species are so vast and almost present in every habitat, algae can be used as biomass for biofuel preparation and their nutritional values and ability to perform photosynthesis must be mentioned here. Being a tropical country, India has a great potential to indulge in algae biofuel generation to meet the energy demands. Among the most commonly available and known species of algae, three species were selected for this study. They are Spirogyra sp, Chlorella sp, and Spirulina sp. The process used here is anaerobic digestion and pyrolysis for the extraction of fuel content from the biomass. Among the cultures, chlorella seems to have the best potential for biodiesel production both in terms of nutrients and maintenance & yield and spirogyra for biogas production. Thus the mass culture of chlorella can be done by any person and biomass yield can be matched with the demand for biodiesel production. Although spirogyra undergoes anaerobic digestion and yields biogas, the yield rate was not up to the level of conventional biomass sources for biogas production. Biomasses termed as waste like agricultural, cattle dung and other putrescible wastes are most suitable for biogas production because as it a resource from waste i.e. free from culturing, maintenance, expenses, etc.

Keywords

Energy, Biofuel, Biomass, Algae, Algae Biofuel, Pyrolysis, Anaerobic digestion, Spirogyra, Spirulina, Chlorella

A Comparative Statistical Study on Water Pollution before and during Pushkaralu in Tungabhadra-2020 River in Kurnool (Urban), AP, India

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Abstract

Humans are creatures who believe in higher entities. In a land like India which has multiple cultures and religions, some practices may cause harm to the environment. Pushkaralu is a festival that taken place on the bank of a river according to the zodiac sign in Hindu mythology. The year 2020 was the year for the river of Tungabhadra and as it is a year of pandemic, many things have changed regarding mass gatherings and even more regarding mass bathings. Though there were many norms to be followed, the mass gatherings affected the quality of water and as Kurnool town being one of the hotspots for covid-19 and pushkaralu simultaneously.

Keywords

Mahapushkar, Mass Bathing, River Thungabadhra, COVID-19, Water Quality, E. coli

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The Collaborative Process of Land Border Management in West Kalimantan Province to Support Indonesian National Defense

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Abstract

Indonesia is an archipelagic state with a very large area and borders with 10 countries, both in land and sea areas. One of Indonesia's land border areas is located in West Kalimantan Province which is directly adjacent to the state of Sarawak, Malaysia. The border is a very strategic area with a high problem complexity. Therefore, it requires proper and comprehensive management efforts from the government. This study aims to analyze one of the dimensions of collaborative governance, namely the collaborative process in the management of territorial boundaries in West Kalimantan Province to support national defense. This article is compiled based on the results of a qualitative descriptive study. The data in this study were obtained using interview techniques, direct observation and literature study. The data is then analyzed using qualitative data analysis techniques which include the following activities: 1) data collection, 2) data reduction, 3) data presentation and 4) verification or drawing conclusions. Based on data analysis and discussion, it is known that the border area between Indonesia and Malaysia in West Kalimantan Province includes Sambas Regency, Bengkayang Regency, Sanggau Regency, Sintang Regency to Kapuas Hulu Regency. This border area is managed by several stakeholders, both government and non-government, so that proper collaboration is needed in the formulation of border area management policies in order to be effective, efficient and right on target. The collaborative process in collaborative governance includes five elements of the collaborative process, namely: 1) face-to-face dialogue, 2) building trust, 3) commitment to the process, 4) mutual understanding, and 5) intermediate results. The results of this study are expected to become one of the fundamental foundations for the Indonesian government, particularly in the formulation and implementation of policies related to land border management in order to defend the sovereign territory of the Indonesian state.

Keywords

Land Border, Border Management, Policy, Collaborative Governance, National Defense

Virtual Reality Gamification: An Insight to the Future?

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Abstract

The virtual reality is Computer-generated stimulation which are used for the experiencing a different reality. In this paper possibilities of VR gamification in the near future and how it possibly can take the whole world by storm if the right efforts and funds are given . VR is already having a possibility of helping surgeons and hospitals along with a dozen others like defences, entertainment industry and others. So we can think that in the near future we may see a lot of VR applications.

Keywords

Virtual Reality, Electronic devices, VR Gamification

Thermoelasticity of a K-Layered Disk with Convective Type Heating and Heat Source

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Abstract

In this study, a three dimensional multilayered annular circular disk with k-layers is considered. The disk is heated radially with convective type heating that is the rate of change of heat along radial direction is directly proportional to the temperature difference between the disk and surrounding environment. The thermo-mechanical properties are taken to be dependent on temperature. The heat conduction equation with internal heat generation is solved using Fourier transform, Fourier series, Finite integral transform along radial direction. Laplace transform technique is used to deal with the time variable. Using thermally induced resultant moments and deflection, the thermal behaviour of the disk is studied. For numerical computations, a three layered disk is considered and the graphical results are discussed.

Keywords:

k-layered disk, Temperature dependant, Heat source, Convective heating, Deflection, Moments, Stresses

Understanding the Reform of Public Transit in India

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Abstract

Cities are the major sources of urban and economic development in developing countries and Transit Oriented Development (TOD) is broadly recognized as a strategy to decongest nodal, major points, arteries of the city by encouraging use of public transport, particularly making people walk and use non-motorized transport (NMT) specifically to make city environmentally sustainable. Be that as it may, TOD has to a great extent been a trendy expression in Indian strategy records for over 10 years, as the nation still anticipates its first completely executed TOD project. Thus, the main objective of this paper is to evaluate this strategy by understanding the feasibility this concept through two important TOD case studies of Delhi and Ahmadabad where the former has TOD in planning stage while the other in implemented. Thus, this paper will demonstrate the reforming of Indian city to a public transit oriented (PTO) city from the vision of transportation equity.

Keywords

Transit oriented development, evaluation, public transit oriented city, measuring criteria, etc.

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Implication of Simscape Fluids in Relation to Hydraulic Control System of Backhoe Arm

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Abstract

The novel approach while designing for a hydraulic system integrated with physical components is to test the hydraulic control system through real time simulation. Matlab extension simscape fluids™ helps to design and test the control system with real life working parameters. The physical model of backhoe arm was designed using Solidworks® and functionally integrated with simscape fluids™ through block named Prismatic Translation Interface. The analysis of backhoe arm assembly was done using JCB hydraulic oil. Effects of design parameters on the overall system response were investigated for test time of 10sec. The maximum hydraulic power generated in the system is 1215.96 kW. Maximum lift force provided to bucket is 4.94 $\times 10^5$ N. The force generated by bucket assembly is fluctuating between range of 4.94 ×105 N to -8.44 ×105 N which is satisfactory for lifting operations. Several non-linearity's appeared in the system due to inertia of components and viscous effect of hydraulic oil. Modelling of friction and hydraulic losses are necessary for result accuracy. The maximum frictional force in the assembly is 2.8×105 N at t=1.61s.The results from kinematic analysis of tilt actuator exhibited that bucket assembly has satisfactory tilt ranging 90.56° to -92.5°.

Keywords

Actuators, Backhoe arm, Hydraulic system, hydraulic oil, Mechanical Model, Simscape Fluids

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Role and Trend of Corporate Governance in contemporary India in 21st Century's Changing Scenario

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Abstract

It is observed that growth of India in 2020s has been low trending a recession with huge contraction in GDP and fall of index of business resumption backed by mainly COVID. It resulted massive unemployment, reduction in purchase power, drop in income, hampered supply chain etc. Maximum companies were bound to reduce functioning. In this tough scenario, good corporate governance with strategic move can revive contemporary industries and reshape our nation as industry has a major contribution to upgrade a country's economy. This paper is an effort to showcase significance of effective corporate governance for modern corporations and impulses them to ensure this for better tomorrow. Corporate governance is basically the methodology by which a company may ensure its goal setting and fulfillment in legal, societal and market perspective by formulating, reviewing, monitoring and controlling of strategy, plan, statute etc. Basic obligations of BOD are to set objective, strategy, plan and implementation by leadership, observation, reporting, ensuring value and ethics etc. It is a compilation of procedure, acts, judgment and exercise to regulate and manage an organization. It brings under equilibrium the diverse interest of various agents, players and stakeholders by defining their rights, obligations, limitations and desired contribution. It abides by some principles and composition as well as ethical implementation of rules for mutual benefit and justice. Directors, shareholders, auditors, lender, managers etc are directly involved in this process along with their interest and interest of consumers, government, supplier, community etc. It is more important in 21st century due to increased scandals including hiding real facts and showing misleading facts, violating rule, crossing limit, avoiding responsibility , lack of equal treatment, diminishing ethics and transparency etc. The added reasons for ensuring good corporate governance are friction of interest within stake holders, principle-representative dispute, mismatch of opinion among principals, governments' increasing monitoring, change of law, situational constraints etc. Fairness in exercising right and control, balancing power, good structure, disclosure of fact, compliance, economic transparency, integrity, risk management, social responsibility, compensation, auditing, transaction, fairness, efficiency, code of conduct, whistle blower policy, associated company's' affairs and so on are some basic issues here. In a developing economy as India, Ministry of corporate affairs, National Foundation for Corporate Governance, Company act 2013, SEBI, FEMA, Confederation of Indian Industries, Ministry of finance, RBI, Kumar Mangalam Birla Committee, Baijal Committee, Narayan Murty Committee, Naresh Chandra committee, Memorandum and Article of company, Group of Directors of Bank, Listing agreement Clause 49 etc play a major role in redefining transparency, equal treatment, disclosure norms, responsibility of key persons, ethical act and beating corruption just like abroad stipulations as Corporate governance code in U.K, OECD Corporate Governance principles, ICSI, Asian Corporate Governance Association recommendation, Anglo-US Model etc. Superior corporate governance in today's date is of mandate to ensure shareholders' confidence, company's goodwill and trustworthiness, government's favor, media's appreciation, value in market etc. Indian companies like Tata Steel, Infosys, Mahindra and Mahindra, TCS, ITC, SAIL, HDFC, Asian Paints etc have earned repute to be listed among best organizations mainly due to their good governance.

Keywords

Company, Corporate Governance, India, Responsibility, Transparency, Stakeholder

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Suppression of Host Immunity through Cross Kingdom RNAi during Plant-Fungal Interactions

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Abstract

Fusarium basal rot (FBR) caused by *Fusarium oxysporum* f. sp. *cepae* (Foc), is one of the most vicious fungal phytopathogen infecting onion and allied species throughout the tropical and sub-tropical regions of the world. The molecular mechanism governing the coding and non-coding networks in Foc-Allium interaction is still unclear. We performed genome-wide small-RNA profiling of Foc post infection of onion and detected three Fx-sRNA (Fx-sR3, Fx-sR4 and Fx-sR9) that were significantly induced in Foc sensitive onion genotypes. Target prediction demonstrated effective binding of Fx-sRNA with plant defense genes such as NBS-LRR, LRR-Kinase and F-box transcription factors. Fx-sRNAs and corresponding targets exhibited reciprocal expression pattern and targeted silencing was confirmed through transient co-expression in *Nicotiana benthaminana*. Moreover, the silencing of the plant specific targets showed reduced susceptibility to Foc while the mutant lines with no Fx-sRNAs showed reduced pathogenicity on onion. Our study demonstrate that Foc synthesized sRNA (Fx-sRNA) can act as effectors in silencing te host plant immunity by takingover the host RNA interference machinery.

Keywords

Fusarium oxysporum f. sp. *cepae* (Foc), Allium cepa, fungal small RNAs, gene silencing, RNA interference

Artificial Intelligence and Personalized Learning

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Abstract

Intelligence differs human beings from other animals and artificial intelligence is one of the characteristics of computers. Digital transformation is an essential aspect in various fields. Artificial Intelligence is one of the latest and innovative computer technology. Artificial Intelligence has applications for fields such as agriculture, healthcare, linguistics and education. It is increasing its influence over businesses around the world.

In education field, AI has distinctive impact for many tasks right from enrollment, assessment to prediction about future course selection. It provides personalized teaching and learning for various subjects. Advancements are still continuing with better efficiency and reliability.

Artificial Intelligence technology focuses on large datasets. It analyses available data and predicts output. These predictions helps for decision making.

Keywords

Artificial Intelligence; predictive analysis; personalized tutor

Construction of Solar Powered Flat Iron Vulcanizing Device

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Abstract

This study constructed and assessed the functionality and technical aspects of the Solar Powered Flat Iron Vulcanizing Device. The construction of the device followed various phases which are planning, designing, assembly, and testing. Assessment on the design, construction and functionality of the device followed. Five teachers teaching in Electronics and Automotive subject assessed the design, construction, and functionality of the device.

The constructed flat iron vulcanizing device was connected and testing using solar power source. The solar powered flat iron vulcanizing device worked faster and vulcanize. On the other hand, the teacher teaching electronics and automotive subject who assessed the solar powered flat iron vulcanizing device was unanimous in their ratings that developed device met the evidences required in all the enumerated descriptors, likewise, the device have met all the qualities defined by the indicators.

Keywords

Vulcanizing solar panel, flat iron, controller, Battery terminal

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Design and Optimization of Reversible Binary to Gray and Gray to Binary Code Converter with Power Dissipation Analysis using QCA

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Abstract

Whenever an evolving technology approaches a dead end, a new technological revolution is needed. The“ present VLSI technology is based on the technology of CMOS. Due to the new challenges in the existing technology, the advanced technology based on quantum-dot cellular automata (QCA) has been introduced.QCA is an interesting area in nano-computing technology, providing an alternative approach to resolve the physical limitations faced by CMOS systems during further down scaling of their significant sizes. At nanometer scale, QCA offers powerful features like higher packaging density, minimized area, much lesser power consumption and better operating speed. Current logic gates really aren't power saving or energy efficient because they are not inherently reversible in nature and thus results in the dissipation of energy. Therefore, a serious effort is required to provide an effective model for the design of circuits that do not dissipate energy and hence preserve information. Power-efficient circuits can be constructed with more precision which ultimately increase the lifetime and speed of the circuit using this technique. The successful design of the Feynman gate-based reversible Binary to Gray and Gray to Binary code converter using QCA is presented in this paper. The proposed design proves to be efficient in terms of cell size, cell count, overall area, latency and" complexity. The outcome shows that the configuration of the design is territory proficient and has a lower clock delay. Besides, the circuit setup is extremely clear and did not use any flipped, translated QCA cells, and offers single-layer access to their information sources and outcomes. This encoder circuit using reversible logic gates can be further explored for the designing of other low power loss devices"."In addition to this for the first time energy dissipation analysis for different scenarios is also done on all the designs using QCA Pro-tool and it is observed that the proposed designs dissipate minimum energy thereby making them suitable for Ultra-low power designs. All the proposed reversible code converter prototypes have been simulated and the QCA Designer tool has checked their credibility successfully.

Keywords

Binary Code, Gray Code, Feynman Gate, Latency, Energy estimation, Ultra Low Power, QCA Designer, QCA Pro tool

IoT Based Smart Agriculture Aid System Using Raspberry Pi

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Abstract

Farmers of India are and always will be the backbone of our nation's economy . We know that Indian economy is primarily Agriculture based country. The Stats reveal that Indian agriculture is sector accounting for around 18% of India's Gross Domestic Product “GDP” and it also provides employment to nearly 50% of workers. Currently, the farmers control irrigation methods manually and irrigate their area at a fixed routine period. These mechanisms acquire high amount of water and the outcome is wastage of water. Therefore, Raspberry Pi communication system has been taken because of the ease of application, maintenance and price. The prototype is automated that will accurately monitor and control the water requirement and will check the soil quality and is reliable also.

Life Share– Blood and Organ Donation System using Android Application

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Abstract

The application nicknamed as 'Life Share' targets spanning the co-appointment and correspondence hole among patients and benefactors, we as a whole realize that parcel of patients pass on without admittance to a right giver, be it organ or blood. A portable application that may overcome any issues is that the need of great importance, Life Share isn't any extraordinary and it's a touch unique in relation to the predominant framework, our application utilizes a versatile application at both the closures, anybody can enlist and switch twisted be a client, the clinic when in need raises a greeting for blood/organ of a chose type with all the important part , and this solicitation will advise all the clients and consequently the closest clinical bank communities of it, the solicitation will have an authorized online endorsement of the taking care of specialist with their contact subtleties, and accordingly the application will let the beneficiary pick the premier doable and close by benefactor for help. The application is going to begin on Android and can utilize a sqlite information base at the application's end.

Keywords

Android, Java, Machine Learning, Firebase, Kotlin, Blood Donation, Organ Donation, Health Care

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Development and Performance Analysis of Fully Automated Framework for Jacket Structure Optimization Using Particle Swam Optimization

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Abstract

Jacket structures are basically three dimensional steel tubular, welded and fixed structures with battered legs 1. Maritime environment is very uncertain and failure of maritime structures leads to huge financial and human resource loss. Hence, the Jackets designed as per the present structural design codes (API RP 2A WSD, API RP 2A LRFD, ISO19902 etc.) turn out to be highly conservative thereby highlighting the requirement of strategies aimed towards cost reduction of the Jacket structures 2. Due to the continuous exposure of Jacket structures to the offshore environment, continuous cyclic wave loads make the Jacket structures prone to fatigue failure 3. The aforementioned failures are mainly observed at the tubular joints 2,3. In the present study, a fully automated framework has been proposed to reduce the cost of the Jacket structures using particle swarm optimization algorithm (based on the dynamic penalty function) keeping fatigue life of the Jacket as a constraint. The present algorithm shows a very efficient and robust performance yielding near optimal solution. In addition, some of the serious shortcomings associated with particle swarm optimization algorithm have also been highlighted which opens up a number of new avenues of research on the improvement of the present optimization algorithms.

Behavioural Study of Columns Encased With Steel Sections with Stiffened Bamboo Rebars

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Abstract

To ensure that human society continues to evolve in a sustainable manner, environmentally friendly construction materials and intelligent designs are needed. Bamboo is strong for its weight, and it's also sustainable and biodegradable. An attempt is made to investigate and compare theoretical axial load carrying capacities, composite behaviour of bamboo reinforced composite columns with traditional steel reinforced concrete columns having the same cross section, taking into account the strength properties of bamboo and to study the structural performance of composite column encased with steel sections with stiffened bamboo rebars.

The composite behaviour of concrete encased steel composite columns with steel rebars and concrete encased steel composite columns with stiffened bamboo rebars subjected to short-term axial load is investigated experimentally and numerically in this paper. The inelastic behaviour of steel, concrete, and longitudinal reinforcement, as well as the effect of concrete confinement of the FEC columns, were studied using a nonlinear 3-D finite element (FE) model in ABAQUS. To investigate load deflection behaviour, two short FEC columns with square shaped cross sections were built and tested. Comparative study on steel composite column encased steel sections with and without bamboo rebars is made with the results obtained. The nonlinear FE model created in this examination is additionally used to explore the effect of concrete strength and structural steel rate on FEC column behaviour under concentric loads

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Near Infrared Hyperspectral Imaging for Predicting Quality of Dehydrated Ginger

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Abstract

The quality of any food product processed from fruit and vegetables can vary depending mainly on the quality of raw material and their processing. Near infrared hyperspectral imaging (NIR-HSI) has been shown to be a reliable and effective method of online monitoring of food products and was therefore tested on dehydrated ginger. The quality parameters of the dehydrated ginger assessed were hardness and total soluble solids (TSS). The models for hardness and TSS were established using partial least square regression (PLSR). Spectral pretreatments were tested in order to get better precision of the models. The accuracy of the prediction models for hardness was achieved correlation coefficient of prediction (Rp) of 0.79 and root mean square error of prediction (RMSEP) of 3.13 N and for TSS was Rp= 0.82 and RMSEP= 2.25%. Results showed that NIR-HSI has the possibility for determining hardness and TSS of dehydrated ginger non-destructively and could possibly to be used as part of the production process for online grading in dehydration factories.

Keywords

hyperspectral imaging, near infrared, quality, spectra

Nondestructive Prediction of Juice Recovery Yield of Pineapple Using Near Infrared Hyperspectral Imaging

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Abstract

During commercial processing of pineapples, fresh fruit selection on the basis of their quality is essential, particularly their juice content. This is to ensure high and consistent product quality, but juice level varies between individual fruit. Therefore, a non-destructive technique for predicting juice recovery yield of pineapple using near infrared hyperspectral imaging (NIR-HSI) was aimed for use in online sorting systems. Pineapples were scanned using NIR-HSI to develop a calibration model for predicting juice recovery yield of pineapple in this study. A set of 122 pineapple samples was divided into a calibration set (n = 81) and a prediction set (n= 41). Spectral pretreatments were investigated in order to obtain the best calibration model. The best model was obtained using Savitzky-Golay smoothing spectral pretreatment at the wavelength range of 935–1720 nm using partial least squares regression (PLSR). The model showed sufficient accuracy for prediction with a correlation coefficient (Rp) of 0.73 and the root mean square error of prediction (RMSEP) of 1.54%. These results indicate that NIR-HSI has the potential for use in prediction the juice recovery yield of pineapple in a non-destructive online system in pineapple processing factories

Keywords

spectra, model, fruit, sorting

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Different Data Mining Techniques for Weather Prediction

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Abstract

Data mining is the procedure of mining Knowledge from data . In india, 70% of the rural population primarily depends on agriculture for their livelihood . There are so many factors which affect the agriculture to more or lesser extent such as temperature , rainfall , light ,humidity etc. Sometimes these factors affect the agriculture badly. In order to check the effect , weather forecasting seems to be necessary so that life and property can be protected. Traditional method was time consuming therefore, they can be used to predict meteorological data (known as weather Prediction) but these data mining techniques for weather prediction are so fast and accurate such as Decision tree , K – means Clustering, numerical and statistical method.

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A Content-Based Image Retrieval for Feature Extraction using Segmentation of MRI Brain Medical Images

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Abstract

This paper presents Medical image retrieval are retrieved current image in the database with patients full information and previous history which can be used for the proper diagnosis patients. Propose method of a content-based image retrieval system by using the new idea of Simply tumor detection using segmentation algorithm and Feature extraction techniques. In the present work, CBIR is used for finding similar patients having Brain tumors or not and which type of tumor and detected the tumor size. The Previous method and comparing the images of the area of interest of a present patient with the complete series of the image of a past patient history can help in early diagnosis of the disease. Segmentation method into image retrieval to simulate these properties of brain tumor detection separation a tumor and then after shape and method experiment demonstrates the efficiency and feasibility of our proposed algorithms and feature extraction technique.

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A Review Drinking Water Quality of West Karbi Anglong District of Assam, India

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Abstract

This paper reviews on information relating to the drinking water quality of West Karbi Anglong district..Based on various sources of water from different places physio-chemical parameters of water are specially discussed. Parameters consistencies and discrepancies between due results of various studies are highlighted.

Keywords

Water quality, West Karbi Anglong, Assam

The Potential Use of Flipped Classroom in Teaching Calculus in 1st the Year Engineering Classes of Guimaras State College

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Abstract

Under the current normal education system, problems on teaching effectively have been a challenge to educators. State, universities and colleges have been pressured to shift from a face-to-face class to teaching strategies that mitigate the limitations of the traditional way of teaching. Digital natives also known as modern educators spend more class time interacting with students utilizing technological tools to fill in the gap in learning. They started using interactive videos, interactive in-class activities, and video conference systems to facilitate the development of learning. This includes the use of a Flipped Classroom. Aimed at addressing the difficulties encountered in teaching Mathematics during the new normal, this exertion determined the effect of using flipped classroom method in teaching Calculus. The study utilized 20 first-year Electrical and Mechanical Engineering students enrolled during the second semester of A.Y. 2019-2020 whose level of problem-solving skills and performance in Calculus were determined through administering a researcher-made test. The researcher employed a One–Group Pretest–Posttest Experimental Design. The experimental research used four sessions of video lessons at the time of pandemic season before the class interactions online. Hence, assignments were given inside the classroom which targeted collaborative learning. The application of the flipped classroom approach helped students improve their problem-solving skills and mastery in solving Calculus problems as shown in the posttest results. Thus, the flipped classroom method proved to be effective in enhancing the problem-solving skills and performance of students in learning Calculus.

Keywords

Calculus teaching, Learning Strategies, Engineering Education, Flipped Classroom

Growth Performance of Rhode Island Red Chicken Fed with Nami (Dioscorea Hispida) and Wild UBI (Dioscorea Villosa) Fermented Using Three Fungal Species

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Abstract

Nami and wild ubi, are indigenous feed resources for free range chicken. Dried nami and wild ubi were fermented using three species of fungi *Pleorotus ostreatus,* Volvarealla *volvacea* and *Ganoderma lucidum*. The fermented nami and wild ubi were subjected to proximate analysis and test-fed to Rhode Island Red chicken to determine acceptability, palatability and feeding trials.

The study used 36 heads of 6 weeks old non-descripted chicken for acceptability and palatability trials. The birds were randomly distributed to six treatments with two replications and three birds per replication.

For the growth trial, 240, 21 day old Rhode Island Red chicken were randomly distributed using 2 x 3 factorial. Each treatment was replicated 4 times with 10 birds per replication with the Completely Randomized Design.

Results of the analysis revealed an increases of crude protein content of nami and wild ubi after fermentation from 9.48 to 16.44 and 4.73 to 16.10 respectively. *P. ostreatus* was found the most appropriate fungal species to ferment nami and wild ubi. *P. ostreatus*-fermented wild ubi contained 16.62%, nami contained 18.80% compared to the 16.52%, 16.02%, 16.19% and 13.31% crude protein content when wild ubi and nami were fermeted by *V. volvacea* and *G.lucidum* respectively.

Results of the study revealed the two fermented products gave comparable level of acceptance as nutrient enriched feed resources. The used of fermented pure cultures white rot fungi (*P. ostreatus*) consistently performed good level of acceptance as to compare with the two inoculant.

Experimental birds adjudged promising utilization on the acceptability of fermented products with the used of fungal cultures. *P. ostreatus, V. volvacea* and *G. lucidum* equally hurdle set of parameters to the high level of medium range in the preference ranking of palatability index in terms of Statistical Tool for Agricultural Research evaluation .

Fermented products with its 10% inclusion to commercial ration fed during the starter – grower phases significantly influence live weight, live weight gain, feed consumption and feed conversion ratio in the production of Rhode Island Red Chicken. Interaction of fermented fungi failed to manifest significant advancement in the total production of experimental birds and at the end of the two growth periods. External manifestation of impairment that may affect the physiological growth of experimental birds was not observed.

Economic performance of producing Rhode Island Red Chicken *D.villosa* fermented with *V.vulvacea,, D.hispida* with *P.ostreatus, D.villosa* with *G.lucidum* and *P.ostreatus, D.hispida* with *G.lucidum* and *V.vulvacea* were gave 73.06%, 72.68%,72.60%, 72.19%71.50% and 71.41% ROI and rank first, second, third, fourth, fifth and six respectively.

These suggest the provision of fermented products can be started at day 22 from then. Zero mortality during the two growth periods are factors that fermented products did not impair nutritive value of commercial ration

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RS and GIS Based Natural Resource Management Approaches for Water All the Way-A Case Study in Semi-Arid Tropics (SAT), Central India

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Abstract

In SAT region, Drought is a common phenomenon due to erratic rainfall, undulated and rugged topography, hard rock terrains of archaen granite, multidirectional slopes, dissected land, highly eroded soil and lack of implementation of engineering and technological approaches. The study of last 20 years (2000-2019) reveals that 10 are severe drought years, 5 normal and 5 excess rainfall years. In this way, various natural resource management (NRM) approaches were adopted at different scales such as check dam, low cost check dam, spillways, gabions, nalla plugs, injection pits, bunding etc. After implementation of NRM approaches, it was found that check dams generated about 25 thousand cubic m water as a result of which reduced number of dry wells to 2 % from 86 %, transform agricultural land to 260-270 ha from 60-70 ha into cultivated land, reduced migration about 72%, increase water level 3-6 m due to generating base flow 2-3 times, increase overall benefit cost ratio 1.88 from 0.45 and generate the willingness among the people by adopting agroforestry based crop cultivation. Thus, results of this study reveals that RS and GIS based NRM approaches supports the water resources which sustains food and Livelihood Security in drought prone areas specially semi-arid tropics and necessary to scale-up such type of engineering and technological interventions.

Keywords

RS and GIS, GKD watershed, Rainfall, NRM approaches

Anticorrosive Performance of Nature Additives Extracted from Organic Compounds Based Hybrid Epoxy Coating on Steel

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Abstract

Corrosion is the nature process. Due to corrosion many steel materials losses day by day. There are various method to avoid corrosion in steel by using coating. In our work we do epoxy coating on steel by spray coating. Epoxy coating are widely applied on steel structures due to their high adhesion strength and corrosion resistant properties. In existing epoxy coating done in inorganic compounds are used. We do epoxy coating by using organic compounds such as orange peel, neem leaf, and cashew nut. Taking extracts from organic compounds filter by using muslin cloth and corrosion testing is done which is salt spray corrosion test and water absorption test. There is no corrosion inhibitory in the coated steel. Compare to other methods epoxy coating give better performances.

Keywords

Steel, epoxy coating, spray coating, corrosion, inhibition

Smoothing of Voltage Profile of an RDS Integrated With Renewable Energy Sources Along With Electric Vehicle

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Abstract

With rapid increase of global electricity consumption, the need of inclusion of renewable energy sources into conventional radial distribution systems (RDS) becomes feasible. In this study IEEE 33 bus RDS is taken into consideration where solar PV source are included in order to reduce power loss, voltage fluctuation and improve economic efficiency. It suggested that some electric vehicles are proposed to be connected to the test system for both charging and discharging. The analysis is planned to investigate the effect of EVs and the Res on voltage profile from the RDS. In this project we successfully obtained the improvement of voltage profile as RES is introduced to the test system.

Keywords

RDS, PV, REs

An Efficient Way of Predicting Hostel's Room using Single Layer Fuzzy Logic

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Abstract

In search of better amenities be it education, skills, job etc. people leave their home towns, cities, states and even countries. Students are the most displaced section of society. Accommodation of students is very important as the environment they live in have a very important impact on their day to day living. Earlier the hostels were allocated using a bin packing algorithm and the first come first serve technique. This allocation process has evolved a much right starting from the pen-paper system then came automated system [4], online systems connected with the internet [8] and the need is to enhance the system to improve the allocation process. Hostel's room allocation system will help the students to live with the best match student sharing common behaviour and characteristics. The use of Fuzzy logic is a new concept used to resolve the problem statement. The methodology of fuzzy logic will recommend the best room as per the attributes of a student is bearing.

Keywords

Room allocation, Fuzzy logic, Hostel management system, Characteristics, Pairing of roommates

An improved Simulation of Butt-Welded Thickness Plates in PAW-GMAW Hybrid Welding Process with Adaptive Heat Source Model

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Abstract

In recent years, one of the versions of the PAW – GMAW hybrid welding process is basically a combination of a PAW arc with a GMAW arc where the GMAW arc emitted from the side-posited tungsten toward the nozzle orifice, the consumable wire fed along the torch axis through the orifice. In this paper, an adaptive model of the heat source in numerical simulation of PAW-GMAW hybrid welding process requires that the model take into consideration the available heat source models, either body ones like double-ellipsoidal for TIG, GMAW, MMA,… or 3D conical Gaussian for LBW, EBW, PAW,… which are unable to describe the PAW-GMAW hybrid welding process accurately. Based on the configuration feature of PAW-GMAW hybrid welds, a combined heat source model as a hybrid heat source model is proposed for the numerical analysis of temperature fields in PAW-GMAW hybrid welding process. It accounts for the volumetric distribution characteristics of plasma heat intensity along the direction of the workpiece thickness. The results show that the predicted geometry and locus of the fusion line in the PAW-GMAW hybrid weld cross-section are in good agreement with the experimental measurements. It lays solid foundation for the process optimization and thermal stress–strain simulation of keyhole PAW-GMAW hybrid welding process

Analysis on the Effect of Fiber Types Used in GGBS Dolomite Geopolymer Concrete

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Abstract

Production of Portland cement causes global warming due to the emission of greenhouse gases to the environment. The need for reducing the amount of cement is necessary from sustainability point of view. Cement is a construction material which is essential for the development of infrastructure. Geopolymer concrete (GPC) is the latest version of concrete which is developed from Ground Granulated Blast furnace Slag (GGBS) and dolomite which are obtained from steel and rock industries. Geopolymer concrete are usually weak in tension and suffer from brittle failure. To overcome such weakness, numerous studies have been focusing on the incorporation of different types of fiber into geopolymers to obtain desirable engineering properties and performance. Through the current study, the effect by using different types of fiber on the behaviour of GGBS – Dolomite geopolymer concrete beam under monotonic loading using finite element analysis were investigated and their results were compared. The specimens were designed by using seven different types of fibers. These different fibers were steel, carbon, glass polypropylene, basalt, *boron* and aramid fiber. The fibres were added at 0.25%, 0.5% , 0.75% and 1% of volume of concrete Parameters analysed were load deflection, loading carrying capacity, cracking pattern, ductility and stress-strain of beam which varies with the type of fibres. The results showed that the load carrying capacity of geopolymer concrete specimens were improved by adding fibres at 0.25%, 0.5% and 0.75% by volume of concrete but decreased on addition of 1% fiber. Moreover Basalt fiber at 0.75% had high effect in increasing load capacity, deflection, and less cracks propagate, while compared to others fibers and their percentage.

Keywords

Dolomite, Fibers, Geopolymer concrete, GGBS, FEM (Finite Element Method)

Performance-Retention Analysis in an Organization

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Abstract

One of the key towards growth of the organization is employee involvement, every employee should give their best to enhance their future and organization's future. Considering the recent pandemic situation many of the hired persons were laid off and the performance graph was altered. In our project we are correlating the performance of the employee with the attrition situations. This analysis gives a clear picture to the current working employees and freshers regarding the do's and don'ts in their career graph.

Keywords

Analysis; Performance;Attrition

Strategic Responses and Organizational Adaptations of Some Manufacturing Companies during the Community Quarantine Due to COVID-19 Pandemic

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Abstract

The COVID-19 pandemic crisis was abrupt, worldwide in scope, and its effect on individuals, organizations, and economies was devastating. Such crisis and emergency need appropriate and timely response. This paper intends to know how business firms responded to the challenges posed by the COVID-19 pandemic. Specifically, it aims to determine the strategies adopted by manufacturing companies, to mitigate the adverse impact of quarantine and lockdown. In view of this objective, a survey was conducted involving seventeen companies, operating in the Province of Cavite, which is a home for eight special economic zones. The study aims to gather information on how business organizations in the provincial level survived the crisis, and hopefully, use it as initial baseline data for formulating contingency plans for future occurrence of pandemics and health crises. The result showed that 71% of the companies adopted multiple strategies to alleviate the negative effects of the pandemic. Ninety-four percent (94%) of the firms persevered by implementing reduced workweek and scaled-down or "stay-in" production operation; 47% enforced retrenchment in the form of reduction in cost, assets, product lines, and overhead; 59% introduced innovation in production processes to adapt to the pandemic situation; and 35% opted to discontinue the production of less essential products. The result implies that business resiliency depends on the readiness of the organization to handle a crisis and production activities can continue during pandemic without compromising the minimum health standards, provided, appropriate strategies and adaptation plans are implemented. In other words, companies need not shut down during lockdown.

Keywords

crisis management, manufacturing company, pandemic, production operation, strategic management

To Determine the Chlorine Demand for given Waste Water and Raw Water Sample

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Abstract

Water used for drinking and cooking should be free of pathogenic (disease causing) microorganisms that cause such illness as typhoid fever, dysentery, cholera, and gastroenteritis. Purification of drinking water containing pathogenic microorganisms require specific treatment called Disinfection. Several disinfection methods eliminate disease – causing microorganisms in water. Chlorination is the most commonly used method. Chlorine is one of the most versatile chemicals used in water and waste water treatments. Break Point Chlorination (BPC) is the application of sufficient chlorine to maintain a free available chlorine residual. The principal purpose of Break Point Chlorination (BPC) is to ensure effective disinfection by satisfying the chlorine demand of the water. In waste water treatment, BPC is a means of eliminating ammonia, which is converted to an oxidized volatile form. The addition of chlorine to a water that contains ammonia or nitrogen – containing organic matter produces an increased combined chlorine residual. The basic process of BPC is that chlorine reacts with ammonia in four different stages to produce nitrogen gas, hydrogen ions, chloride ions and nitrous oxide. So, ammonia is converted to nitrogen gas by addition of chlorine to water treatment and waste water treatment plants.

Keywords

Microorganisms, pathogenic ,Disinfection, Chlorination, Break Point Chlorination, nitrous oxide, waste water treatment

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Comparative Study on the Effect of Different Bracing Systems in Seismic Performance of RC Structures by Nonlinear Static and Dynamic Analysis

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Abstract

North East India has encountered several turbulent histories of devastating earthquakes with the highest risks since it falls under seismic zone V as classified in Indian Standards. One of the best ways to lessen the seismic effect on a structure is retrofitting of that structure with bracings. In this paper, the seismic performance of RC building with various types of bracing system, via. X-bracing, diagonal bracing and inverted-V bracing are compared. Numerical analysis has been caried out in STAAD Pro to determine the most optimal bracing system for a RC structure to resist the latest displacement using nonlinear static equivalent force and response spectrum method. It has been observed that the lateral displacement in RC structures with bracing system is 50% less compared to RC structures without bracings. Also, it has been observed that the maximum lateral displacement for buildings with X-bracing, diagonal bracing and inverted-V are 27.13 mm, 23.89 mm and 12.32 mm respectively. This indicates that a RC structure with inverted-V bracings can significantly reduce storey lateral displacement and hence, is the most optimum bracing system for the structure.

Keywords

Retrofitting; seismic analysis; bracing system; response spectrum method

Concatenating Framework of Deep Convolutional Neural Networks for Multiclassification of Autism Spectrum Disorders

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Abstract

Deep learning technique based automated systems are acquiring wide attention for creating new device applications in the field of artificial intelligence. Especially in health care systems, implementation of emerging deep learning paradigms helps in providing a potential to raise consistency in detection, and quality of treatment. Autism Spectrum Disorder (ASD) is a brain disorder with rising incidences worldwide. Its the most prevailing neuro-development disorder among children. MRI is one of the methods that provide clear image of brain connectivity in ASD. The MRI-analysis includes various processing steps such as registration, segmentation, bias correction and de-noising. The manual analysis of MRI images is labour-intensive and influenced by various factors like fatigue, attention, and expertise of radiologist. However, recent developments in soft computing techniques allow us to build an automated computer-assisted diagnostic system for ASD detection which further assists radiologists in providing reliable and consistent results on ASD identification but it still far from being solved as no robust system has been designed yet. In the view of foregoing, a deep hybrid model is constructed by the fusion of heterogenous pre-existing convolutional neural networks such as VGG16, VGG19 and Xception. Every pre-existing deep convolutional neural network possesses its advantages. The proposed concatenated model is also leveraged with the advantages of involved convolutional networks and utilized their potential in the extraction of features from the MRI images. Further, most discerning features are concatenated to build a strong feature vector for multiclassification. The effectiveness of the proposed approach is demonstrated on ABIDE dataset which showed an improvement in classification accuracy over state-of-art classifier. The proposed classification approach surpassed the existing state-of-the-art and achieved an multiclass accuracy, sensitivity, precision and f1-score of 89.12%, 94%, 90% and 89%, respectively.

Keywords

Artificial Intelligence, Autism, Concatenated, Deep Learning, Hybrid, Multimodal

The Impact of Corporate Governance and Financail Ratios in Predicting Firm's Financial Failure: A Conceptual Paper

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Abstract

In recent decade, many considerations have been considered in recent studies on the estimation of a firm's financial failure, the majority of which relate to financial ratios extracted from annual financial statements. However, the economic recession and the resulting exponential growth in insolvency rates have shown that the phenomenon of bankruptcy must be explained in terms of a wider range of variables; consequently, this conceptual paper proposes financial ratios and corporate governance as predictors of firms' financial failure. In addition, the conceptual paper provides a recommendation for future researchers to conduct an empirical study in Algeria, more exactly at ENSP corporate complexes.

Keywords

Predicting Financial Failure, Financial Ratios, Corporate Governance, ENSP corporate complexes, Algeria

Acute Lymphoblast Leukemia and Multiple Myeloma Classification using Neural Network and Multilevel Otsu Thresholding

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Abstract

Acute Lymphoblast leukemia and multiple Myeloma is a kind of blood cancer that affects the white blood cells. Early diagnosis is very important to prevent the progression of cancer. The main objective of this research paper is to classify the blood cancer from the microscopic image of the patient's blood smear. Microscopic blood image analysis results in the early diagnosis of leukemia and myeloma with lower cost. It is less costly to use image for diagnosis, compare to the equipment and methods used in the field of Hematology. The aim of this study is to identify, whether the cell belong to leukemia class or myeloma class. For this 30 microscopic images from both classes is used to train the Convolution Neural Network model and Multi Otsu algorithm to extract the cell region of interest. A degree of accuracy 97.72% gives high performance of the proposed method.

Keywords

Neural network; multilevel otsu; image processing; multiple myeloma; acute lymphoblast leukemia

Design Control and Management of Hybrid AC/DC Microgrid using Intelligent Algorithms

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Abstract

This article deals with hybrid AC/DC micro grid connecting battery to RLC load with minimum number of switches. Battery is also used as a energy source. Lithium-ion battery is used. In solar panel to maximize the energy available from the connected solar module arrays at any time during its operation Maximum Power Point Tracker (MPPT) method is used. The inputs are connected to DC-DC boost converter which is non isolated. The inverters are controlled by using the neural network Adaptive Neuro Fuzzy. It increases the gain and efficiency of the system. The performances of the proposed changes are evaluated by time domain simulation in MATLAB/Simulink.

Keywords

Battery, Maximum Power Point Tracker, Adaptive Neuro Fuzzy, MATLAB

Determining the Quality and Freshness of Fruits Using Machine Learning

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Abstract

The Quality of fruits or vegetables plays a vital role in consumer consumption and there by affecting its sales. Automatic classification of food and fruit freshness assumes a huge part in the food business. Fruits quality detection from creation to utilization organizes should be performed minutely. Customary techniques which identify the waste of food are moderate, difficult, abstract, and tedious. Thus, quick, and exact automatic techniques should be acquainted with modern applications. To defeat this issue, this paper presents a dependable recognition strategy by utilizing the Tensor flow library, CNN algorithm to work out the standard of the fruit. The recommended framework starts the technique by tapping the input fruit image picture. At that time, the images are then passed to the filtration process where the fruit pictures go through a training and testing process to extract required features such as shape, surface, size of fruits are drawn. with the association of the above features, we determine the standard and quality of fruit.

Keywords

Machine Learning, Fruits Quality Detection , Convolutional Neural Network

Disinfectant Activity of Portable Chlorine dioxide Gas Equipment

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Abstract

The contamination of pathogenic microorganisms through various appliances and food supplies is one of the recognized factors for the outbreaks of various pandemic diseases. Nowadays, many attempts are made not only to prevent the forecasting of the epidemic curve but to endorse the germicidal effect as well. Ultraviolet (UV) equipment has been used traditionally to disinfect different products by reducing the risk of pathogen transmission. Nevertheless, although the UV radiation shows many advantages, drawbacks of the same should not be overlooked. Exposure to UV light causes chronic skin and eye damage, eliminates the taste and flavor of eatables along with the emission of harmful chemical residues. Apart from that, UV appliances need the right amount of energy for producing effective results. Thus, there is an emerging need for the novel concept on the developmental process of simple sanitizing equipment with the chlorine dioxide (ClO_2) gas replacement. Also, the study demonstrates the disinfectant effect of ClO_2 treatment on microorganisms and mitigates the drawbacks of existing product. Therefore, the future prospects of the study lie in the fact that developing such a system would produce a cost effective control strategy.

Keywords

Chlorine dioxide, Ultraviolet, Germicidal, Pandemic

Prediction of Academic Student Performance Using Machine Learning Algorithm

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Abstract

Prediction of student performance is important for tracking out the student progress rate. Many machine learning approaches of supervised and the unsupervised are used for collecting the information which are hidden and finding the relation among the data which guides the mentors for guessing the proper approaches. The different machine learning algorithm used different aspect of daily life of student. In these paper supervised approaches of machine learning like support vector machine, decision tree, KNN, logistic regression and random forest is used for predicting out the performance of the student. The collected results from different approaches are compared and optimized for generating the better accuracy. The obtain result from these particular approaches helps the mentor as well as student for improving their academics and simplifying their performance in form of good or bad. The main objective is suggesting best technique features for improving their performance. This particular helps student and the mentor with highest 86% accuracy rate.

Keywords

Predicting Student Performance, Academic result, Machine Learning Approaches, Support Vector Machine, KNN, Logistic Regression, Random Forest

A Systematic Review on EEG Signal Processing for Imagined Speech Recognition

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Abstract

Imagined speech (unspoken speech, silent speech, or covert speech) is referring as the internal pronunciation of words without emitting sounds or making facial movements. Speech is the basic, common and efficient form of communication method for people to interact with each other. But certain brain disorders resulting from brainstem infarcts, traumatic brain injury, cerebral palsy, stroke and amyotrophic lateral sclerosis (ALS) limit verbal communication despite the patient being fully aware. People who cannot communicate because of neurological disorders would benefit from a system which can infer internal speech directly from brain signals. Brain computer interface(BCI) can be a potential communication option for such speech disabled population. In order to collect data related to imagined speech, a Brain-to-Computer Interface(BCI) which utilizes brain signals to control electronic devices by detecting the specific patterns in the electrical activity of the brain must be implemented to provide silent communication abilities directly between the two entities. This review paper focuses on BCI studies related to Imagined speech recognition and the explained the end-to-end methodology of EEG signal processing.

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Extraction of Liquid Fuel from Household Plastic Covers and Packaging Materials

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Abstract

The disposal of plastic wastes in the surrounding environment causes land and water pollution. Also the burning of plastics in open atmosphere releases hazardous gases which affects the health. This can be mitigated by proper recycling of the plastic waste. The recycling of plastic waste yields oil which can be used after treatment. The usage of liquid fuels by extracting from plastic wastes can reduce the need to import oil from other countries. The main objective of this work is to recycle the plastic waste using the pyrolysis process. A specially designed heat exchanger placed inside a furnace is used to carry out the pyrolysis. The waste plastics taken for the study were mainly the wastes from household use. This includes the milk covers, polythene bags and other packaging materials. The feed input is shredded in the size of 10 mm. The feed is heated to a maximum temperature of 530oC. The resulting gases are then made to condense. This on further condensation produced the liquid fuel. The properties such as calorific value, viscosity, flash point and fire point were determined. The procedure was repeated under the same conditions but with different quantity of the feed material.

Keywords

Plastic wastes; pyrolysis; heat exchanger; shredded; calorific value; flash point; fire point

A Bridge between Farmers And Buyers-Farmera App

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Abstract

Agriculture contributes to about 18% of the total GDP of India. But farmers tend to move away from their practices to find better income and economic growth in their life. The income of the famers has decreased drastically over the past years as they do not have the proper channel for marketing their produce. This has also proved to be the factor that favors the landlords and money lenders to gain possession over their agricultural products at a very low cost and obtain a large profit from it. This also reflects the inability of farmers to obtain the righteous profit from their produce. The main aim of our project is to reduce the unbalanced accumulation of the profit from perishable farm produce for the traders and the sellers and help maximize the income level of the farmers. This system has been implemented by considering the entire supply-demand eco system and it also helps avoid product wastage. Many unbalanced situations occur in the nation-wide marketplace, like heavy demand for certain products that are totally disregarded and wasted in some other place where the production is high, due to improper channeling.

Fashion Recommendation System: A Single Layer Fuzzy Logic Approach

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Abstract

When Charles Fredrick Worth, the first Fashion Designer of the world, was designing his first outfit back in 1826, he would never have thought that this industry will conquer such heights, revenue, and fame and will be generating tremendous amount of data. This data can be managed by Big Data and later can be utilized for analyzing, finding pattern, optimizing sales etc. by using Data Science techniques. The opportunities are endless for Artificial Intelligence domain in this particular industry as the data is huge and there is always a lot to explore. But, what if someone wants to buy a particular outfit, the one they have in their imagination. Then, it should be the utmost priority of a recommendation system to provide such output. Most of the Artificial Intelligence recommendation system or similar Machine Learning models present today works on the historical data of the user. For someone who is flamboyant and a perfectionist, this job is likely to be hectic and time-consuming. This can be solved by using Fuzzy Inference System approach will recommending outfits by asking smart and relevant questions before searching.

Keywords

Fashion Recommendation, Designing, Data Analysis, Historical Data, Machine Learning, Fuzzy Inference System

Changing Healthcare Industry using Technologies like Artificial Intelligence, Internet of Things, Holograms

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Abstract

Noticing the Novel Coronavirus (COVID-19) pandemic, we'll examination how AI and IoT can adjustment the medical services business. These days patient's associations with specialists square measure limited in this manner, we will in general square measure having the chance to investigate the holographic strategy for connection with the patients, a holographic technique for justification, and furthermore the AI, the IoT-empowered gadgets have made distant perception inside the guide area feasible, releasing the possibility to remain patients protected and solid, and enabling doctors to convey standout care. it's furthermore increased patient commitment and fulfillment as associations with specialists got simpler and extra prudent. Also, far off the perception of a patient's well-being helps in diminishing the length of the clinic keep and forestalls reconfirmations and how the holographic method of cooperation is valuable.

Keywords

Artificial intelligence, Internet of Things, Clinical decision support, Electronic health record systems, Hologram, Holography, Smart band

Acute Lymphoblastic Leukemia Classification Using Convolutional Neural Networks and Transfer Learning

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Abstract

Leukemia is a blood cancer which is the most prevalent childhood cancer type and accounts for approximately 33% of all paediatric cancer. Some cases have occurred previously where zero symptoms are shown by blood until the disease has progresses and reached a dangerous level. This kind of a case mostly causes a misdiagnosis. To address such problem, this paper introduces Convolutional Neural Networks (CNN), which has led to break-through results in computer vision, and is thus a major technique that can be used to solve the Leukemia Classification Challenge. The ability of discovering abstract features with the capability of discrimination of different aspects of interests is possessed by the CNN algorithm. A diagnosis of the disease at early stage leads to an effective treatment. Segmentation from microscopic images has been performed so that the cells represent images in real world. The task is to identify the leukemic blasts at a premature stage. The dataset consists of 15,114 images (Training data = 10,661 images; Validation data = 1,867 images; Testing data = 2,586 images). The proposed method achieves accuracy up to 99% based on the number of epochs and data split.

Keywords

Leukemia, Classification, Convolutional Neural Networks (CNN), Transfer Learning

Study of Surface Ozone over an American Station for a Period of 3.5 Decade

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Abstract

One of the most important constituents in the middle atmosphere is ozone and its study is main concern to environment and human health. Long term study over surface ozone data leads to various important conclusions. In this research paper we have evaluated the relation between surface ozone and the Sun Spot No (SSN) [1], over an American station Tutuila for the period of 35 years (1980-2015). It was found that there is a proportional relation between the surface ozone and SSN [2]. It was found that the mean value of surface ozone increases in all the months and the increasing trend is found to be maximum in the month of December. Similarly the trend of SSN also shows that it also increases in the same fashion as ozone, but its growth rate is minimum in the month of May and maximum in the November month. We also analyze here the CO data for the same period. It is observed that there is inverse relationship between the surface ozone and CO. It is observed that the CO increases from January to June. Its increment is found to be minimum in January month and maximum in the month of April. After it, the CO shows the decay trend from July to September, and then again increases from October to December months.

Identification of Plants using Deep Learning

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Abstract

Plant Identification is based on the images of their leaves is an important part in the Agriculture filed and medical filed. In our generation convolution neural network (CNNs) has achieved the impressive result in the of image recognition. In this we proposed, the convolution neural network (CNN) for healthy plan leaf recognition. We collected images of the 7 categories of plant leaf and we used the device redmi note 9 pro and captured the plant leaf image. First, decreased the resolution size of the image and converted into a grey scale image. After that sent image into the CNN architecture to learn the different features. The entire process of applying this plant leaf recognition model is discussed in detail in the article, beginning with the collection of photographs to construct a database. The experiments result achieved a tanning accuracy of 69.75% on grayscale images.

Keywords

Leaf identification, Dataset, Convolution Neural Networks, Activation, Dropout

Impacts on Human Societies and Natural Ecosystems Around the world on Karur District, Tamilnadu

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Abstract

The present study aims to assess the trend of spatiotemporal relationship between Normalized difference vegetation Index(NDVI) and Land surface Temperature (LST) under different ranges of NDVI & LST for Karur district, Tamilnadu by using satellite imagery for the years of 2000,2010,&2020. The Normalized Difference Vegetation Index (NDVI) is a geographical data which is used to analyze the vegetation index by using remote sensing Technology. Landsat data is utilized for the computation of LST and NDVI. Thus NDVI was one of the key factor to simply and quickly identify vegetated areas and their conditions, it remains the most well-known method to detect live green plant canopies in multispectral remote sensing data. Land Surface The(LST) is an important parameter for many scientific disciplines since it affects the interaction between the land and the atmosphere. The increasing spatial and temporal resolution of globally available satellite gives a unique opportunity to monitor the NDVI & LST values time series systematically. This work has great potential to provide valuable support for monitoring NDVI and LST and providing precise management strategy. According to the land surface temperature, the vegetation growth also varies.

Keywords

Spatiotemporal, NDVI, LST, Landsat, Remote Sensing

Inverter Based Local Feedback Transimpedance Amplifier with Low Noise and Low Power Consumption for 10Gb/S Applications

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Abstract

The large data that needs to be transferred has led to an high usage of optical communication systems. In optical communication system Transimpedance amplifiers (TIA) plays a very important role. TIA are used at thr receiver side of optical communication system to converts the current obtained from photodiode to amplified voltage. Thus obtained appropriate voltage signal is processed in further stages of communication system. A TIA should have high bandwidth and low power consumption but due to large photodiode capacitance it is difficukt to acieve. This paper presents a transimpedance amplifier (TIA) circuit with high gain and wide bandwidth with vey low noise effect. Author has used inverter based feedback system with always on PMOS and NMOS to reduce the leakage current for nanoelectronics application and increase the bandwidth for wide band and highspeed application. With this topology achieved -3db bandwidth is 8.2 GHz with high gain of 52.4dBohms. The noise effect is 23.36pA/sqHz i.e very low compared to other topologies in 180nm design. The author had used current mirror instead of constant current source thus power dissipation is also very low i.e 3.6mW. Thus this TIA can be used efficiently in low power high band 10Gb/s applications.

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Solar PV System with Multi-Level Inverter using Pi and Fuzzy Logic Controller

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Abstract

This paper presents a single-phase multi-string Nine-level PV inverter topology for grid-connected photovoltaic (PV) systems with a novel PWM control and fuzzy logic scheme. The Multilevel inverters are extensively used due to their increased power rating reduced EMI, improving harmonic performance. Multilevel inverters are switched at low switching frequency when compared to two level inverters, a single-phase multi-string nine-level PV inverter topology for grid-connected photovoltaic (PV) systems using novel PWM control Technology.

A photovoltaic (PV) system generates electricity by direct conversion. The PV strings are cascaded together in parallel configuration and connected to a Nine-level inverter to generate output voltage. Two reference sinusoidal signals are identical to each other with an offset equivalent to the amplitude of the triangular carrier signal were used to generate gate signals for the nine level inverter switches and it is to implement this PWM using PI current control algorithm. The proposed nine level inverter offers much less THD and can operate at near unity power factor. the frequency of it will be 50Hz and from the result we minimizes the number of components and devices as well as switching losses are reduced when compared to the conventional multilevel inverter topology and its interconnects for grid utilization. The validity of the proposed inverter is verified through simulation andcompared with other technique. The output voltage will be in the form of stepped waveform. The proposed system produces less THD and reduction of steady state time.

Keywords

Maximum Power Point Tracking (MPPT) algorithm, Boost Converter, FLC converter, PWM technique

Kidney Stone Detection from CT Images using PNN and Watershed Algorithm

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Abstract

Kidney stones or renal calculi are solid masses made of crystals. Its scientific name is renal calculus or nephrolith. Kidney stones usually originate in the kidneys and they can develop anywhere along the urinary tract which consists of kidneys, ureters, bladder and urethra. The incidence and prevalence rates of kidney stones could also be suffering from genetic, nutritional, and environmental factors. Imaging investigations play an important role within the management of patients with kidney stones. CT is an accurate technique for the diagnosis of abdominal diseases. Basically CT's send x-rays through the body in tiny slices which are saved as images on computer. The proposed system incriminates with pre-processing, segmentation and feature extraction techniques for the detection of kidney stones. By applying 3x3 median filter and Discrete wavelet transform (DWT), salt and pepper noise has been removed at the initial stage. Segmentation is done with watershed segmentation algorithm and K-means clustering. The objective of this work is to predict kidney stones by using Probabilistic Neural Network (PNN) after extracting the features using Grey level co-occurrence matrix (GLCM).

Road and Building Extraction from Multispectral Image with Multilayer Model

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Abstract

Road and building extraction is one of the most promising topics for better urban planning, better disaster response and many other fields. Now-a-days road and building extraction for urban planners is a challenging task to extract features from high resolution images. Previously many researches happened on this topic. As single-pixel analysis with multispectral classification does not give good results when applying to the high-resolution remote-sensing data. Many segmentation algorithms are discussed in the literature survey but in this I have used thematic segmentation method over multispectral segmentation method due to its accuracy. In multispectral image, spectral and spatial information is required for classification and thus object-based classification technique is needed. In this paper we proposed a methodology for extracting road and building from high resolution images using classification followed by segmentation techniques and object rule-based classification. Inputs as multispectral images are feeded to the segmentation and it generates segmentation parameters. The segmentation model gives a promise for greater accuracy compared to previous models. Then segmentation parameters are used by object rule-based classification having different rules provided by the user. This object-based classification has greater accuracy than maximum-likelihood classification results.

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An Investigation on Daylighting Guidelines for Design Optimization

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Abstract

Over the past years, providing daylight has become prevailing in contemporary buildings to improve the aesthetical virtues of buildings or strengthen the sense of place. In this way, designers established different tools and methods to facilitate daylighting performance inside buildings. Despite the myriad of advanced simulation tools that provide the user with valuable guidelines, there are still challenges to use them during the architectural design procedure, due to the complexity, cost, time, etc. This paper studies the conducted research on daylighting for building performance and design approach in optimization and compares simulation tools which examine daylight performance in buildings namely full-scale models for field measurement, scale models, and simulation software supported computationally. Such information is highly practical for designers to comprehend the efficiency of developed systems and how benefit from daylighting control systems, thermal comfort and optimized energy consumption in this manner. This research also presents a review that reveals the knowledge gaps and highlights the future perspectives to mend the daylighting performance through totally interactive designs.

Keywords

daylighting, design process, energy, interactive, simulation

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Differential Expression of a Phenylalanine Ammonia-lyase Gene, OsPAL4, in Bacterial Blight-Susceptible and Xa21-Mediated Resistant Indica Rice Cultivars

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Abstract

Most of the world's population depend on rice (*Oryza sativa* L.) as its primary food source. Identification of genes involved in rice disease resistance is essential in breeding new cultivars that exhibits stably high resistance to invasive pathogens without compromising the other equally important agronomic traits. Some defense-related genes have been effectively identified and used as potential indicators and contributors to gene-mediated resistance against these destructive rice diseases. In this report, we have studied the expression of a recently discovered rice phenylalanine ammonia-lyase (PAL) gene, *OsPAL4*, in BB-susceptible Thai indica rice cultivar RD47 and its improved BB-resistant progenies BC_3F_3 (*Xa21*/*Xa21*) inoculated with *Xanthomonas oryzae* pv. *oryzae* (*Xoo*). Based on the results, *OsPAL4* is both expressed in the Thai indica cultivar RD47 and BC_3F_3 lines. Nucleotide sequence analysis also confirmed that the partial cDNA sequence of *OsPAL4* from these rice samples shows 100% nucleotide sequence similarity to the *OsPAL4* nucleotide sequence in IR64. Meanwhile, expression analysis of *OsPAL4* under *Xoo* inoculation showed that the gene is induced as early as 1 hour-post inoculation in BC_3F_3 lines and its expression increased at 2 hour-post inoculation. No sign of gene upregulation was observed in BC_3F_3 lines after 2 hour-post inoculation. In RD47, the expression of *OsPAL4* was induced after 2 hour-post inoculation and is tending to increase again after 6 to 24 hour-post inoculation. Our findings suggest that *OsPAL4* is induced by *Xoo* inoculation thereby indicating its potential activity in the earlier responses of rice against invading pathogens.

Keywords

bacterial blight, gene expression, OsPAL4, rice, Xanthomonas

Cyclone Detection and Forecasting Using Deep Neural Networks through Satellite Data

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Abstract

Satellite imagery provides the initial data information in cyclone detection and forecasting. To mitigate the damages caused by cyclones, we coached interpolation and data augmentation approaches for enhancing the temporary resolution and modification of attributes in a specific dataset. Algorithm needs a classical approach during pre-preparation steps. Using 14 distinct constraint optimization techniques on three optical flow methods estimations are tested here internally. A deep learning pattern model is upskilled and examined within contrived densification and categorized storm data for cyclone identification and pinpointing the cyclone vortex yielding at least 90% accuracy. The work analyzes two remote sensing data consist of QuikSCAT satellite information and incorporated precipitation data from TRMM with various satellites for feature extraction. Result and analysis shows that the methodology met the objective of the project.

Keywords

Regression, Interpolation, optical data, Cyclone intensity, Convolutional Neural Network

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Driver Drowsiness Detection using EAR (Eye Aspect Ratio), MAR (Mouth Aspect Ratio) and Driver Distraction using Head pose Estimation

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Abstract

Many people are getting injured and losing their lives because of road accidents. One of the main reason among them is drowsy driving which is the main cause of road accidents and death. in major situations fatigue is one of the key issue in road accidents. So, we should detect the fatigue in the initial stage and this has become one of the trending research topic nowadays. Some of the important methods for detection of driver drowsiness is based on behavioral aspects of driver's face. By using the system we can detect the face and determine the facial landmarks by which we can compute Eye Aspect Ratio(EAR), Mouth Aspect ratio(MAR) to detect driver drowsiness based on adaptive threshold and also using the head pose estimation which checks the attention of the driver head with respect to the road whether he is facing the road or not. When the system detects the driver having drowsiness then it alerts the alarm. In head pose estimation majorly concentrates on three aspects they pitch(used to find direction he is looking left or right), yaw(used to determine looking up or down) and roll(used to determine the rolling of face). In this way we can detect drowsiness and distraction of driver.

Keywords

EAR (Eye Aspect Ratio), MAR (Mouth Aspect ratio), PERCLOS (Percentage Eye Closure)

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Analysis of different Machine Learning and Deep Learning Techniques for Malaria Parasite Detection

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Abstract

Malaria is an epizootic disease caused by single celled parasites. [1] In 2018, there were an estimated 228 million cases of malaria worldwide. Conventional method of diagnosis requires experienced technician and careful perusal to classify between healthy and infected blood cell, which consumes a lot of time and is also prone to human error. With the help of ML and DL we can simulate human intelligence and make better predictions. The main aim of the paper is to compare the machine learning algorithms namely KNN, Decision Tree, Logistic regression and Random forest and implementing transfer learning with deep learning models VGG19, modified Resnet50V2 to improve the accuracy achieved with machine learning models thus proposing the best model for predicting malaria only by observing by blood cell image rather than doing any staining of blood, thus reducing any expert requirement.

Keywords

Parasitized, Uninfected, Decision tree, K nearest neighbour, Random Forest Machine Learning, Deep learning, VGG19, Resnet50V2

Protein Biochip

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Abstract

Protein microarrays are rapid, automated, economical, and highly sensitive, consuming small quantities of samples and reagents. The human genome has been sequenced and the challenges of understanding the function of the newly discovered genes. High-throughput technologies such as DNA microarrays have been developed for the profiling of gene expression patterns in whole organisms or tissues. Protein arrays are emerging to follow DNA chips as possible screening tools. Profiling proteins on biochips will be useful for distinguishing the proteins of normal cells from early-stage cancer cells and from malignant metastatic cancer cells. In comparison with the DNA microarrays, the protein microarrays/chips offer the possibility of developing a rapid global analysis of the entire proteome leading to protein-based diagnostics and therapeutics. Of all the applications of protein microarrays, molecular diagnostics is most clinically relevant and would fit in with the coming trend in personalized medicine. These technologies have an advantage in diagnosis of some conditions.

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Real Time Chat Application-Title of Internship Project Report

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Abstract

The talk application is increasingly getting utilized as a substitute to innovative correspondence advancements like telephone and transmit. Outfitted with cutting edge alternatives, people will utilize it for training, business and meet and for bunch correspondence. An essential interest for correspondence is that the capacity to messages between at least two men, nonetheless, on going deliveries epitomize sound and video support correspondence.

For a couple of reason, the vibes of companions has at present become the standard a famous properties and subsequently, it gets partner decision for advancement visit applications like Skype. Skype, notwithstanding, utilizes single client enlistment worker, login and companions list. Unquestionably, this the thought will be dark if there's an agreement. During this examination, we proposed a discussion application upheld unadulterated distributed constructions that totally remove composite or outsider materials. The framework is client controlled and its security is independent overseen by arranging associations.

Each client can have their own a data of friend profiles and long range interpersonal communication accounts confirms between each other prior to trading messages. the most commitment of this paper might be a completely incorporated talk application intended for development with security measures. The reason for this talk application is to talk with each other visit demand. This visit application has every one of the choices like elective talk .state application The application offers the client time span talk setting. To improve this time-frame visit application misuse node.js, socket.io and react.js.Socket.io is utilized for time-frame data move during this application gives that data our messages. At the point when the customer is running a visit application, the customer will see the primary menu. In the principle menu, the customer will choose to buy in to talk solicitation to do as such, sign in to the visit application, or log out from the application.

Reflection of Religious Practices into the Built form: A Case Study from Rural Bengal

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Abstract

The religious beliefs and practices are clearly reflected in the planning principle of a dwelling unit. This paper aims at finding out the impact of religious tradition of a rural settlement on the built environment and the architectural interpretation of this social custom. The objectives are to study the influences of religious practices in domestic architecture and in its spatial arrangement. In Methodology, the dwellings of farmers are selected from a rural settlement of West Bengal for documentation and analysis considering the architectural elements and planning pattern based on their religious traditions. The result shows the reflection of religious practices which generates an architectural style within the community. This rural settlement is developing a typical architectural element and spatial pattern according to the requirements of the religious practices with vital socio-cultural impact. It reveals an innovative and creative formation of vernacular planning concept based on the religious requirements. The paper concludes with the identifying and documenting the principles of built form interpretation of religious practices and leading towards the further search for relevance of religion into domestic architecture.

Keywords

religious practices, domestic architecture, planning principle, rural settlement, Bengal

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Course Crediting and Academic Evaluation System for the College of Communication and Information Technology Course in President Ramon Magsaysay State University– IBA Campus

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Abstract

The study aimed to develop a Course Crediting and Academic Evaluation System for the College of Communication and Information Technology (CCIT) in President Ramon Magsaysay State University – Iba Campus to provide an online system to ease the procedures of crediting and evaluation of the student academic records. Descriptive research design and descriptive statistics was utilized in this study. The dean, program chairpersons and students of Bachelor of Science in Computer Science, Bachelor of Science in Computer Engineering and Bachelor of Science in Computer Engineering are the respondents of the study. The findings revealed that the respondents evaluated the software quality of the system using the International Organization for Standardization and the International Electrotechnical Commission (ISO/IEC): 25010:2011 as excellent. The respondents evaluated as strongly recommended on the degree of recommendation of the acquisition and implementation of the system The Course Crediting and Academic Evaluation System may be implemented to improve the present procedures. Trainings to the end- users may be conducted to know on how to use the system. The maintenance and continues enhancement of the Course Crediting and Academic Evaluation System for the CCIT may be done to adopt with the changing trends in information technology.

Keywords

course crediting, academic evaluation, system, software quality

Implementation Aspects Of TQM in Jalgaon Manufacturing Industries

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Abstract

This paper deals with the implementation of TQM Techniques in MSMEs by analysing critical factors using APH. These factors are implemented in MSMEs by educating and imparting training to works and Top Management key persons for establishing a good quality management system, developing human resources and increasing business performance at Micro, Small and Medium Enterprise (MSMEs).

Keywords

Total Quality Management, Micro, Small and Medium Enterprises, Critical Successful Factors, Analytical Hierarchy Process, JALGAON

E-Learning and COVID 19

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Abstract

E-learning has become a mandatory part of all educational institutions such as schools, colleges, and universities around the world and globally as a result of the COVID-19 pandemic crisis. Online training is usually defined as opposed to F2F training. The most notable feature is the absence of a physical classroom, which has been replaced by the use of web technologies that provide extracurricular learning opportunities regardless of time, place, or pace. This fateful situation changed the offline learning process. Teaching & learning in the times of the Covid-19 pandemic needs to be revamped to follow norms of social distancing. Therefore, online classes are a necessity now. E-learning offers unique teaching methods and techniques that bring out the best in students.

Keywords

Education, educational development, online learning, online training, interactive, life

Gesture Controlled Wheel Chair Along With Home Automation

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Abstract

The plan is to develop a wheelchair for the physically challenged. The wheel is controlled by the chair Hand movements/hand gestures are recognized by the accelerometer sensor. An ultrasonic sensor is used to detect obstructions in front of the chair. Sensor signals are acted upon, And the wheelchair is controlled by an Atmega 328 microcontroller. Maintenance engineering Use of engineering sciences and technology to improve people's quality of life Disability A device designed for blind people to help them run home Appliances individually. Microelectrochemical systems (MEMS) accelerometers are used to understand this feeling.

The movement of a hand moves in three straight directions (x, y, z) and moves Wireless protocol using radio frequency (RF). The frequency of transmission of RF signal is 2.25 GHz. The codec templates are already stored in the microcontroller in the receiver section. Received The hand gestures shown by gestures and visually are recognized and compared The templates are stored in the recipient. If the templates match the stored templates, then at home accordingly the devices are controlled.

Enhancing the Performance of Grade 8 Students through Project STEM

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Abstract

The study aimed to improve the performance of Grade 8 students in Science subject through Project STEM. On the course of the project, learners were interviewed to find out the cause of poor performance in Science subject. The learner's responses were recorded and grouped according to theme. Teachers were also interviewed to record their perception on the poor performing students in Science. Class observation was also conducted. Pretest and posttest were utilized to check the progress of the learners after the implementation of Project STEM. The results include: among the major factors affecting the performance include teacher's teaching practices, teacher's attendance, and teachers' behavior; the modified teaching practices and interventions in teaching Science 8 which is included in Project STEM effectively improved the MPS of the subject. Moreover, with the collaborative effort of teachers, the target of improving the classroom performance and MPS of students in examination is achievable.

Keywords

Stem, performance, intervention, MPS

Smart Waste Detection and Segregation using Artificial Intelligence

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Abstract

With an increase in population in urban areas, waste management has become one of the most crucial parts in maintaining the health, hygiene and beauty of the city. Urban India generates 62 million tons of waste annually, and it's been predicted that this may reach 165 million tons in 2030.There are not enough public bins, and the bins that are available are not even covered, and in various situations waste is overflowed out of theses bins and is ended up all over the streets. Usual dustbins require to be opened by pressing foot against its lever then throwing garbage. This can be changed by using artificial intelligence to detect waste which is to be thrown in the dustbin. There is a lack of segregation system in most of the dustbins found in modern cities these days. This leads to the collection and contamination of various kinds of waste. The improper disposal of this waste can pose various threats to human life and environment. This introduces the need of a system which can not only detect waste but also segregate it into different types of waste and make it easier to recycle waste. This project introduces a hands-free approach to waste management and is a step closer to environment conservation and ease of recycling. The main aim of this project is to present an intelligent waste detection and segregation which can further make it easier to recycle.

Keywords

Artificial Intelligence, dustbins, environment conservation, segregation system, waste detection, waste management

Spero

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Abstract

Now days, we are using different method to produce electricity like Hydro- power plant, Nuclear power plant, thermal power plant. Most probably we are depending on the electric and nuclear power plant to produce electricity but this traditional method is emitting harmful gases to environment, nuclear waste, radiations etc. which can cause problems. Total 143.90% of installed power plants is depends on the non-renewable source of energy and rest of are depends on the renewable energysources.
Normally the cost of non-renewable source is more thus the cost of produced electricity is more. Ultimately it affects the wealth of country. Now we are focusing on using renewable energy source but it is not possible to use renewable energy source at every place.
We are suggesting to use the electromagnetism to produce electricity. As we all know from the ohms low, with the use of magnetic fields we can produce electricity, thus we are going to use magnetic force to rotate the turbines for the generation of the electricity.

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Steel Frame Structure Defect Detection Using Image Processing and Artificial Intelligence

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Abstract

Steel Frame Structure Defect Detection is one of the main stages in constructing a building, where most of the times it has been done manually, which leads to no proper inspection, on top of that there isn't any technical device to monitor it, especially in Sri Lanka.
The aim of this paper is to detect six main defects in welded steel frame structure by using image processing and deep learning algorithms, where the application would aid individuals in construction site to identify defects in said steel frame structures at an early stage of building in order to avoid casualties caused by the defect. An android application incorporated with a classification model was proposed and built. In this research, MobileNet has been used as the classifier algorithm, where Transfer Learning has been implemented on the pretrained model on ImageNet. CNN layers have been customized where GlobalAveragePooling2D layer has been implemented with Rectified Linear Unit being the activation layer and being fed into SoftMax layer. Furthermore, SGD optimizer with Categorical Cross Entropy Loss functionality have been applied. An image preprocessing of data augmentation and image transformation have been done. Viewpoint range is achieved at 10 – 3cm and error free under device rotation circumstances. Robustness and processing performance of the application have been achieved to an optimum level since it runs locally. The mean accuracy level of device has been achieved for 91% for scratch, 78% for patches, 81% pitted surface, 78% for crazing, 73% for rolled in scale and 67% for inclusion defects in welded steel frame structure which sums up with a model mean accuracy being at 78%.

Keywords

Welded Steel Frame Structure, MobileNet, Transfer Learning, Defect Detection, Data Augmentation, Image Transformation

Study of House-Form and Settlement Pattern of Vadnagar, Gujarat

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Abstract

Architecture is generated by various layers like physical as well as cultural. It is an integrated outcome of living and cultural pattern of people, social structure, history, climate, materials, economy, technology prevalent at that place and the aspirations of the people. Each layer contributes varyingly, weaving complex yet a united hole. These layers form the character of a context, which is very specific to a place. Architecture causes in form and space with respect to attributes of a place. Architecture, unlike other art forms is distinct from music, sculpture, literature, fine arts or motion picture since its expression and physical forms is inseparable from location.

The first part of this paper illustrates/ photographs the study of Vadnagar, Mehsana, Gujarat while second part is the Documentation of traditional House form and formation of street. The work is focused towards the architectural characteristics of the place. The description of Vadnagar is not complete but an attempt to explain the essence of this wonderful region of North Gujarat.

This paper is an attempt to capture, Documentation and explore the liveliness and the essence of place with such beautiful House level, Neighborhood level & town level private/public open spaces along with its own architecture beauty.

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Theory of 3F4D Universe (Beyond Standard Model of Particle Physics)

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Abstract

In this Theory, **"Mass is Equivalent to Length of Imaginary Straight Line Segment"** and **"Direction to Imaginary Line Segment is Intrinsic Property of that Particle which is Equivalent to its Intrinsic Spin".** With this concept, all fundamental particles, Fermions and Bosons are described as Quanta Imaginary String particles with definite direction. For e.g. Unidirectional Imaginary Straight Line with fixed length are Massive Spin ½ Fermions; while Unidirectional Imaginary Quanta Curved Lines are Massless Spin 1 Bosons. Thus, it gives co-relation between Massless (Curved Imaginary Line) and spin = 1 properties of Boson as proved in QED theory. All Fundamental particles of Standard Model and Beyond Standard Model are arranged in one Simple Diagram in 3 Folds (Bottom Fold, Middle Upper and Lower Folds and Top Fold) and are projected in 4th Imaginary Dimension in order of decreased in Mass from TeV to approx. 0 eV. **This Theory is Beyond Standard Model because it predicts New Fundamental Particles viz. Dark Matter (Spin=0 Massive Boson) along with Gravitons (Spin=2, Massless Bosons); 4th Pair of Neutrinos, Vertical Massless Boson (VMB) Particles and Tri-Axis Massive Boson (Spin=0) particle. Discovery of these new particles will act as Solid Proof to this theory.** With this 3F4D representation of the Universe at atomic and sub-atomic level, it solves lot of current problems of SM of Particle physics like Matter-Antimatter Asymmetry, Origin of mass of hadrons like protons, Origin of mass and L.H. nature for neutrinos, Wave-particle duality of particles etc. giving true insight of fundamental particles. With proving that, Dark matter is not a Quanta Particle, rather it is a Single Entity and spreads/ expands throughout the Universe in the form of "Web of Spider", it shows space-time is not empty, but it is filled with Continuous lines of Dark Matter and we, materialistic Massive objects are floating/ sailing w.r.t. current of this vast ocean. Correlation of its Continuity with Time, gives new definition to Time: **"Time is neither Illusion nor 4th Dimension, but, it represents Continuous Flow of Single Entity, Dark Matter".** Space-Time is not Empty and is filled with Massive Dark Matter, hence, we have to add more terms to Newtonian Gravitational Equation to account for Gravitational Strength of Mass of Surrounding Dark Matter which represents Curvature of Space-Time in terms of Increase in its mass-density w.r.t. to Mass- Density of Flat Universe. Finally, using an Empirical Formula **(h=k*c*Q; k=Boltzmann's Constant=Mass in TeV Range)** and Inverse relation of Mass-Density of DM with Age of the Universe (H^2=Constant*G*Mass-Density of DM); **Unification of Gravity at TeV is achieved without consideration of "Gravitational Constant, G", hence, Planck's Scale is not required.**

Index Term:

Unification, Particle Physics, Standard Model, Dark Matter, Gravitons

Uranium Concentration in Groundwater Samples Taken from Different Location of Korba District, Chhattisgarh, India

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Abstract

Humans are constantly subjected to ionizing radiations. Natural radionuclides are found in varying amounts in the atmosphere. Uranium can be present in water, rocks, dirt, and construction materials. Groundwater is the main source of drinking water. As a result, it's critical to assess the water quality in the Korba district of Chhattisgarh in light of uranium. Uranium is inhaled by humans by drinking water. In this report, comprehensive data from the Korba district has been collected and examined, and safe limits from climate data have been compared. The plurality of the reports discussed uranium concentration testing in water samples. Fission track technique, ICPMS, laser fluorimetry, and LED fluorimetry were used to collect the majority of the data reported. Uranium concentration in groundwater samples collected from various sources in the research region was investigated using an LED Fluorimeter. Uranium concentrations range from 0.964 µg/l to 126.58 µg/l.

Keywords

Uranium, Radiations, LED fluorimetry, Chemical toxicity

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Uses of Passive Techniques and Integration of Active Techniques in Planning and Designing of Buildings in Composite Climatic Conditions of India: A Design Parameters Study

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Abstract

Buildings can be designed to meet occupant's need for thermal and visual comfort at reduced level of energy & resources consumption. Energy resource efficiency in new constructions can be affected by adopting an integrated approach to building design. The primary steps in this approach would be to Incorporate solar passive techniques in a building design to minimize load on conventional systems of mechanical or electrical based heating, cooling, ventilation and lighting which are based on limited non-renewable natural resources of the planet Earth. Passive systems provide thermal and visual comfort by using natural energy sources and sinks that are renewable e.g. solar radiation, outside air, sky, wet surfaces, vegetation etc. Energy flows in these systems by natural means such as by radiation, conduction, convection with minimal or without use of mechanical means. The solar passive systems thus, vary from one climate to the other e.g. in a cold climate aim would be to design a building so that solar gains are maximized, but in a hot climate primary aim would be to reduce solar gains, maximize natural ventilation and so on.

The pressure on the earth's nonrenewable resources can be alleviated by judicious use of earth's renewable resources i.e. solar energy, water energy and wind energy. Use of solar energy during day time for meeting electrical needs of a building can further reduce consumption of conventional forms of energy resources.

Special methods of construction and locally available building materials & reduction of use of high energy building materials (glass, steel etc.) and use of low energy embodied building materials.

Active solar **energy systems** use the same principles as **passive systems** except that they use a fluid (such as water) to absorb the heat. A solar collector positioned on the roofs of **buildings** heats the fluid and then pumps it through a **system** of pipes to heat the whole **building**.

Photovoltaic cells, or solar panels, are slightly more involved than passive or active solar energy systems. They convert sunlight to electricity by using thin sheets of silicon. These thin sheets are inexpensive and can be added to roof tiles. People in remote areas such as mountain tops and islands often use photovoltaic cells to generate electricity in their homes and businesses.

Keywords

Passive tools, Active tools. Energy Efficiency, Passive controls

Ontology based Virtual Reality Environment for Water Puppet

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Abstract

In this paper, we propose the whole process of a virtual interactive reality environment built for water puppets based on water puppetry ontology. Firstly, we set up and enlarge the Vietnamese water puppetry ontology. The creation of the puppetry ontology would allow not only more informed and productive professional training but also the capability of preserving and promoting water puppetry. Gathering water puppetry expert knowledge requires a deep study of puppetry history, background knowledge and performance. Next, we develop a VR interactive graphics application that allows users to access and query the ontology in order to receive water puppetry information effectively and intuitively. Besides, we build a database of 3Dpuppet, water theater stage which is used in building the VR application in which, we could play puppet shows and puppet traditional games as well.

Keywords

VR, water puppet, Ontology

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