CONFERENCE PROCEEDINGS

A National Conference on "Futuristic Trends in Science, Technology & Engineering" (NCFSTE- 2022)

Date: 25.11.2022

Published Online In Association with

*International Journal of
Engineering Sciences Paradigms and Researches*

Organised by

GANDHI ACADEMY OF TECHNOLOGY AND ENGINEERING
Golanthara, Berhampur, Ganjam, Odisha- 761008

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ABOUT THE CONFERENCE

The aim of this conference is to present a unified platform for advanced and multi-disciplinary research towards sustainable energy systems. The theme on a broader front focus on recent innovation paradigms in feasible energy support and system and its, earnestness that may be applied to provide realistic solution to varied problems in society, environment and industries. To forge interactions among active researchers in the area of sustainable energy systems, Department of Electrical Engineering in conjunction with Department of Mechanical Engineering and Civil Engineering,Computer Science Engineering, ECE Department. Gandhi Academy of Technology and Engineering, is organizing a multidisciplinary International Conference on Emerging Trends in Sustainable Energy Systems.

ABOUT THE INSTITUTE

Begin its journey in the year 2009 at Berhampur, the Silk City of Odisha, Gandhi Academyof Technology and Engineering is managed by "Tarini Educational Trust". GATE, an Institute, is approved by AICTE New Delhi & Affiliated to BPUT, Rourkela, Odisha. The Institute works with a mission to provide quality education of international standards for producing technocrats and future leaders in a disciplined and conducive environment as an integral part of our social commitment to promote education globally. GATE offer graduate programmes in Mechanical Engineering, Civil Engineering, Electronics Engineering, Computer Science Engineering and Electrical Engineering and Post Graduate Program in Computer Application and Business Administration. More than 1400 graduate and post graduate students are being groomed here to excel in their area of specialization. GATE's alumni have been well accepted by both public sector and private sector companies and many are holding important positions in their respective organizations.

The Institute works with a mission to provide quality education of international standards for producing technocrats and future leaders in a disciplined and conducive environment as an integral part of our social commitment to promote education globally.

CONFERENCE PROCEEDINGS
(ORAL & PAPER PRESENTATION)

Gandhi Academy of Technology and Engineering
Golanthara, Berhampur, Odisha- 761008

Dr. Satya Prakash Panda
Chairman

MESSAGE FROM THE CHAIRMAN

On behalf of the Gandhi Academy of Technology and Engineering (GATE), I extend a very warm welcome to all delegates and participants to the National Conference. GATE has borne the mantle of excellence, omitted to ensuring the students their own space to learn, grow and broaden their horizon of knowledge by indulging into diverse spheres of learning. In our endeavor to raise the standards of discourse, we continue to remain aware to meet the changing needs of our stakeholders.

Last but not the least; we would also like to thank the staff, faculty members, the Organizers and the students for their contribution in successfully organizing and managing this event. This event wouldn't have been possible without their guidance and constant support.

We welcome all of you to GATE and hope that, this national conference will act as a medium for all to ponder upon the topic of discussions, challenge us to strive towards it, and inspiring us to go ahead

Thank you!

Dr. Satya Prakash Panda

Gandhi Academy of Technology and Engineering
Golanthara, Berhampur, Odisha- 761008

Prof. (Dr.) Gouri Shankar Mohapatro
Principal, GATE

MESSAGE FROM THE PRINCIPAL

The conference is necessary to bring at the culture of information exchange and feedback on developing trends in technologies. I am delighted to note that the GATE is organizing the National Conference on "Futuristic trends in Science, Technology & Engineering". Certainly, this type of conference not only brings all researches, students in one platform, but it also inculcates the research culture among the entire fraternity of Education in the country, thereby contributing to the development of the nation.

I hope that this conference would certainly induce innovative idea among the participants paving way for new invention and technologies in the field of application of optimization techniques and stainable development in engineering sciences.

IcongratulateallProfessors and the entire organizing team for initiating the conduction of such an important event at our institute.

I wish the conference a grand success.

Prof. (Dr.) Gouri Shankar Mohapatro

Gandhi Academy of Technology and Engineering
Golanthara, Berhampur, Odisha- 761008

MESSAGE FROM CONVENER

It gives me immense pleasure to invite all delegates, researches and students at GandhiAcademy of Technology and Engineering (GATE), Berhampur, Odisha india to the National Conference "Futuristic trends in Science, Technology & Engineering". New Technology are introducing every day that will radically transform the future of this fields. The aim of the conference is promote excellence in scientific knowledge and innovations in the diversified fields of science, engineering and technology to motivate young researches and students. It is also offer the budding researches to different opportunities to present their work in front of eminent experts of individual fields.

As the convener of the conference, I extend my gratitude to all professors, Invited speakers, Chief Guest, Guest of honour, Keynote speakers, National Delegates, Invited Faculty member, researcher and students coordinators fot their wholehearted participation in the national Conference. I would like to thank National & Internation advisory committee members, organizing committee and department faculty and staff members for their continuing support. I would like to thank all the authors and persons who directly or indirectly contributed their helping hand in the conference. Without their cooperation and full support, this conference would not have been possible

I wish the conference and the proceedings a grand success.

Sachin Kumar Patra

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NCFSTE- 2022

B2LiVe, a label-free 1D-NMR method to quantify the binding of amphitropic peptides or proteins to membrane vesicles

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ABSTRACT

Amphitropic proteins and peptides reversibly segment from answer for layer, a key interaction that controls their capabilities. Trial moves toward traditionally used to quantify protein parceling into lipid bilayers, like fluorescence and round dichroism, are not really usable when the peptides or proteins don't display critical extremity or potentially conformational changes upon film restricting. Here, we portray restricting to lipid vesicles (B2LiVe), a straightforward, vigorous, and generally material atomic attractive reverberation (NMR) technique to decide the answer for layer dividing of unlabeled proteins or peptides. B2LiVe depends on recently portrayed proton 1D-NMR quick beating methods. Layer dividing instigates a huge line expanding, prompting a deficiency of protein signals; thusly, the decline of the NMR signal straightforwardly gauges the negligible part of layer bound protein. The strategy utilizes low polypeptide focuses and has been approved on a few film communicating polypeptides, going from 3 to 54 kDa, with layer vesicles of various sizes and different lipid creations.

1. INTRODUCTION

Portrayal of the communication of peptides and proteinswith lipid layers frequently starts with the assurance of the fondness, or on the other hand more properly, the parcel coefficient, Kx.1,2 A normal fundamental review comprises in the ID of the lipid species as well as the lipid properties, like lipid polymorphism, charge, and acyl chain smoothness, leaning toward the apportioning of proteins and peptides from answer for film. Additionally, information on layer fondness can be significant to interpret atomic components or mutational investigations to recognize districts or amino corrosive buildups basic for film restricting. A few exploratory methodologies, for example, surface plasmon reverberation (SPR),3-11 interferometry,11-15 fluorescence,16-24 centrifugation,25-27 isothermal titration calorimetry (ITC),28-30 also, round dichroism31-35 are normally used to gauge the dividing of solvent peptides and proteins into lipid bilayers. Be that as it may, a few peptides and proteins don't have inborn fluorophores, or their optional or tertiary underlying contents don't change essentially to the point of being utilized as a test of their dividing into layers.

The effect of weathering environments on micro plastic chemical identification with Raman and IR spectroscopy: Part I. polyethylene and polypropylene

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ABSTRACT

A productive convention was created for the amalgamation of tertiary alcohols through nucleophilic expansion of organometallic mixtures of s-block components (Grignard and organolithium reagents) to esters performed in the biodegradable choline chloride/urea eutectic blend or in water. This approach shows a wide substrate scope, with the expansion response continuing rapidly (20 s response time) and neatly, at surrounding temperature and under air, clearly outfitting the normal tertiary alcohols in yields of up to 98%. The practicability of the strategy is exemplified by the manageable combination of some delegate S-trityl-L-cysteine subordinates, which are a powerful class of Eg5 inhibitors, additionally by means of extended one-pot processes.

1. INTRODUCTION

Tertiary alcohols are significant primary subunits in compound building blocks and normal among naturally dynamic mixtures [1]. The augmentations of organometallic mixtures of s-block components (normally organolithium and Grignard reagents) to ketones or on the other hand esters are among the most effective and direct courses to getting to tertiary alcohols. At about this point, instructing reading material are clear: profoundly captivated organometallic reagents should be responded at low temperature (frequently ?78 ?C), in aprotic solvents such as Et2O or THF, under a dry, inactive climate of argon or nitrogen, with the comparing responses typically reaching a conclusion inside a not many hours [2]. Concerning the expansion to esters, these responses, when run under the previously mentioned conditions, are now and again tormented by the creation of diminished auxiliary alcohols, and combinations of ketones and carbinols can likewise be acquired, contingent upon the conditions utilized (Plan 1a) [3]. The rising mindfulness towards natural contamination and environment changes has induced research in natural combination to look for all the more ecologically mindful and less effective solvents instead of harmful and frequently perilous unpredictable natural mixtures (VOCs), which are known to represent around 80e90% of the complete mass utilized in any natural response [4], accordingly reshaping long-laid out standards [5].

A comparative study of different docking methodologies to assess the protein–ligand interaction for the E. coli MurB enzyme

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ABSTRACT

We have researched the dynamic site of E. coli MurB utilizing the Quantum Mechanics/Sub-atomic Mechanics (QM/MM) procedure. The docking of three novel series of 4-thiazolidinone subordinates has been performed utilizing two strategies: unbending docking and adaptable docking (Instigated Fit Docking: IFD). The outcomes have been contrasted with comprehend the conformational parts of the compound. The docking results from inflexible docking show that the ligands with exceptionally bad DGbind have unfortunate docking scores. Likewise, the worth of the relapse coefficient (R) got on associating the DGbind and the trial pMIC values is irrelevant. On keeping the protein adaptable, there is a surprising improvement in both the docking score and DGbind, alongside a decent worth of R (0.64). Two significant buildups, Tyr254 and Try190 are viewed as exceptionally uprooted during the adaptable docking and consequently their part in viable ligand restricting has been affirmed. Hence, looking at the two techniques, IFD has arisen as the more fitting one for concentrating on the E. coli MurB compound.

1. INTRODUCTION

In the current situation, the rising instances of bacterial diseases are a serious worry for human wellbeing. Likewise, with time, the bacterial strains have created opposition toward the accessible antibacterial medications (Pfeltz and Wilkinson, 2004; Tenover and McDonald, 2005). Penicillin and methicillin opposition toward Gram positive microorganisms S. aureus (Chambers and DeLeo, 2009) and opposition for Gram negative microscopic organisms E. coli (Karlowsky et al., 2002; Saenz et al., 2004) have as of now been accounted for. This has made the treatment of irresistible illnesses troublesome, and hence the battle activity requires the advancement of novel targets with the goal that there can be no cross obstruction with the current therapeutics. Toward this path, going after the peptidoglycan union of the bacterial cell wall is a powerful technique. Peptidoglycan, which is an fundamental part of the cell mass of both Gram-positive furthermore, Gram-negative microbes, helps in keeping up with the osmotic strain of the bacterial cell. During its biosynthesis, different chemicals, like Mur A-F, are engaged with the reactant cycle (Figure 1) (Lovering et al., 2012; Zoeiby et al., 2003).

Fluorescence based studies on the interaction and characterization of Surface-active ionic liquids with polarity sensitive Intermolecular charge transfer probe

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ABSTRACT

Surface-dynamic ionic fluids (SAILs) are of gigantic interest as of late because of their better application in the field of food, cleanser, and wellbeing. The balanced fluorescence conduct of an intramolecular charge move (ICT) test, trans-ethyl-p-(dimethylamino) cinnamate (EDAC), in presence of five distinct SAILs with shifting head gatherings (viz. imidazolium, pyridinium, and morpholinium) and different alkyl chain length (decyl, dodecyl, and tetradecyl) was observed by consistent state and time-settled fluorescence spectroscopy. Outrageous awareness of EDAC fluorescence was utilized to portray different physicochemical properties of the SAILs, counting basic micelle focus, static extremity, and exact dissolvable extremity scale, ET(30) of the microenvironment. The assessed boundaries are in great concurrence with the writing reports and estimated freely from other free investigations talked about here. Time-settled fluorescence tests show a huge hindrance in various nonradiative rot channels of EDAC, when contrasted with that in watery stage, showing a particular relationship of the test in presence of SAILs. That's what the outcomes demonstrate the physicochemical properties of SAILs can be tuned by controlling the idea of both the cations and as well as the chain length of the alkyl bunch. These properties additionally show critical adjustment in arrangements with fluctuating SAIL focus, especially in the pre- and post-micellar locale.

1. INTRODUCTION

Surface dynamic ionic fluids (SAILs) are considered as trendy shrewd materials and going about as reasonable option in contrast to the conventional and normal surfactants concerning their designated applications [1-6]. Commonly, the inherent amphiphilicity with more prominent than eight number of carbon iotas appended with either the head or tail moieties of SAILs prompts surfactant like property and works with the arrangement of micelle like structure in fluid medium [7,8]. These microaggregates in the micellar as well as premicellar system in SAILs can go about as a reasonable stage for drug conveyance framework with further developed solubilization conduct of ordinarily water insoluble "natural" drug particles [9-15]. The special physicochemical properties of SAIL frameworks broaden their application in various fields. For instance, in general expansion in the response pace of natural combination and catalysis in watery medium is seen because of the more prominent water dissolvability of natural substances and expansion in nearby convergence of the substrates inside the micellar totals .

Evaluation of the effect of soaked false yam (Icacina oliviformis) Tuber meal on the hematological indices and Serum biochemistry of rabbits

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ABSTRACT

The double-dealings of non-customary feeds for domesticated animals have started extraordinary interest because of human-creature rivalry for customary feedstuffs. Most of creature feedstuffs are figured out with grains as the significant fixing, bringing about tightness and an expansion in the expenses of regular feeds. This training has highlighted the need for an on the other hand modest furthermore, supportable non-customary feedstuff to rescue the taking care of limitation to creature creation. With this, the current review pointed toward assessing the impact of drenched bogus sweet potato tuber dinner (SFYTM) on the hematological records and serum biochemical profile of weaner bunnies. Methods: Sixteen neighborhood weaned bunnies of enhanced breeds and genders were haphazardly allotted to dietary medicines containing 0, 10, 15, and 20 % of absorbed misleading sweet potato tuber trade for maize in a maize-fishmeal-based diet.

1. INTRODUCTION

The bunny, being a monogastric herbivore has a completely evolved hindgut. Because of the inflated expenses of conventional wellsprings of meat counting cows, chevon, lamb, pork, and poultry, hare cultivating has as of late drawn in a ton of interest. Monetarily, hares have many promising possibilities. They are extremely productive and effective converters of feed to meat [1], with an incredible possibility of creating high pay on little feed admission, which is financially reasonable for hare ranchers. Hares can likewise be raised for non-food purposes, for example, high-grade fleece creation, which can add to work creation open doors. At the point when taken care of appropriately with adjusted pellets, bunnies develop quickly in the beginning phases of their life, with a feed transformation proportion normally around 1:3 [1]. Along these lines, youthful bunnies need around 3 kg of pelleted feed to put on 1 kg of added live weight. Youthful hares just polish off milk for the initial 18-20 days of their lives. Subsequent to passing through this stage, they start eating strong food varieties as the caecum's fermentative movement begins to create and the enzymatic processing exercises show critical changes [2]. Bunnies can consume abstains from food thick in roughage and low in grains [3].

An empirical analysis on Indian stock marketVolatility during the pandemic

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ABSTRACT

The covid pandemic has affected the performance of an economy in various areas and the Indian stock market is not an exception. This study empirically analyses volatility of the Indian during covid 19 pandemic with special reference to BSE and NSE. To determine the market volatility by historical data NSE and BSE closing prices on the daily basis from December 2019 to December 2021. Trend analyze is used to find out the trend pattern of the stock returns on the daily basis and to test the statistical properties of the time series descriptive statistics and Grach (1,1) Model is used analyze the volatility nature of the stocks. The findings strongly confirm the presence of volatility in the Indian stock market during December 2019 to December 2021.

KEY WORDS: GARCH (1,1), NSE, BSE, COVID PANDEMIC, STOCK MARKET

1. INTRODUCTION

In Finance Sector Stock Market plays major role in the development of a country. In India Stock Market has classified into Bombay Stock Exchange and National Stock Exchange. Bombay Stock Exchange is the oldest stock exchange in India located at the Dalal Street in Mumbai. In Bombay Stock Exchange their bench mark known as Sensex is used to measure the index. In Bombay Stock Exchange Top 30 Companies are listed in the Stock Exchange. Companies has classified into 10 or more sectors which contributes towards Indian Economy. Examples: Reliance Industries, ICCI Bank. National Stock Exchange is another type of market in India, It is the largest financial market in India and fourth largest trading volume in the world. National Stock Exchange introduced fully automated, electronic, and screen-based trading in India. And its bench mark knowns as Nifty 50 is used to measure the index. National Stock Exchange Top 50 companies most highly liquid and constant trading Indian companies which are listed on National Stock Exchange. Examples: Reliance Industries, TCS, Hindustan Unilever.

ARIMA Model in Forecasting Stock Returns – A Study with Reference To BSE Sensex

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ABSTRACT

Although accurate stock price prediction is difficult, the autoregressive integrated moving average (ARIMA) model has proven to be reliable in a variety of linear and non-linear time series forecasting methods. With a market capitalization of around 2, 61, 80,305.91 crores, the Bombay stock exchange is India's largest stock exchange. The goal of this study is to find the best ARIMA model for forecasting the BSE Sensex price index. In order to find the best ARIMA model for forecasting the stock market index, the researchers utilised a three-step iterative quantitative approach.The study found that the ARIMA (1,1,0) model is the most stable and appropriate model for forecasting India's stock price index for the subsequent year.

Key Words-ARIMA model, time series plots, Stock Index

1. INTRODUCTION

The stock market is a marketplace that allows for the seamless exchange of corporate stock purchases and sales. Every Stock Exchange has its own value for the Stock Index. The index is the average value derived by adding up the prices of various equities. This aids in the representation of the entire stock market as well as the forecasting of market movement over time. The stock market can have a significant impact on individuals and the economy as a whole. As a result, effectively predicting stock trends can reduce the risk of loss while increasing profit. The ARIMA model is a short-term prediction model and a time series model with high precision. The basic idea of the model is that some time series are a set of random variables that depend on time, but the changes of the entire time series have certain rules, which can be approximated by the corresponding mathematical model. Through the analysis of the mathematical model, it can understand the structure and characteristics of time series more fundamentally and achieve the optimal prediction in the sense of minimum variance. The ARIMA model, a time series prediction method, was proposed by Box and Jenkins in the 1970s. The model consists of AR, I, and MA. Here AR represents the Autoregressive model, I represent the Integration indicating the order of single integer, and MA represents the Moving Average model. In general, a stationary sequence can establish a metrology model.

Competitive constructs of ERP implementation
Across selected manufacturing sectors

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ABSTRACT

This paper evaluates and operates eight competence constructs in ERP implementation in selected manufacturing sectors. This study is questionnaire based and is conducted in three organizations where ERP has been successfully implemented. The role of strategic IT planning, executive and management commitment, IT skills, business process skills and ERP training and Learning has been determined in CavinKare, Manali Petro Chemicals and Britannia. Some of major findings from this study includes excellent ERP project management and top management commitment may be an important key success factors in ERP implementation. Regarding implementation issues employee training and learning in advanced cloud-based ERP modules, continuous business process reengineering, data conversion from legacy system considered most key strategic importance in ERP implementation.

Key Words: Enterprise Resource Planning, ERP Competitive Constructs, Strategic IT Planning, ERP training and learning

1. INTRODUCTION

An ERP system is an integrated suite dominating across various business and industry functions because of latest developments in digital transformation allowing firms to produce and access information through real-time environment by completely automating every business function and process by sharing enterprise-wide application across globally. ERP systems are programs that provide integrated software to handle multiple corporate functions which includes back-and front office functions like finance, human resources, manufacturing, materials management, and sales and distributions. SAP, Oracle Corporation, Microsoft, Infor, Netsuite, Syspro, Rootstock, Acumatica, Workday, SAGE group PLC are the major ERP vendors stay competitive within ERP market by adopting differentiated strategies, perform healthy competition, collaboration, joint ventures and acquisitions. AMR Research predicted global ERP market across various business functions and industry verticals projected towards highest market share in 2023 by occupying three-fifth of the global market. At the same time, service sectors / segments projected to grow with faster pace of 12.3% CAGR from 2021 to 2028 by classifying evaluation of ERP systems into manufacturing integration enterprise integration.

Consumer buying behavior in automobile sector and how it will get Impact after covid-19

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ABSTRACT

The Indian automobile industry is one of the largest in the world, and it continues to grow year after year. As a result of the ease with which automobile loans are available, as well as the rise in income structures and higher purchasing power of the middle class, there has been an increase in the number of vehicles on the roads during the COVID 19 pandemic. The goal of this study is to look into the purchasing habits of Indian car purchasers after COVID 19. A questionnaire survey was conducted to determine the many factors that influence vehicle buying decisions in India. A Google Forms questionnaire survey was prepared and sent to participants by e-mail, WhatsApp, Face book, and other channels. The results of the survey were statistically examined and are shown below.

Keywords: Percentage Analysis, COVID 19, Pandemic, Automobile, Loan

1. INTRODUCTION

The epidemic at COVID-19 serves as a stark reminder that the events depicted in the Black Swan are accurate and will have a significant impact on business and industry. In the aftermath of the recent pandemic, the globally integrated vehicle sector is particularly sensitive and exposed, and it is projected to have severe economic consequences in the following quarters. However, as China, which is growing at a faster rate than the rest of the world, shows, car supply chains must adapt swiftly. According to supply chain specialists, most organizations have the ability to overcome the current situation due to extremely low processing capacity and substantial unsold buffer stock inventory. Although most organizations focus on supply concerns automatically and instantly, others fail to view this as a market problem affecting consumers in yet-to-be-determined ways. It won't be business as usual when markets recover from COVID-19 politically and socially. Customer trust would be severely harmed by probable job layoffs and income cuts, forcing others to postpone discretionary purchases such as automobile purchases. Consumer trust has been shattered around the world, according to a Wall Street Journal story, with many people not even considering buying a car after the outbreak.

Recycling of directional determinants by English and Iranian academics

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ABSTRACT

Motivated by the supposition that the recycling of directional determinants(DDs)(the exploration purposes, suppositions, questions) across English exploration papers(RAs) is substantiation of the pen's responsibility, this study sought to probe any implicit differences between English and Iranian experimenters in the recycling of DDs throughout RA sections. To this end, 600 empirical RAs representing six soft wisdom disciplines from 2006 to 2018 were chosen, 300 of which were penned by English L1 scholars and another 300 by Iranian experimenters. The quantitative analysis revealed parallels between the two groups of scholars, with the DD recycling appearing more constantly in the Discussion section than in other sections, and in Economics than in other disciplines. In the qualitative phase, the two groups of authors' common accounts for the DD recycling, including editorial policy, RA length, English academic jotting conventions, and anthology guidance were determined. still, only two reasons were linked in neophyte Iranian experimenters' responses redundancy and English academic jotting conventions. This implies that EAP jotting course contrivers need to give further unequivocal tutoring accoutrements to help neophyte on-English L1 experimenters find out how the DD recycling in each RA section directs the jotting of that section and contributes to textbook consonance.

1. INTRODUCTION

Currently, English has come the global language of education challenging the ignorance of innumerous academics around the world in English academic jotting conventions. These morals and conventions aren't fluently acquired by neophyte andnon-English L1(non-Eng L1) academics until they're explicitly made conscious of similar conventions. One of the conditions for writing English academic textbooks is to compose anthology-friendly textbooks by furnishing colorful kinds of appreciation cues because as Hinds(1987) proposed, English has a pen-responsible culture. This means that in English, it's over to the pen to make the textbook as clear and scrutable as possible for the intended followership. Indeed, in pen-responsible languages similar as English, pens prognosticate areas where compendiums may bear backing with textbook appreciation and meet this need by interspersing guiding signals throughout their textbooks.

On saying "enough": Decolonizing subjectivities in English Language learning

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ABSTRACT

This paper considers saying " enough " to English — that is, articulating a turndown of English in a way that highlights reflecting on the history as a base for adumbrating an indispensable future — as a practice for decolonizing subjectivities of English. Drawing perceptivity from indigenous, revolutionary,anti-capitalist movements as well as propositions of turndown and stopgap, this paper suggests that similar movements ' emphasis on stopping the temporal meter of rough social relations can guide postcolonial druggies of English to declare that they've had enough of the enduring coloniality of English. As an illustration of this possibility, this paper looks at the case of yeongpoja, a order of Korean scholars who give up on learning English.

1. INTRODUCTION

The promoter of the Bollywood film English Vinglish(Shinde, 2012) is Shashi, a middle- class Indian woman, who, despite being a successful home- grounded entrepreneur, is constantly mocked and dismissed by her hubby and son for not speaking English well. When she travels to New York City to help with the medications for her bastard's marriage, she experiences several further humiliating incidents because of her lack of English. This prompts her to intimately enroll in a conversational English class in Manhattan during the four weeks leading up to the marriage. Working hard on her English, Shashi regains confidence and tone-respect, and in the climax of the film, ultimately manages to deliver a gladdening toast in English at the marriage event, to her family's surprise and everyone's applause. The film's narrative of success in English language literacy, still, ends with a modest twist. In the film's ending scene, Shashi and her family are on board the flight back to India. When the flight attendant offers reading accoutrements in English, Shashi compactly pauses, and asks " do you have any Hindi review? " When the flight attendant answers she doesn't, Shashi says " it's okay ", and sits back, indicating that she'd rather not read anything than read an English review. The film's final scene may be read as a explanation that Shashi has not lost her Indian roots despite her newfound capability and confidence in English. Yet, what's significant then might not be the fact that she's turning to Hindi, but that she's closing a door(indeed if temporarily) on English.

Modeling temperature-dependent dynamics of single and Mixed infections in a plant virus

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ABSTRACT

Multiple viral infection is an important issue in health and husbandry with strong impacts on society and the frugality. Several examinations have dealt with the population dynamics of contagions with different dynamic parcels, fastening on strain competition dur- ing multiple infections and the goods on contagions ' hosts. Recent interest has been on how multiple infections respond to abiotic factors similar as temperature(T). This is especially important in the case of factory pathogens, whose dynamics could be affected significantly by global warming. still, many fine models incorporate the effect of T on para- point fitness, especially in mixed infections. Then, we probe simple fine mod- monorails incorporating thermal response morals(TRNs), which allow for quantitative analysis. A logistic model is considered for single infections, which is extended to a Lotka- Volterra competition model for mixed infections. The dynamics of these two models are investi- reopened, fastening on the places of T-dependent replication and competitive relations in both flash and asymptotic dynamics. We determine the scripts ofco-existence and competitive rejection, which are separated by a transcritical bifurcation. To illustrate the connection of these models, we ran single- and mixed- infection trials in shops growing at $20 \circ$ C and $30 \circ$ C using two strains of the factory RNA contagion Pepino mosaic contagion.

1. INTRODUCTION

Numerous exemplifications live of different spongers infecting a host contemporaneously(1,2). This is of special significance because multiple infection can beget huge impacts on health and husbandry, therefore having severe ecological and socio- profitable con- sequences(3,4). Regarding conditions impacting mortal health, mortal immunodeficiency contagion type- 1(HIV- 1)(5,6) can sculpture- fect with tuberculosis(TB)(7), the hepatitis B(8,9) and C contagions(10), and malaria(11). Other common exemplifications of multiple infection include infection by the hepatitis B and C contagions(12), gonorrhea and chlamydia(13), and herpes simplex contagions 1 and 2(14,15). In all cases, the issues of multiple infection differ from the observed from the single infection cases.

Inverse two-phase nonlinear Stefan and Cauchy-Stefan problems:
A phase-wise approach

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ABSTRACT

We develop a newphase-wise successional numerical approach grounded on the system of abecedarian results(MFS) for inverse two- phase nonlinear Stefan and Cauchy- Stefan problems in one dimension(1D). By treating each phase singly, the inverse two- phase nonlinear Stefan problem splits into two single- phase inverse problems an inverse nonlinear boundary identification problem and an inverse direct one- phase Stefan problem. Along with the reconstruction of boundary data, the contemporaneous reconstruction of the boundary and original data is also considered. Numerical examinations show the robustness and effectiveness of the proposed system in reconstructing the data.

1. INTRODUCTION

Stefan problems, in which a material solidifies or melts, occur in many situations in science and engineering [1–5]. Mathematically, these are particular cases of moving boundary problems, in which the position of the phase-change front is not known a priori, but needs to be determined simultaneously with the temperature field [6]. Such prob-lems may themselves be categorized according to the number of distinct phases in which the temperature field must be solved for; in this pa-per, we are concerned with two-phase problems, as typically occur in casting processes [7–14], where the initial temperature of the melt is greater than the solidification temperature. Further recent examples of two-phase Stefan problems can be found in [15–17].The references given above all refer to direct problems. On the other hand, in inverse two-phase Stefan problems, extra information, such as partial measurement of the moving interface position [6,18]or the tem-perature at selected interior points of the domain [19,20], is used to determine thermal properties and/or the initial and/or boundary con-ditions. Our interest is in a nonlinear variant of the Stefan problem that has an unknown moving boundary and overspecified data at one of the fixed boundaries. Such a problem has a unique solution; however, it is still ill-posed, as it is sensitive to a perturbation of the data [19]. Both the direct and inverse Stefan problems have been answered using different mesh- grounded numerical styles similar as the finite- element system, the finite- difference system and the boundary- element system; for excellent expositions, we relate to(19).

A new variable shape parameter strategy for RBF approximation using neural networks

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ABSTRACT

The choice of the shape parameter largely goods the geste of radial base function(RBF) approximations, as it needs to be named to balance between the ill- exertion of the interpolation matrix and high delicacy. In this paper, we demonstrate how to use neural networks to determine the shape parameters in RBFs. In particular, we construct a multilayer perceptron(MLP) trained using an unsupervised literacy strategy, and use it to prognosticate shape parameters for inverse multiquadric and Gaussian kernels. We test the neural network approach in RBF interpolation tasks and in a RBF-finite difference system in one and two- space confines, demonstrating promising results.

1. INTRODUCTION

The complex world of mortal feelings is a major focus of interest in mathematics education(Evans, 2006; Hannula, 2012a; Martínez- Sierra etal., 2019; Pepin & Roesken-Winter, 2015; Zan etal., 2006). In recent decades, there has been an adding number of studies on how mortal feelings are related to cognition in mathematics. The perspective put forward moment is that emotion and cognition aren't separate but rather conceived as related realities(Chen & Leung, 2015; Marmur, 2019). They develop together within subjectivation processes linked to participation in social and artistic conditioning(Evans, 2006; Radford, 2015). According to this paradigm shift in the sphere of the mind, cognition is basically of an emotional nature; feelings are conceded as necessary for rational geste , forming part of a participated vision of the world(Hannula, 2006, 2012a; Radford, 2015; Schloglmann, ¨ 2010). In this contemporary vision, the challenges that remain are, among others, to integrate the cerebral, suggestive and physi ological aspects linked to feelings within the same process; to relate the binary, conscious and unconscious origin of the feelings themselves; and to attune their inheritable, ingrain and universal nature with their contingent character dependent on literal, artistic and social conditions(Hannula, 2012b; Sumpter, 2020).

Accurate and fast computations with Green matrices

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ABSTRACT

This paper provides a direct time complexity system to gain the bidiagonal corruption of Green matrices with high relative delicacy. In addition, when the Green matrix is nonsingular and completely positive, this bidiagonal corruption can be used to cipher the eigenvalues, the inverse and the result of some direct system of equations with high relative delicacy. A numerical illustration illustrates the advantages of this system.

1. INTRODUCTION

Let us recall that an algorithm computes to high relative delicacy(HRA) when it only uses products, quotients, additions of figures with the same sign or deductions of original data(cf.(1)). In other words, the only interdicted operation is the deduction of figures(which aren't original data) with the same sign. Chancing an acceptable parameterization of the matrix is the first step to decide algorithms with HRA. Among the classes of matrices for which algorithms to HRA have been constructed, we can mention some sorts of nonsingular completely positive matrices(see, for case,(2 – 4)). Let us recall that a matrix is completely positive TP) if all its minors are nonnegative and it's rigorously completely positive(STP) if they're positive(see(5,6)). As shown in(7), for a nonsingular TP matrix A, if we know its bidiagonal factorization BD(A), also we can perform numerous algebraic calculations with HRA with the software of(8). For case, its eigenvalues, its singular values, its inverse and the result of direct systems layoff = b, where b has interspersing signs. In this paper, we give a system of O(n) abecedarian operations to gain bidiagonal factorizations of Green matrices with HRA. Recall that the bidiagonal factorization BD(A) arises naturally in the process of Neville elimination(see(9)). This process is an elimination procedure volition to Gaussian elimination, which, roughly speaking, makes bottoms in a column by adding to each row an acceptable multiple of the former bone .Green matrices(see()) can be considered as separate interpretation of Green functions(seep. 237 of(10)). These functions arise in the Sturm – Liouville boundary-value problem. They've important operations see(10)). A class of Green matrices is given by the Schoenmakers – Coffey matrices, which have important fiscal operations(see(11,12)). For Schoenmakers – Coffey matrices, a parameterization of n parameters leading to HRA calculations was presented in(3). We now present a parameterization of 2n parameters leading to HRA calculations for Green matrices.

Emergent equilibrium phenomena in active and passive matter: A unifying theory

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ABSTRACT

Later endeavors towards a hypothesis of dynamic matter utilize concepts and strategies from hydrodynamics, motor hypothesis, and non-equilibrium factual material science. Be that as it may, such approaches ordinarily don't appear to recognize the basic include of a few sorts of dynamic matter (especially the natural ones), specifically, the part of reason, and the actually specialist concept of the interest of greatest utility, which we accept is the significant contrast between dynamic and inactive matter. Here we present a novel game-theoretic system, factual teleodynamics, that accounts for this highlight expressly and appear how it can be coordinates with customary measurable mechanics to create a unified hypothesis of arbitrage harmony in dynamic and inactive matter. We propose a range of self-actualizing capabilities, going from none to totally key decision-making, and imagine the different illustrations of dynamic matter frameworks occupying someplace in this range. We appear how factual teleodynamics diminishes to recognizable comes about in statistical mechanics within the constrain of zero self-actualization. At the other extraordinary, in an financial set- ting, it gives novel experiences almost the rise of pay conveyances and their reasonableness in an perfect free-market society.

1. INTRODUCTION

Dynamic matter portrays frameworks composed of expansive numbers of self-actualizing substances or operators, which expend and scatter vitality coming about in curiously out-of-equilibrium framework behavior (Marchetti et al., 2013; Toner et al., 2005; Narayan et al., 2007; Ramaswamy, 2010). Organic illustrations of such frameworks incorporate self-organizing bio-polymers, microbes, schools of fish, and flocks of feathered creatures. Nonliving dynamic matter illustrations incorporate self-propelled particles, layers of vibrated granular bars, etc. A central conceptual perplex in our advancing understanding of dynamic matter is why and when does a collection of dynamic substances that looks like a dy- namic, out-of-equilibrium framework at the infinitesimal scale, carry on visibly like a basic balance framework of inactive matter.

Semiconductor catalytic activity in the presence of electric fields

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ABSTRACT

For the primary time, it was illustrated that the catalytic properties of semiconductors can be actuated utilizing an outside electric field as it were. More especially, the TiO2 and Fe2O3 were found to create take note able sums of carbon monoxide from carbon dioxide–water vapor gas blend beneath the electric field with the quality within the 104V/cm extend. The detailed handle, i.e. the actuation of semiconductors utilizing the electric field is more effective than the utilization of UV–vis radiation in terms of vitality effectiveness and sum of items shaped.

1. INTRODUCTION

Semiconductors are well-studied materials that have been broadly utilized within the make of gadgets counting diodes, transistors, and coordinates circuits [1,2]. The plausibility of catalytic application of these materials, on the other hand, gets distant less consideration. Primarily, the awesome bargain of endeavors put on the examination of their photo catalytic properties, i.e. when the catalytic movement of semiconductors is brought by free charge carriers produced upon the assimilation of photon [3,4].Nevertheless, the catalysis on semiconductors is far reaching and to a greater degree than might appear at to begin with look. Usually since most metals, when uncovered to the discuss (or other oxidative specialists), have their surface secured with a lean oxide film. Subsequently, the chemical responses that are considered to be happening on the surface of catalytically dynamic metal, are, infact, may proceed on the layer of semiconductor.

At the display, there's a endless body of exploratory inquire about appearing that electronic forms happening in a semiconductor administer its physicochemical properties counting (photo)catalytic ones [5–8]. For occurrence, the degree of formation of free carriers (i.e. electron and gap sets) and their ensuing recombination within the semiconductor decide its movement in different forms, such as oxidation of natural compounds [9,10], lessening of carbon dioxide [11] and others [12,13]. In arrange to drive the semiconductor to conduct, the electrons in it must get limit vitality to cross the band crevice and to reach the conduction band. In common, the electrons can be energized by assimilation of electro magnetic radiation or the nearness of an electric field or collision with another electron [14–16].

A Case Study on Reducing Traffic Congestion– Proposals to Improve Current Conditions

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ABSTRACT

In recent years, traffic congestion has been regarded as one of the most important global concerns facing all nations.The roads in Basrah City have seen increased traffic jams and delays, especially the ones that surround and lead to the University of Basrah, the Bab Azzubair campus, and the college complex. This study's main goal is to make some recommendations for ways to reduce traffic jams and longer delays on these roads. Field traffic information and surveyswhere the level of service (LOS) on the highways was evaluated using Highway Capacity Software (HCS 2010), and the acquired data was analyzed using SPSS. According to the results, Baghdad Street has a LOS that reaches level F, whereas levels B to C are found on adjacent streets. To enhance Baghdad Street's LOS, two ideas have been put forth: (1) implementing a park-and-ride system; and (2) enlarging Baghdad Street by adding two lanes in each way. After LOSs for both plans were assessed, the findings indicated that the first proposal had fared better.

Keywords:TrafficCongestion;Delay;LevelofService(LOS);Park-And-Ride;UniversityofBasrah(UOB).

1. INTRODUCTION

One of the most important worldwide problems that all countries are currently facing is traffic congestion, according to recent studies . Bad road surfaces, a lack of capacity for the road, careless driving, improper parking, poor road markings, a high volume of vehicles, inadequate traffic management, inadequate drainage systems, the presence of heavy goods vehicles (HGVs), excessive speeding, poorly designed intersections and roundabouts, and a lack of public transportation are some of the factors that contribute to traffic congestion . There are a lot of these things on the highways in Basrah City. The number of cars on the highways has also increased, with a rise in HGV usage in recent years. Additionally, prior planning to accommodate this large number of vehicles is lacking. Consequently, especially during peak hours, the city's highways continue to be congested and narrow[8].

A Green Way of Producing High Strength Concrete UtilizingRecycledConcrete

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ABSTRACT

Several research works have examined the impact of recycled aggregates from leftover concrete on the performance of structural concrete produced in the last few years. Recycled aggregates from demolition and construction waste can be used to protect natural aggregate supplies, lessen the need for landfill space, and encourage the use of sustainable building materials. Bonded cement mortar on recycled concrete aggregate, however, has lesser strength, more porosity, and a larger capacity to absorb water than natural aggregate. This has a negative impact on the mechanical and durability properties of freshly poured and hardened concrete formed from recycled concrete aggregate. In-depth experimental research was conducted to investigate the mechanical characteristics and acid-attack resistance of regular and high-strength recycled aggregate mixes. Coarse and fine aggregate made from recycled materials were used. The proportions of the coarse and fine aggregates were followed in the preparation of the recycled concrete samples.

Keywords:RecycledAggregateRA;HighStrengthConcrete;MechanicalProperties;Durability;Sulp hateAttack;UPV.

1. INTRODUCTION

In the last twenty years, many building projects in Egypt have either outlived their planned lifespans or experienced defects as a result of using noncompliant materials or using subpar construction techniques. The presence of antiquated buildings that have been demolished due to modernization and industrialization may also have a big impact. The primary source of recycled aggregate (RA) is the crushing and processing of old concrete structural elements. RA may also include a variety of other materials, including glass, wood, paper, plastic, tiles, bricks, metals, and other waste products, in addition to crushed concrete. The presence of old cement mortar sticking to the natural aggregate in its center is what separates recycled concrete aggregate from natural aggregate. The quantity of mortar adhering drops .

A Review of Advances in Peat Soil Stabilization Technology:Exploring the Potential of Palm Oil Fuel Ash Geo polymer as aSoilStabilizerMaterial

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ABSTRACT

The purpose of this study is to present the most recent advancements in chemical stabilization technology for peat soil stabilization. This review investigates the application of conventional stabilisers, such as OPC, as well as non-conventional stabiliser materials, such as chemical solutions, geopolymer materials, and blends of Palm Oil Fuel Ash (POFA) and OPC, to improve the Unconfined Compressive Strength (UCS) properties of peat soils in accordance with ASTM D 4609 specifications. The majority of stabilized soil samples that were created using OPC, POFA-OPC blends, and alkaline solutions did not meet ASTM specifications. Limited research has been done on the application of waste-derived geopolymers for treating peat soils, whereas the majority of POFA geopolymer materials have been utilized to ameliorate clayey and silty soils. The ASTM soil strength standards were met by the strength gains obtained by soil stabilization using geopolymer, which was an extremely positive outcome.

Keywords: PeatSoil;OrdinaryPortlandCement;PalmOilFuelAsh;Geopolymer;SoilStabilisation;UnconfinedCompressiveStrength.

1. INTRODUCTION

Due to their origin in the decomposition of organic matter, such as plant leaves and roots, peat soils are characterized as extremely heterogeneous materials and are usually dark or black in color . Peat soil is defined by the ASTM D 4427 standard as soil that contains more than 75% organic matter from a geotechnical engineering perspective . Due to its high natural moisture content, high water-holding capacity, low shear strength, and high compressibility, peat soil is considered geotechnically troublesome, making it one of the hardest soils on which to build roads and structures . Peat soils may generally be categorized using a number of factors, including the distribution of particle sizes, the degree of humification, the amount of fiber, the amount of ash, and the degree of acidity.The Fibre Content and Degree of Humification are the two most widely used classification criteria for peat soils. As previously mentioned, ASTM D 4427 classifies soils containing more than 75% organic matter as peat soil.

Cold-formed Steel-Concrete Composite Beams with Back-to-Back ChannelSectionsinBending

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ABSTRACT

The features of steel-concrete composite constructions are quite appealing, and these can be accentuated by utilizing cold-formed steel rather than hot-rolled steel. This work offers a parametric finite element analysis and potential analytical methods for studying cold-formed steel-concrete composite beams under bending. The examined beams consist of concrete slabs joined by demountable shear connections and cold-formed steel channels arranged back to back. Analyzed was a solid concrete slab on a profiled metal sheet. The impact of corrugated web between the back-to-back channels of varying thicknesses is also examined in this study. The spacing between the shear connectors is greater in the case of a corrugated web. Additionally, various shear connection intensities, shear connector qualities, and their configurations are taken into account. Non-linear bending resistance and complete and partial shear connection assumptions form the basis of an analytical investigation. It is demonstrated that concrete slab designs and beam bending capability are highly influenced by the steel channel's thickness and degree of shear connection.

Keywords: Cold-Formed Steel; Steel-Concrete Composite Beams; Demountable Shear Connections; Discrete and Continuous ShearConnections;BendingResistance;NumericalStudy.

1. INTRODUCTION

Compared to hot-rolled sections, cold-formed steel (CFS) sections have gained popularity recently because to their advantages, which include lower cost, less self-weight, simpler handling at the construction site, and quicker construction. Built-up CFS sections in structures allow for the composition of highly efficient structural shapes. Furthermore, by employing various connection types amongst its components, a higher resistance of built-up sections can be achieved. For instance, the bending resistance of steel sections varies depending on the form of connection, according to a study on the bending resistance of back-to-back built-up CFS members. Through numerical analysis, Selvaraj & Madhavan look into the present design expressions of back-to-back CFS beams.

Setting up software engineers for Robot System Development

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ABSTRACT

The subject of robotics is fast growing and requires software engineers. However, the majority of our undergraduate students lack the necessary skills to handle the particular difficulties involved in software development. for contemporary robotics. We present a course that we designed and taught in this effort to better educate students to write software. for automated systems. The training is distinct in that 1) It highlights the unique difficulties in developing software for robots in pairs utilizing the software engineering methods that could aid in managing those difficulties, 2) it offers many of chances for first-hand learning at the border between software engineering and robotics, and It makes learning how to create these kinds of systems easier. As we outline the course's innovations and guiding principles, as well as its substance.

KEYWORDS: Software Engineering, Education, Robotics

1. INTRODUCTION

Over the past two decades, the field of robotics has significantly expanded. Global robotics research projects have multiplied and currently include flagship programs such as the US National Robotics Initiative [16], the Together Through Innovation robotics program in Germany, the US DARPA Challenges [1, 3, 29], and Japan's New Robot Strategy [24]. The robotics sector, which is expected to increase by 25% between 2020 and 2025 [2], has been revitalized by such research initiatives along with an emerging market. It is anticipated that this expansion will give rise to new positions requiring specialist knowledge in robotics and the software that powers these kinds of devices.

Massive open online courses (MOOCs) or specialized graduate-level courses have been the main ways in which calls to train our software engineers for this robotic revolution [32] have been answered.The graduate-level courses cover a wider range of topics but concentrate on particular domain platforms [22], or they are narrowly focused on specific robotics topics like AI, control theory, or mechatronics. But these courses ignore the fact that robotics significantly depends on about software and the method used in its development.

Software Engineering Courses: Project-Sized Scaffolding

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ABSTRACT

Even while computer science graduates are frequently not required to deal with legacy code bases, they will almost surely work on an existing project when they enter the job. with millions, if not thousands, of lines of code already in place. To ensure that a realistic experience for pupils without making them feels overwhelmed, We utilized scaffolding that was already a part of an open source project. In the third year of our program in software engineering. We requested that pupils finish five tasks, ranging from adding features to addressing bugs, using this job that is scaffolded. Our support system included of improved documentation, instructional videos, compilation videos, and improved task descriptions together with completion advice. Following this run For our course project, we gathered input using a survey (n=87) and a narrow focus. Students, it turned out, valued the authentic experience, but they advise adding more scaffolding. Specifically in the source code, to more effectively balance the level of complexity as well as education gets practice.

1. INTRODUCTION

Guidelines for computer science curricula now advise software engineering courses to work with established products rather than the conventional practice of developing apps from scratch, as working on existing products makes up over 65% of the work done by working software developers [5, 11, 18]. Students engage in real engineering projects as part of this project-based learning, or PBL. Issues relating to traits they will come into in the workplace, like an extensive feature set, complex design, and a sizable code base, requirements for the quality of source code [33]. Working with is not just actual tasks are more beneficial for learning and also inspire and involve PBL is one of the active learning strategies that students [10] have been demonstrated to help lower failure rates and increase exam scores. While PBL encourages and engages students, education researchers warn that instructors must provide adequate scaffolding and supports [4] to avoid having students become stuck on unnecessary tasks or feel overwhelmed and give up rather than moving on to learn the concepts they are trying to learn.

AEPUS: an instrument for the Automated Extraction of Petition angles in Low Signal-to-Noise Ratio Ultrasound Images for Plane Wave Imaging

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ABSTRACT

Ultrasound (US) is an ideal instrument for studying the mechanics of muscle contraction during complicated functional activities, such as movement, due to its real-time operation and penetrating capabilities. Muscle fascicle lengths and pentation angles changing the ability of skeletal muscles is closely correlated with fascicles. To generate forces, which serve as fundamental parameters. To be observed. While the most effective method for obtaining these characteristics derived from United States pictures are still annotated manually. Accessibility to recording equipment with large data generation capabilities such a manual technique is not practicable due to the dynamics of muscle. Determining the necessity of automated methods for annotating muscle photographs. However, given the ongoing improvements and technological breakthroughs for ultrafast US and plane-wave imaging, existing techniques are severely constrained.

1. INTRODUCTION

A portable, non-invasive, and well-recognized method for researching human musculoskeletal functioning in vivo is ultrasound (US) [1]. Muscle mechanics during difficult functional activities may be examined in real time with the use of US. For instance, Pentation angles are seen in biomechanical investigations on muscles. And fascicle lengths to determine the capacity for force generation [2]. Actually, in clinical groups, awareness of changes brought on by either short-term or long-term therapy can include vital for creating fresh treatment plans [3]. These muscle characteristics were extracted from US photos. Necessitates tedious manual labelling . Therefore, in order to handle longer sequences, precise automated procedures are required. picture collections. Comparing these tools to a single hand annotation can significantly cut down on processing time and subjectivity of the findings [4], and in order to meet this demand, several there have been proposed methods for picture analysis [5]. Feature tracking algorithms, which monitor the locations of fascicle sections over picture sequences, are a popular method for measuring pentation angles. Specifically, A common use of the Lucas–Kanade optical few method is follow the end points of the manually indicated fascicle [6, 7].

A Framework of machine learning for les closure terms

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ABSTRACT

In this study, we investigate whether artificial neural networks (ANN) can forecast large eddy simulation (LES) closure terms just using coarse-scale data. In order to do this, we propose a coherent framework for LES closure models, emphasizing the use of numerical approximation errors and implicit discretization-based filters. We look into implicit filter types that mirror the discretization operator's behaviour and are inspired by the solution representation of dicrotous Galkin and finite volume schemes. A global Fourier cutoff filter serves as an example of an explicit LES filter in general. We calculate the precise closure terms for the various LES filter functions inside the ideal LES framework using direct numerical simulation results of fading homogeneous isotropic turbulence.Only coarse-scale input data is used to train several artificial neural networks (ANN) with a multilayer perceptron (MLP) or gated recurrent unit (GRU) architecture to forecast the calculated closure terms. The accuracy of the GRU architecture is significantly higher for the specified application than that of the MLP networks, reaching up to between the precise closure terms for all studied filter functions and the predictions made by the networks, there is a 99.9% correlation.

1. INTRODUCTION

Artificial neural networks (ANN), in particular, have seen great success in the last ten years as machine learning techniques have advanced beyond human ability in games like Go while also pushing the boundaries of picture and speech recognition. The main factor for ANN's recent success with the development of massive datasets and the use of highly parallel graphics processing (GPU) [18], as well as the creation of user-friendly, high-performance machine learning libraries such as Tensor Flow and PyTorch. Artificial neural networks can generally approximate any functional connection that is continuous between the amounts of input and output. Only using data, without making any presumptions about the nature of the function in question. Many universal approximation theorems in the literature demonstrate approximation characteristics. Considerable attention has been focused on applying neural network approximation skills to challenges in other scientific domains, such as turbulence research. As the Reynolds number increases, the flow increases. Direct numerical simulation (DNS) at this point for most applications, high Reynolds numbers remain computationally prohibitive.

High-Efficiency Network Security for Automotive Ethernet with Encryption and Authentication

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ABSTRACT

The benefits of automotive Ethernet include excellent compatibility, low latency, and large bandwidth, which satisfy the demands of new energy vehicles for the development of integration of networks. Automotive Ethernet is not limited to addressing the issue with the more intricate and extensive wiring in the automobile electronics' intelligence, but it may also enhance the vehicle's many safety features, dependability, and comfort. Despite the car's Bluetooth connection to a smartphone,Using the Internet and additional network systems to enhance driving enjoyment for the driver, but it also increases security and hacker assaults vulnerabilities and other issues with vehicle network security that cannot be disregarded, which has a major impact on driving an automobile safely, private, and may jeopardize public security. In this study, we examine the issue of encryption authentication and highlight the necessity of network security for automobile Ethernet. AES-128 encryption technique that has been enhanced and upgraded presented is an enhanced MD5 authentication algorithm creatively. Using the simulation experiment of the enhanced AES-128 encryption technique is CANoe.

1. INTRODUCTION

Presently A DAYS Fake Insights (AI), Web of Things (IoT), and robot controls are receiving a part of consideration. Robot innovation has changed since the primary introduction of robots in 1917. Nowadays, machines are display in our lives, supporting us in standard of, living [1] - [5]. One of these unused innovations is counterfeit insights that has come to life as well as mechanical technology and machine apparatuses innovation, so robots can presently legitimately prepare and oversee data, and automatically perform certain tasks without human help, supplanting people in mechanical industrial facilities. In any case, the capacity to see the environment (feel) and make choices (to require activity) could be a exceptionally troublesome assignment for the computerized machines. Hence, the field of Counterfeit Insights (AI) is required for portable robots to unravel such issues, [3, 4, 5, 6].

Software Architectures for Cloud Computing Systems With Mobile Apps

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ABSTRACT

The state-of-the-art in mobile computing technology is represented by mobile cloud computing (MCC), which uses cloud computing's nearly limitless hardware and software resources to allow context-aware and portable computation. A software's architecture abstracts the complications encountered during design.Phases of development and evolution to successfully and efficiently implement MCC systems.Objectives: Our goal is to map the state-of-research on taxonomy, classification, and systematic identification ofsoftware systems based on MCC architecture. We concentrate on examining the current obstacles, their. Future research dimensions and architectural solutions.Our goals are to catalog, categorize, and map the current state of research on MCC-based software system architecture. Our study focuses on examining the current problems, their architectural solutions, and the scope of future studies.

Methodology: Based on 102 research publications (published between 2006 and 2017), we conducted a Systematic Mapping Study (SMS) using the Evidence-Based Software Engineering (EBSE) technique. The mapping study's findings are guided by a comprehensive mapping of the current research issues and a taxonomy categorization.

1. INTRODUCTION

By utilizing the abundant and pay-per-use cloud-based hardware and software resources, Mobile Cloud Computing (MCC) is the cutting edge of mobile computing technology, with the goal of reducing the resource poverty of mobile devices [1, 2]. Cloud computing servers take use of "pay-per-use" hardware/software services to provide nearly infinite processing and storage resources [3], making up for resource-constrained mobile devices [4, 5]. The mobility and context awareness of front-end mobile devices and the compute and storage services of back-end cloud servers can help the unification of mobile and cloud computing1 by enabling systems that are portable yet resource adequate. A range of MCC-based solutions have been put out in recent years by academic and industrial research to solve problems such mobile edge computing, context-aware medical services providing, real-time analytics of mobile-sensed data, and mobile applications as a service.

Automated Code Generation Using theDomain Model and Use Cases

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ABSTRACT

In this paper, we propose a strategy to consequently create source code records from a utilize case demonstrate and a space course chart named USLSCG (Utilize case Detail Dialect (USL) based Code Era). In our strategy, a utilize case situation is absolutely indicated by a USL show. The USL demonstrate and the space course chart at that point are utilized as inputs to create source code records consequently. These source code records incorporate classes taking after three-layer applications and a SQL script record to make a database and store strategies.

List Terms: Generate source code, USL, Utilize case, USLSCG

1. INTRODUCTION

The computer program advancement life cycle is divided into a few fundamental stages. Within the to begin with organize, program necessities are reported within the SRS (Program Necessity Detail) report. These requirements are more often than not documented by UML (Bound togetherModeling Dialect) models and articulations within the characteristic dialect. Within the moment state, plan records at that point are built from the SRS archive. Models in plan reports show diverse plan sees, for illustration, database plans, design plans, question plans, client interface plans, etc. Following state, the plan models are executed into the code source. At long last, the testing movement is performed to guarantee the quality of computer program items [1]. The input of plan and test stages are the program necessities within the SRS archive that are usually reported by utilize case graphs and printed utilize case depictions within the template-based common dialect [2]. Plan models are at that point input for software engineers to convert into source code records. These exercises are more often than not performed physically by designers. Firstly, They will perused program necessity determination reports which are ordinarily a few hundred pages to construct examination models, plan models, and test cases. They at that point change plan models into source code records. In any case, in computer program advancement, necessities as a rule alter amid improvement. So, when the program prerequisites alter, examination models, plan models, source code, and test cases must be modified.

A Big Data Platform for Real-Time Video Surveillance

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ABSTRACT

Nowadays, keen house offices are unequivocally created with the back of different security cameras to secure not as it were a house but too a building. A huge sum of video information is delivered by these cameras each day. Hence, conventional information administration frameworks confront challenges in collecting, putting away, and analyzing huge video information. In such frameworks, it is troublesome to discover objects and their activities from video reconnaissance within the building since of either the expending time or the need of brilliantly innovation bolster. In this paper, we propose a novel huge information stage for real-time video reconnaissance investigation based on the combination of disseminated information systems and cleverly video handling libraries. The proposed platform is able to gather both real-time video streams and chronicled video information by utilizing Kafka and Start Organized Spilling systems. Moreover, the proposed stage gives an brilliantly video preparing module for protest detection by utilizing OpenCV, YOLO, and Keras libraries.

List Terms: Spark Organized Spilling, Kafka, Video Questioning, Video Spilling, Video Observation

1. INTRODUCTION

As of late, the volume of video information has expanded significantly on the web from different sources such as Youtube, Facebook, and Tiktok. These unstructured video information are stores of information and have a coordinate connection to real-world occasions. It gives data around people's intuitive and behaviors. Additionally, real-time video streams can offer assistance in behavior investigation whether it is of activity or human designs. The advancement of innovation has too driven to the improvement of security and healthcare frameworks. A huge sum of video reconnaissance information is put away so that it can be prepared when any occasion happens. In any case, physically analyzing video observation will take a part of time and exertion. Subsequently, video examination stages are inquired about and developed to oversee and analyzethese video information. These more often than not considered to assess and optimize information transmission throughput and speed. BunrongLeang et al. [1] proposed a Hadoop biological system for supporting to a few highlights within the fabricating industry.

Consensus Proof-of-Miner-Clustering-Authentication Block chain Technique for IOT Networks

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ABSTRACT

Utilizing blockchain advancement inside the Net of Things (IoT) security may well be a research trend in afterward a long time. With tremendous IoT frameworks, diggers will have to be be affirm a portion of trades broadcast from IoT contraptions. This seem cause a delay in savin considerable trades to the record. This paper proposes a proof-of-miner-clustering confirmation assention methodology of blockchain for IoT systems. Inside the proposed procedure, diggers in a blockchain orchestrate will be clustered, each digger in a cluster is competent for affirming trades from IoT contraptions inside the locale it supervises. Mining of advanced pieces between clusters is done by the circular robin procedure. Our assention technique can apply to private or consortium blockchain frameworks, making a contrast to create strides the trade affirmation speed of diggers.

1. INTRODUCTION

In today's rapidly making computerized development time, the number and sorts of IoT contraptions being put into utilize are growing day by day. The Around the world Data Organization gauges the sum of Internet-connected IoT contraptions reach 150 billion by 2025 [1]. Security for IoT frameworks are especially basic and pressing these days. With the current enhancement incline of IoT, the utilize of a security arrange based on blockchain for huge IoT frameworks with tall flexibility needs might be a sensible course of action, since this development has various central focuses, such as decentralization, mystery, and obligation [2-3]. In 2008, Satoshi Nakamoto displayed blockchain advancement, which may be a block-linked list [4]. Each piece includes a hash pointer that interfacing it to its parent piece and stores the predecessor9s hash regard at a specific time. Starting piece is the title of the chain9s beginning square. A square structure consolidates a header which contains information organization of the square, and a body containing considerable trades. A blockchain organize has two sorts of hubs: client hubs and mineworker center points. Trades can be carried out by Client center points, within the cruel time, Diggers hold the record that records a course of action of affirmed squares. A understanding convention is utilized in a blockchain organize to synchronize record data between diggers.

Effective Medium Access Control Mechanism for Internet of Things Sensor Networks Using Back off Priority

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ABSTRACT

Recent fast entrance of Web of Things (IoT) in different areas such as keen homes, healthcare, and mechanical applications has raised modern challenges on the QoS necessities counting information prioritization and vitality sparing. In IoT systems, information is heterogeneous and shifts in a wide extend of categories and direness. More basic information must be served more rapidly and dependably than normal information. In arrange to bargain with significant issues viably and move forward the execution of remote sensor systems in IoT, we propose an proficient Backoff Priority-based Medium Get to Control (BoP-MAC) plot that underpins different need information and abuses the utilize of backoff instrument. In our proposed arrangement, information need is utilized to legitimately resize the backoff window at the MAC layer to guarantee that high-priority information are exchanged prior and more dependably.

File Terms:-Backoff window, Web of things, MACprotocol, Remote sensor systems.

1. INTRODUCTION

These days, Web of Things (IoT) has been rising as one of the key computerized change innovations and anticipated to impact the worldwide economy with an assessed $4 trillion to $11 trillion and 75.4 billion associated gadgets by 2025 [1]. IoT has been one of hot investigate themes in a wide assortment of scholarly and mechanical disciplines [2-6]. Numerous inquires about have been presented in arrange to manage with IoT challenges and issues counting QoS adaptability [2, 3], vitality effectiveness [4-6] and especially different need information arrangement [7-9]. In common, routine works consider independently or at the same time the prerequisites of information need and vitality utilization, and their strategies can be isolated into three primary categories that are MAC layer, directing and line need in organize layer, or application layer [6]. Be that as it may, each strategy category has its claim impediments. The application layer and priority-queue or steering approaches seem hypothetically prioritize a wide assortment of activity and information sorts, but they have a tall complexity that's not reasonable for the reality that, in IoT, sensors ordinarily have confined memory and vitality [8, 9].

Analysis of DC Corona Audible Noise Using Schlieren Optical Measurement and Numerical Reconstruction Method

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ABSTRACT

DC corona audible noise (AN) constitutes electromagnetic interference from power grids and is a critical factor influencing the electrical design of power transmission and distribution equipment. The measurement method is pivotal for studying the generation mechanism of audible noise. This paper proposes a Schlieren optical measurement with a corresponding numerical reconstruction method to assess audible noise within DC corona discharge, quantifying it with the pressure field. Numerical experiments validate the accuracy of the pressure field reconstruction method. The relationship between the pressure field and sound pressure during DC corona discharge is experimentally explored. Results indicate a reconstruction error within 5%, with the Schlieren system capturing the gas expansion process and pressure field in the discharge region at the microsecond timescale. During corona discharge, the radial radius of the discharge region increases while its pressure decreases and overpressure increases. A non-linear proportional increase is observed between the pressure field and audible noise, with only a small portion of the pressure field converted into audible noise.

Index Terms: Schlieren method, electromagnetic interference, pressure field reconstruction, dc corona audible noise measurement.

1. INTRODUCTION

The generation of audible noise from DC corona discharge significantly affects the daily lives of residents residing in proximity to transmission lines and substations [1], [2], [3]. This results in environmental assessments and noise-related complaints, introducing challenges in the operation and maintenance of power transmission and transformation facilities [4], [5], [6]. The establishment of a comprehensive suite of measurement and reconstruction methods for the pressure field within the corona discharge region is imperative for comprehending the mechanism of audible noise generation. These methods play a crucial role in guiding corona effect evaluations and providing insights for the electrical design of power transmission and transformation equipment.

Mitigating the Impact of Corona Discharge in Ultra High Voltage Systems through a Novel Mechanism Utilizing Dielectric Oil

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ABSTRACT

The utilization of ultra-high voltage in transmission systems offers a means to diminish electrical power losses attributed to the Joule effect. Nevertheless, unfavorable environmental conditions, such as pollution, high humidity, and elevated temperatures, can result in air ionization, leading to Corona discharge. This phenomenon can adversely affect the electromagnetic parameters of the transmission line, potentially reducing power transfer capacity or causing service interruptions. In response to these challenges, this manuscript introduces an innovative mechanism designed to be affixed to transmission lines, aimed at suppressing the impact of Corona discharge. This mechanism incorporates dielectric oil, which is released during Corona discharge, creating an isolated layer that shields the line from high electrical fields. The manuscript quantifies the impact of Corona discharge on the electrical characteristics of the transmission line using COMSOL Multiphysics 5.6 software.

Index Terms: Corona discharge, dielectric oil, parameters of transmission lines.

1. INTRODUCTION

With the increasing population, the distance between power plants and consumers has grown significantly, leading to longer transmission lines with higher longitude values. As electrical power losses are directly proportional to the longitude of the conductor, these losses become more pronounced [1]. To address this issue, the power industry has adopted Ultra-High Voltage (UHV) in transmission systems. It is known from literature that UHV implementation results in a substantial reduction in power losses. For example, a 1000 kV AC power line (UHV) exhibits a 25% lower ohmic loss compared to a 500 kV AC power line (Extra High Voltage) [3].

Another advantage of UHV is its capability to transport large blocks of electric energy over extended distances. The transmission capacity of a 1000 kV AC circuit is approximately 4 to 5 times that of a 500 kV AC transmission line [3]. Despite its economic attractiveness, UHV introduces a sensitivity to Corona discharge in the transmission system.

In-Depth Study of the Corona Discharge Breakdown Thresholds in Groove Gap Waveguides and Enhancement Strategies for Inductive Band pass Filters

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ABSTRACT

This study is focused on investigating the breakdown of corona discharge in groove gap waveguides (GGWs) and inductive band pass filters (BPFs) employing this technology. The primary objective is to enhance the peak power handling capability (PPHC) by analyzing the location of the maximum normalized electric field strength (|EOMAX|) concerning geometric parameters. Initially, the research examines wave guiding structures, comparing the transverse electric TE10-like mode distribution of a GGW with that of an equivalent rectangular waveguide (RW). Subsequently, a design strategy is introduced, involving adjustments to the geometrical dimensions of the bed of nails, resulting in a significant reduction in |EOMAX|. The second part of the paper focuses on vertically polarized GGW BPFs, where the inductive irises play a crucial role. A design criterion is proposed for improving PPHC by modifying their dimensions.

Index Terms: Corona breakdown, gas discharge, groove gap waveguides, microwave band pass filters,Peak power handling capability (PPHC), power applications, voltage magnification.

1. INTRODUCTION

Amid the global energy scarcity and heightened environmental concerns, multi-energy optimization strategies have gained considerable traction in recent years. Electrical energy, recognized as a clean power source, has garnered increased attention globally. The operational condition of transmission lines plays a pivotal role in ensuring the reliable transmission of electrical energy. Instances of transmission line galloping occur frequently and pose a significant challenge. When wind excites the transmission line, it induces a self-sustained vibration characterized by low frequency and substantial amplitude, thereby threatening the secure and dependable operation of the transmission line. The realization of a smart and dependable power grid necessitates real-time monitoring and early detection of transmission line galloping. Extensive global research efforts have made substantial progress in monitoring transmission line galloping.

Comprehending the Electro-Rheological Characteristics of Ester Fluid Incorporating Nano Silica and Surfactants, along with Deep Learning-Predicted ECT

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ABSTRACT

The current investigation focuses on comprehending the influence of various surfactants on a nano-silica-infused ester fluid concerning its electrical and rheological properties. Achieving stability in the nanofluid is crucial, and this is accomplished by introducing ionic and non-ionic surfactants, namely cetyl trimethyl ammonium bromide (CTAB), oleic acid, and Span-80. Notably, CTAB as a surfactant demonstrates resistance to discharge and significantly enhances the breakdown strength by up to 39.5% in the ester nanofluid. The study observes that the fluorescent fiber technique is more sensitive in identifying the onset of corona discharge compared to the Ultra-High-Frequency sensor. The permittivity and tan δ of the fluid exhibit a marginal increase with the addition of surfactants, irrespective of the fluid's temperature.

The rheological properties of the liquid display only Newtonian flow behavior even with the inclusion of surfactants. Both the base fluid and the nanofluids exhibit a similar decay rate in viscosity at higher temperatures. Electrostatic charging tendency (ECT) establishes a correlation between rotation speed and static current, measured using the spinning disc technique.

Index Terms: ANN, corona, ECT, ester fluid, LSTM, nano fluids, Newtonian.

1. INTRODUCTION

Transformers play a crucial role in power system networks, and the longevity of these components hinges on proper insulation design. In recent times, there has been a growing interest in utilizing natural ester-based fluids as insulation in transformers due to their superior dielectric performance, high fire point, and biodegradability. Researchers worldwide have explored the addition of nanoparticles to these fluids to enhance their electrical, thermal, and rheological properties for transformer insulation. Commonly used nano-fillers include conducting particles, oxides, and nitride particles, which have proven to improve the dielectric performance of the liquid.

Detection of Partial Discharges in Pressboards Submerged in Mineral Insulation Oil Utilizing Quantum Well Hall Effect Magnetic Field Sensors

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ABSTRACT

Insulation deterioration can lead to inefficient transformer operation, often initiated by Partial Discharge (PD) events. Detecting PD early is crucial for optimal transformer performance and functionality. This paper introduces a novel PD detection method employing a highly sensitive Quantum Well Hall Effect (QWHE) magnetic field sensor, comparing its performance with a conventional silicon magnetic field transducer. This study explores the application of QWHE in high voltage engineering, specifically for PD detection. The objective is to experimentally detect PD activity in pressboards immersed in mineral insulation oil using the QWHE sensor. Experimental data from both sensors are analyzed using Empirical Mode Decomposition (EMD) and Wavelet Decomposition (WD) methods, with a comparative analysis of PD signals. The findings indicate that QWHE sensors offer more precise and noise-free measurements, enabling early and accurate PD detection.

Index Terms: Empirical mode decomposition, Hall Effect sensor, partial discharge, quantum well sensor, wavelet decomposition.

1. INTRODUCTION

Operational reliability is a critical aspect of modern power system management, where the reliability of the system is heavily reliant on the performance of its components. Insulation issues arising from high-voltage operations are a major contributor to physical damage and system failures.

Real-time monitoring plays a crucial role in the early detection of these problems, leading to improved system reliability and reduced operational costs. Within this context, the identification of partial discharges (PD) in insulation materials holds great significance. Specifically, the examination and modeling of PD resulting from the breakdown process in mineral oil and pressboard insulators, commonly used in transformers, are essential for enhancing system reliability and minimizing costs.

Selecting and economically ranking an isolated renewable-based combined heat and power (CHP) micro grid in a cold climate: A case study focusing on a rural healthcare center.

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ABSTRACT

Rural Health Centers (RHCs) are vital national assets that necessitate a continuous power supply for storing medications, providing healthcare services, conducting minor surgeries, and delivering various health services, especially in challenging situations such as the COVID-19 pandemic. In Iran, ensuring uninterrupted electricity supply to these centers has become a noteworthy challenge. Consequently, this study aimed to identify the optimal combined heat and power (CHP) system utilizing renewable energy sources (wind, solar, and animal biomass) for the first time in an RHC in Iran. Various hybrid scenarios were assessed and ranked using HOMER v2.81. Additionally, the techno-economic-environmental-energy performance of vortex turbines was, for the first time, evaluated and incorporated into the software database. The findings revealed that the three top-performing scenarios were solar cell-battery (first scenario), solar cell-biomass-battery (second scenario), and solar cell-wind turbine-battery (third scenario), with levelized costs of energy (LCOE) of 0.393, 0.406, and 0.468 \$/kWh, respectively. In the most economically viable scenario, 25% of the required energy was generated by solar cells, while the remainder was produced by a gas boiler, resulting in an annual CO_2 emission of 7,050 kg. The third scenario, recognized as the most environmentally friendly, exhibited a reduction of about 60 kg in CO_2 compared to the first scenario.

1. INTRODUCTION

To enhance outcomes in the health sector of developing countries, the majority of policies concentrate on immediate factors, including the expansion of health institution networks, the training of healthcare personnel, and financial support [1]. Nonetheless, a key objective outlined in the United Nations Sustainable Development Goal and the "Global Strategy for Women's, Children's, and Adolescents' Health (2016–2030)" is the attainment of sufficient health goals within an environment that necessitates the provision of fundamental infrastructure crucial to the health sector. Electricity stands out as the foremost essential requirement [2, 3] (see Figure 1).

Boosting the Efficiency of Agricultural Supply Chains through the Implementation of Solar Tunnel Dryers.

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ABSTRACT

Solar tunnel dryers represent cutting-edge technologies that harness solar energy to efficiently and economically dehydrate agricultural products. By leveraging renewable energy sources, these dryers present a sustainable alternative to traditional drying methodologies. This article explores a solar tunnel dryer utilized for drying diverse agricultural goods in Chandragiri Mandal, Tirupati (Andhra Pradesh), India, adapting to local weather conditions.The dryer features a 1 mm thick polycarbonate sheet, measuring 30 feet in length and 12 feet in width, serving as both a collector for materials and for direct absorption onto the items being dried. With a capacity of approximately 300 kg, the dryer accommodates vegetables and other agricultural products. Notably, vegetables undergo drying in just 1 hour, reducing initial moisture content from around 85% to 45%, a stark contrast to the 18 hours required for open-air drying. The internal temperature of the dryer ranges considerably higher, between 30 and 40 degrees Celsius, compared to the ambient temperature.The study reveals that the solar tunnel dryer boasts an average thermal efficiency of approximately 53.1%. Key advantages of solar tunnel dryers include reduced drying time, enhanced product quality, and minimized post-harvest losses.

1. INTRODUCTION

Agricultural supply chains are crucial components of the food industry, facilitating the seamless movement of food from producers to consumers. Despite their significance, these supply chains often grapple with inefficiencies leading to food losses and diminished profitability. One notable area where inefficiencies persist is in the drying of agricultural products. In numerous countries, traditional methods like sun drying and open-air drying persist, proving inefficient and contributing to substantial food losses. In response, solar tunnel dryers have emerged as a promising solution to bolster the efficiency of agricultural supply chains.Solar tunnel dryers, categorized as solar dryers, employ a tunnel-shaped structure to harness solar radiation and heat. This design creates a controlled environment conducive to the effective drying of agricultural products.

Examining Transient Overvoltage in Photovoltaic Systems Considering the Frequency-Dependent Nature of Grounding Systems.

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ABSTRACT

Photovoltaic (PV) systems face vulnerability to lightning strikes, prompting the introduction of a novel and precise electromagnetic transient (EMT) model for grounding systems (GSs). This approach incorporates the frequency-dependent (FD) characteristics of GSs to analyze overvoltage values in PV systems through time domain analysis. The wide-band model, proposed in this paper, proves highly accurate for various GS types (single-port and multi-port GSs) and integrates the frequency dependence of soil electrical parameters, utilizing experimental data for conductivity and relative permittivity. Unlike previous approaches, this model can be implemented in the time domain without necessitating GS impedance matrix inversion, showcasing reduced complexity. Addressing a common limitation in existing studies, the present work considers the effects of the mounting system, metal frame, and mutual coupling in PV system modeling during lightning transients. Results highlight the significant impact of PV factors and the frequency-dependent nature of the soil on PV system overvoltages.

1. INTRODUCTION

The rapid proliferation of renewable energy sources, particularly the integration of solar photovoltaic (PV) and wind turbine generating (WTG) systems, has garnered significant attention in addressing global warming and climate change concerns [1]. These sources offer diverse advantages, including emissions reduction and lower operational costs. However, the inherent uncertainty in the power output of PV and WTG systems necessitates the optimization of microgrid scheduling, considering a mix of energy sources [2], and emphasizes the importance of microgrid protection [3].Solar PV systems stand out as premier renewable energy resources for displacing conventional sources [4]. Various grid-connected PV systems, driven by recent technological advancements, policy support, and escalating demand, have witnessed extensive global expansion. A strategy to enhance voltage gain and alleviate voltage stress on connected switches in PVs involves the utilization of coupled inductors.

Trinary Sequence DC Input employed in an Asymmetrical Single Phase Nine Level Reduced Switch Inverter for Renewable Energy Systems, particularly suitable for photovoltaic applications."

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ABSTRACT

This paper introduces an innovative Asymmetrical Single-Phase Nine-Level Inverter (ASRNLI) that distinguishes itself from various existing configurations. The design achieves a staircase-like voltage pattern with the highest number of levels while employing a reduced number of components. In comparison to conventional systems, asymmetric multilevel inverters require fewer components yet manage to create a cascade structure with multiple output levels. The ASRNLI configuration comprises two independent DC sources and 10 switches, enabling it to generate any desired level. This setup offers several advantages, including improved output voltage quality due to the low blocking voltage of the switches. It proves particularly beneficial in scenarios where asymmetric DC voltage sources are available, such as in modern electric vehicles and AC mini-grids powered by renewable energy sources.

1. INTRODUCTION

Multilevel inverters (MLIs) have become a prominent choice for the integration of renewable energy sources, providing an excellent solution for power systems that require a high-quality voltage profile. In recent years, several scholars have introduced innovative MLI configurations aimed at reducing the reliance on non-essential components, including switches, gate drivers, and auxiliary power supplies, while simultaneously improving overall performance. This trend reflects a concerted effort to enhance the efficiency and reliability of multilevel inverters, making them more suitable for the evolving demands of modern power systems with renewable energy integration. Arun et al. [1] introduced a parallel-linked Neutral-Point-Clamped (NPC) Pulse Width Modulation (PWM) inverter designed for motor transmission. Various modulation techniques were explored to determine the optimal approach. In a separate work [2], Arun et al. proposed a novel PWM technique specifically for mitigating common-mode voltage in odd multilevel inverters. This technique is built upon the principles of the three zero common-mode vectors, representing a similar structure to traditional PWM in multilevel inverters and accurately depicted in an active two-level voltage converter.

Assessment of the Reliability of Solar Power Plants Utilizing Parabolic Trough Reflectors

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ABSTRACT

In response to the challenges associated with fossil fuels, renewable sources such as wind, solar, and ocean energy are increasingly employed for electricity generation. Solar energy, in particular, holds significant potential in Iran, with parabolic trough collectors proving cost-effective for electricity production. This study focuses on evaluating the reliability performance of solar power plants utilizing parabolic trough collectors. A multi-state reliability model is developed, considering both component failures and power output variations due to changes in sun irradiance. To streamline the model's power states, the fuzzy c-means clustering method and XB index are employed. The resulting reliability model is then utilized for analytical reliability analysis of electric networks. Adequacy analysis numerical results, integrating parabolic trough collectors into the RBTS and IEEE-RTS systems, demonstrate enhanced reliability indices. However, the variation in sun irradiance leads to fluctuations in plant output, resulting in a less pronounced improvement in reliability indices compared to traditional plants. Furthermore, a comparison with Monte Carlo method outcomes validates the accuracy of the proposed methodology.

1. INTRODUCTION

In contemporary times, the integration of renewable resources into power networks for electricity generation has witnessed a substantial increase. Solar energy, characterized by its abundant availability and high density, has led to the widespread installation of various types of solar power plants globally. These include photovoltaic farms, heliostat-based power plants, linear parabolic collectors, parabolic dishes, and linear Fresnel collectors. Large-scale solar power plants are chosen for their access to abundant solar energy, environmental cleanliness, sustainability, and cost-effectiveness. Both photovoltaic and solar thermal power plants have been utilized for electricity generation.The photovoltaic system employs p-n junctions to convert solar radiation into electric power, while solar thermal power plants concentrate the sun's radiation on receivers through large mirrors, generating high temperatures. The thermodynamic cycle is then driven by a working fluid at high temperatures, producing vapor that, when directed through a turbine, generates electricity.

Communication-Less Receiver-Side Thunderous Recurrence Tuning for Attractively Coupled Remote Control Exchange Frameworks

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ABSTRACT

Unique Compensating for deviations within the thunderous recurrence is vital in attractive reverberation coupling remote control exchange (WPT) frameworks. Hence, this consider proposes a communication-less collector side thunderous frequency-tuning conspire that compensates for the reactance within the collector without communicating with the transmitter. The proposed conspire comprises an inductor-capacitor-capacitor stipend topology at the transmitter and a half-bridge circuit at the recipient, whose working stage is set to be orthogonal to the recipient current. Resounding recurrence tuning can be accomplished by altering the DC voltage connected to the half-bridge circuit to maximize the control gotten at the stack. The reactance recompense capacity of the proposed conspire is analyzed through tests on a 200 kHz WPT framework. When the auxiliary capacitance digressed from −20% to +20%, the proficiency corruption was kept up inside 6.7% with the proposed conspire, though the productivity debased by up to 33.3% without emolument.

List Terms: Attractive reverberation, reactance recompense, resounding recurrence, variable reactor, remote control exchange.

1. INTRODUCTION

Remote control exchange (WPT) frameworks are received as secure and helpful modes of control supply in viable applications. Among the different WPT innovations, WPT by means of attractive reverberation coupling (MRC) is as of now considered the foremost reasonable component for high-efficiency mid-range transmissions. WPT through MRC (MRC-WPT)can be connected in different areas extending from low-power charging for portable gadgets to high-power charging for electric vehicles .Remote objects, such as dielectric materials, metallic objects, or ferromagnetic materials, close the transmitter and collector coils, cause inductance changes, driving to resonant recurrence deviation and a ensuing decrease within the control and effectiveness . In MRC-WPT frameworks, resounding repeat deviation may well be a basic concern for commonsense application.

PIVI Computer Overview Promotion of E- Learning

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ABSTRACT

As an aid to teaching-learning, online communication systems are used to facilitate online learning, forms of virtualized computing and distance learning. The growth of e-learning platforms has exploded in the last two years. Data mining in educational computing uses facts generated from the Internet databases improve the paradigm of educational learning for educational purposes, as in the learning   is computerized. Cloud computing is a suitable platform to support online learning solutions. It could be automatically changed, providing a scalable solution to change the consumption of computer resources in the long run. It also facilitates the use of data mining techniques in a distributed environment   interacting with extensive e-learning resources. A summary of the current state of cloud computing is presented in studies and examples of infrastructure designed specifically for such a system.

Keywords: e-learning, cloud computing, virtual learning, SaaS, PaaS, IaaS

1. INTRODUCTION

E-learning was born thanks to its widespread use   Internet and other digital communications systems and distance learning [11]. It benefits with different forms and functions that could be the best support classroom instruction. These include Virtual instructions, emails and web links, discussion whiteboards and other learning media, e.g things As a result of network integration   students, content producers and professionals the learning is handled better. Learning together Web-based tools have many advantages   the most prominent of which are tasks and#039; continuity and repeatability, adaptability, accessibility and simpler approach [16]. E-learning or virtual learning platforms are becoming increasingly popular among researchers technology (IT), especially after an outbreak   Covid-19 and digital evolution. different educational levels included efforts such as massive open online courses (MOOCs), Blackboard, desire to learn (D2L) and virtual Study centers of various universities, is implemented worldwide as an electronic learning format [21,22]. Compared to a traditional attendance class virtual programs fully supported by e-learning paradigm, they have apparently optimal learning environment, a significantly higher frequency for them who can get their materials online [6, 13, 20].

Security and Privacy Aspects of cloud computing:
An Intelligent university case study

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ABSTRACT

The trend of cloud technology is accelerating with the increase techniques such as utility computing, grid computing and distributed computing. Cloud computing has significant potential to provide flexible, cost-effective and efficient resources on the Internet and is a driving force the most important computing technologies of today. The cloud provides the resources remote access and data storage, while virtual machines access data over the network resource In addition, cloud services play a major role in the fourth industrial revolution. Everyone uses cloud computing in their daily life using Dropbox, several Google services and Microsoft Office 365. Although such an environment has many advantages, security issues such as data protection, information security, access control, cyber attacks and data availability and performance and has reliability issues. Cloud service providers must implement effective security and data protection measures to protect privacy, confidentiality, integrity, and availability of data services. However, there were no cloud service providers sufficiently secure and reliable services for end users.

Key Words:cloud computing; privacy concerns; security issues; block chain; data protection; information security.

1. INTRODUCTION

The cloud offers the ability to store and access data from anywhere with an internet connection. A cloud application allows users to easily store their location data on a remote server [1]. Beside According to Gartner [2], cloud computing is among the ten most important technologies today. Individuals and organizations use it to share files and data. The cloud service attracted the attention of the company community and academic researchers. Its architecture has formed information systems and is considered part of the driving technology of the future. The cloud service allows users to share data globally, services and resources. The best examples are Google Apps where anyone can access their data using it applications via a web server. Storing data in the cloud reduces hardware costs and improves performance reliability of storage [3].

Choosing Cloud Computing Software for Virtual Network lab Supporting Operating Systems of Course

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ABSTRACT

The article provides an overview of suitable cloud platforms for a virtual web lab, including: in Linux network environments and is designed to support the course of operating systems. The study justifies the choice to use a private cloud as the deployment model and as the service model and justifies it The decision to create cloud environments specifically adapted to educational needs, in a different way implementation of ready (infrastructure as a service) cloud services provided by service providers. Related the work of cloud platforms for teaching operating systems is analyzed. The study also provides an overview the authors' previous research on virtualization tools and environments for an operating systems course and Cisco Cyber Security Operations Course. Basic and additional requirements of the cloud service The operating system supporting software course was developed for the online virtual lab. Finally the paper compares Eucalyptus, OpenStack, CloudStack and OpenNebula cloud platforms and justifies the first of these cloud computing software and Another option.

Key Words: Linux, Operating Systems, Virtual Web Lab, Private Cloud.

1. INTRODUCTION

Most operating systems courses include practical assignments on real operating systems. In many in some cases, these tasks require students to be given administrator access to their individual case from the operating system. Also, operating system courses usually cover the Linux operating system, although most computers are used university labs and student laptops are more likely to have Windows installed. for Therefore, different virtualization techniques can be used. Internet-based virtual laboratories have become popular for teaching a variety of courses [1] including courses in the operating system. However, the operating systems course is one of the courses whose needs are significantly more difficult to meet than the needs of most courses that could normally be taught through cloud services. Software as a Service model. The purpose of the article is to make the survey of cloud platforms suitable for the virtual network For comparison, a laboratory containing Linux network environments in the course of operating systems these platforms and choose the most suitable platforms.

Analysis of Production Critical Factors by Application of Cloud Computing Service

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ABSTRACT

The advantages of cloud services are cost-effectiveness, availability, scalability, flexibility, and time-to-market and dynamic access to computing resources. Companies can improve the successful adoption of cloud services by understanding the critical factors. In order to find the critical factors, this study first reviewed the literature and prepared a three-layer hierarchical factor table to implement cloud computing service based on the technology-organization-environment framework. Then, a hybrid method combining two multi-criteria decision tools called Fuzzy Analytic Network Processmethod and concept of benefits was used to objectively identify critical factors for cloud adoption. It replaces the subjective judgment of the authors. The results of this study identified five critical factors such as security of access to data, security of data transmission, support of top management, management of backup in cloud and acceptance of employee. Finally, the paper presents the results and implications of the study.

Keywords: cloud computing service; multi-criteria decision making; critical factors; fuzzy analytic network process; technology-organization-environment.

1. INTRODUCTION

Businesses can use cloud computing to create innovative solutions, migrate critical applications and improve financial performance by eliminating expensive legacy technologies. In addition, it can help companies transform their business, increase flexibility and improve operational sustainability.[1] also pointed out that the benefits of cloud computing include cost benefits, availability, scalability, flexibility, time marketing and dynamic access to computing resources. Recently, the architecture of cloud computing has added more and more versatile and extensible applications. Organizations in developed countries are increasingly adopting cloud computing, but the rate of adoption of this technology in developing countries has stagnated, despite its potential to accelerate digital transformation [2]. The adoption of cloud services is a type of digital transformation. Understanding its critical factors (CFs) will help companies improve the successful adoption of cloud services. Boynton et al. [3] defined CFs as a small number of events that can ensure the success of a company or organization manager. When companies focus on certain critical areas, called CFs, they are competitively successful.

Visual Control Software Design for Micro- Drive Error Correction in an Electromechanical System.

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ABSTRACT

Aiming at the problems of low monitoring accuracy and large memory consumption of traditional monitoring software, a visual monitoring software for MEMS micro-drive debugging is designed in this paper. According to the characteristics of MEMS system and the driving principle of micro actuator, the functional module of visual monitoring software for micro actuator debugging is designed. It includes monitoring pause button module program, visual display module program, monitoring quadrature signal module program and monitoring signal communication module program. Improve the monitoring accuracy through the connection between various modules. Select the material of the micro-drive and set its structural parameters, connect and debug the hardware of the drive, and test the performance of the designed software. The experimental results show that the software designed in this paper has high accuracy and low memory loss, the average accuracy is more than 90%, and the memory consumption is only 156 kb. It shows that this method can effectively monitor MEMS micro actuator, and the monitoring results are reliable.

Keywords: MEMS; Micro actuator; function module; Connect and debug; Visual monitoring.

1. INTRODUCTION

So-called MEMS (Micro company Mechanical Systems, MEMS), refers to the micro structure of the sensors, actuators and signal processing of small and integration in the integration of control circuit and other components, which can give and send the order information or information acquisition and processing according to the obtained information to work independently or in accordance with the outside world commands a micro computer electric parts, gear, or the micro system [1]. The devices developed by using MEMS technology can be applied in the fields of aerospace, aviation, military, biomedical, environmental monitoring and electronic consumption, etc., with a very broad prospect [2]. MEMS technology is gradually developing into a huge industrial cluster, and at the same time is pregnant with a very profound technological change, which will bring a new round of impact on human production and life [3, 4]. As a key part of MEMS, microdrives have been studied in many countries since the 1980s, and some achievements have been made in China.

Software Requirements Engineering Training: Problem Questions

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ABSTRACT

The key problems of training Requirement Engineering and the following ways to overcome the contradiction between the crucial role of Requirement Engineering in industrial software development and insufficient motivation to master it in the process of Software Engineering specialists professional training were identified based on a systematic research analysis on the formation of the ability of future software engineers to identify, classify and formulate software requirements: use of activity and constructivist approaches, game teaching methods in the process of modeling requirements; active involvement of stakeholders in identifying, formulating and verifying requirements at the beginning of the project and evaluating its results at the end; application of mobile technologies for training of geographically distributed work with requirements; implementation of interdisciplinary cross-cutting Software Engineering projects; involvement of students in real projects; stimulating the creation of interdisciplinary and age-old student project teams.

1. INTRODUCTION

The first course in Software Engineering was developed under the guidance of Friedrich Ludwig Bauer [1, 2], it contained only a brief overview of the process of determining the requirements for the software product such as functions, user needs and operating environment requirements. Just as 50 years ago, defining software system requirements is the first step in development which largely ensures its success. Recommendations for the development of curricula for Software Engineering bachelors define the competence to find compromises, the essence of which is to reconcile conflicting project goals, find acceptable trade-offs for cost, time, knowledge, existing systems and organizations: "Students should engage in exercises that expose them to conflicting and changing requirements. ... Curriculum units should address these issues, with the aim of ensuring high-quality functional and nonfunctional requirements and a feasible software design." [3, p. 21]. Requirements engineering is the process of identifying, formalizing and documenting requirements, that occurs during communication with a customer and other stakeholders who are not typically proficient in software engineering techniques. The identification of requirements demand from the Software Engineering specialist to apply the following general professional competencies [4]:

Let's look at Predictive Power Advance Software Failure Perdition Models-Experimental Studies Using Combing meters

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ABSTRACT

Background: Fault prediction is a key problem in software engineering domain. In recent years, an increasing interest in exploiting machine learning techniques to make informed decisions to improve software quality based on available data has been observed.

Aim: The study aims to build and examine the predictive capability of advanced fault prediction models based on product and process metrics by using machine learning classifiers and ensemble design.

Method: Authors developed a methodological framework, consisting of three phases, i.e., (i) metrics identification (ii) experimentation using base ML classifiers and ensemble design (iii) evaluating performance and cost sensitiveness. The study has been conducted on 32 projects from the PROMISE, BUG, and JIRA repositories.

Result: The results shows that advanced fault prediction models built using ensemble methods show an overall median of F-score ranging between 76.50% and 87.34% and the ROC(AUC) between 77.09% and 84.05% with better predictive capability and cost sensitiveness. Also, non-parametric tests have been applied to test the statistical significance of the classifiers.

Keywords: product and process metrics, classifiers, ensemble design, software fault prediction, software quality.

1. INTRODUCTION

Software fault prediction has been an important research topic in the software engineering field for more than three decades, increasingly catching the interest of researchers [1, 2]. According to IEEE terminology [3] the term fault is used to indicate an incorrect step, process, or data definition in a computer program (i.e., a BUG). In the literature, authors have addressed the software fault prediction (SFP) problem with two viewpoints, i.e., in the first viewpoint, they proposed new method or method combinations to increase fault prediction

Zero- Edge-of Trust Computing Environment; Block chain-Based Practical Formula

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ABSTRACT

Edge computing offloads the data processing capacity to the user side, provides flexible and efficient computing services for the development of smart city, and brings many security challenges. Aiming at the problems of fuzzy boundary security protection and dynamic identity authentication in the edge computing environment in smart city, the zero trust architecture based on block chain is studied, and a digital identity model and dynamic authentication scheme of edge computing nodes based on distributed ledger are proposed. Firstly, a digital identity model of two-way authentication between edge computing node and sensing terminal is established to realize fine-grained authorization and access control in edge computing. Secondly, based on the identity data and behavior log bookkeeping on the chain, the quantification of trust value, trust transmission and update are realized, and the traceability of security events is improved.

Keywords: block chain; Internet of things; zero trust; edge computing; secret sharing; consensus algorithm.

1. INTRODUCTION

Edge computing is an important form of computing in smart cities[1]. With the rapid development of 5G, chip technology and high-performance intelligent IoT terminals, the computing resources of traditional cloud computing center gradually sink to the sensing layer. In terms of system architecture, the new generation of information technology represented by cloud computing, micro services, big data and AI has significantly changed the IT infrastructure. In the aspect of information processing mode, the wide application of new algorithms such as image-based computing [2], collaborative trajectory [3] and machine learning [4–6] puts forward higher requirements for the security, reliability and effectiveness of information infrastructure [7]. Edge computing unloading the computing power of the cloud center to the user side for data processing, it can alleviate the pressure of the centralized server on multi service concurrency and network bandwidth, and realize flexible and efficient information processing [8].

Analysis of UART Communication Protocol

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ABSTRACT

Universal Asynchronous Receiver Transmitter (UART) communication protocol is developed for transmitting inputs between computer hardware devices. The main goal of Universal Asynchronous Receiver Transmitter (UART) communication protocol is to provide consistent and high-quality results. The proposed framework integrates with clock signal to generate frequency values with the concerned system statement. It eliminates the functional element that pretends selecting the baud rate value and defined structural elements. The proposed system has recognized a defined aspect of eventual attributes, which may indulge upon many processed sources. It has evolved through distinct accomplishment of resultant value to calculate the system function by utilizing the terms and values of eventual attributes. It may be processed to operate on the system while ensuring inter-dependence. This has been performed via transmitter and receiver terminals that propagate the value of the defined resource statement function. It extends the system function by leveraging distinct outcomes. This approach can generate effective and quality resultant value to ensure the defined functional statements. The transmission of source and destination information may be beneficial for maintaining a system with a predicted value, which will be generated based on the defined system sources and determinants.

Keywords: Protocols, Transmitters, Receivers, Hardware, Hardware design languages, Edge computing, Clocks.

1. INTRODUCTION

In general, Universal Asynchronous Receiver Transmitter (UART) communication protocol is defined as a hardware type of communication protocol. This protocol is evolved in a asynchronous serial aspect as depicted in Fig. 1.1. The system evolves with configurable approach with no clock signal evolved among concern system approach. It has transmitting end, which transfer its value towards receiver end with interfacing node [1].

Cage basic topology optimization considering thermo-mechanical coupling

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ABSTRACT

The execution of the cage can straightforwardly influence the benefit life of the bearing. This paper presents a cage topology optimization strategy for making strides the warm dissemination and basic solidness. Firstly, a multi-objective auxiliary topology optimization show is set up based on the SIMP strategy and MMA calculation, the impacts of drive and warm stack are considered comprehensively. Besides, considering the centrifugal drive and frictional warm, beneath the conditions of a given volume imperative, the bearing cage topology optimization show is carried out with warm dissemination shortcoming and compliance as the optimization destinations. Utilizing iterative calculations based on the MMA calculation and boundary smoothing preparing, the structure with the ideal fabric format is gotten. At last, compared with the starting structures, the most extreme temperature decreases almost 27% and the most extreme stretch diminishes almost 14.8%. The comes about appear that topology optimization can give a reference for the plan of bearing cages, which can make strides the basic execution whereas lessening weight.

1. INTRODUCTION

With the fast improvement of the aviation industry in ultra-high accuracy conditions, higher necessities are put forward for the execution of high-speed exactness ball orientation. As a key component of the bearing, the execution of the cage will influence the benefit life of the bearing. The center of bearing cage inquire about is warm steadiness and energetic characteristics, and the sliding contact of the bear amid the working handle can cause the cage to warm and wear-out. More than 25% of bearing disappointments are caused by frictional warm between balls and cage.1 Within the conventional cage plan, the auxiliary solidness of the cage is made strides by changing the cage fabric and the shape of the pockets,2 whereas overlooking the cage structure plan. In this manner, it is exceptionally vital to think about a novel cage, which can move forward both warm scattering and basic solidness of the cage.

Energy flow analysis was used to design the low impact separation mechanism and point-type high load connection

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ABSTRACT

In this paper, based on the improvement of the non-pyrotechnic moo affect association and partition gadget for overwhelming stack association of huge space vehicles, the plan strategy of association and partition gadget is considered. The conventional overwhelming stack association partition gadget encompasses a solid stacking capacity, but the discharge of framework vitality will cause a colossal affect amid division. This paper considers the exchange of affect vitality within the instrument plan prepare, diminishes division affect based on vitality stream examination. Based on the investigation of the DOF (Degree of Flexibility) imperative work of the division framework and the working prerequisites of the division instrument, the movability show of division framework was built up. Concurring to the inquire about on DOF limitations and discharge, the key of drive imperatives in DOF imperatives of the division instrument is gotten, and the partition instrument that can execute the drive imperatives and discharge is analyzed. Moreover, based on the vitality stream examination of the partition component, the plan strategy of the moo affect partition instrument is proposed, gotten a non-self-locking string combine association division instrument. The viability of the plan strategy was confirmed by the vitality transformation examination of the division component.

1. INTRODUCTION

The space association division instrument is the center component of the shuttle framework to realize locking, discharging and isolating capacities amid the dispatch and circle state. It is broadly utilized in rocket organize division, disciple and bolt partition, sun oriented wing arrangement, payload discharge, in-orbit docking, and support, etc. Its work and execution specifically influence the victory or disappointment of shuttle dispatch and in-orbit work. The conventional association and division component realizes the association through the basic stacking capacity, and employments the pyrotechnic operation to execute the basic disappointment and partition after entering circle. This expendable innovation has numerous issues, such as tall partition affect, hazardous contamination and non-reusable, which extremely limits its application in different unused shuttle, payloads and space missions.

Research on powder metallurgy brake pads' wear and friction Characteristics is progressing

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ABSTRACT

The territory of China is generally complex, which leads to the complex and changeable working conditions of high-speed trains during braking. Considering the impact under diverse braking conditions on the execution of prepare brake cushions could be a issue commendable of in-depth discourse. In arrange to investigate the execution changes of powder metallurgy brake cushions amid prepare braking, this paper summarizes the grinding and wear properties and wear component of powder metallurgy brake cushions beneath diverse braking conditions; combined with the inquire about status of powder metallurgy brake cushion materials, it gives headings for the investigate of modern powder metallurgy materials. Give reference for the improvement of brake cushions of high-speed prepare within the future.

1. INTRODUCTION

The operation of the Shinkansen in Japan within the 1960s checked the first light of the high-speed time. China's high-speed railroad begun late, but it has created quickly. From the "Four Vertical and Four Horizontal" in 2008 to "Eight Vertical and Eight Horizontal" nowadays, China has built a moderately total railroad arrange and high-speed railroad arrange. By 2020, China's high-speed railroad has worked for about 38,000 km. With the advancement of high-speed railroads, the speed of trains has steadily expanded, and the working speed of trains has ended up one of the vital pointers to degree the advancement level of a country's railroads. As the speed of the prepare increments, the braking execution of the preparation has gotten to be more vital. The brake cushion is a critical component of a high-speed prepare braking framework, its contact and wear properties and wear component has ended up the center of researchers.

Fabrication of Hacksaw Using Solar power

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ABSTRACT

This venture is on the plan and development of a sun based control hacksaw machine for cutting of metal to diverse estimate and length with the assistance of sun based hacksaw. The objective of this extend is to spare labor and time, vitality in cutting metals in arrange to achieve high productivity. It may be a cutting machine with teeth on its edge utilized extraordinarily for cutting fabric. The control to the hacksaw is given by the Sun based Vitality. The engine drives the flywheel associated to the shaft of the motor. The flywheel is associated through a connect that transmits the desired drive for cutting the work piece. At last interfacing pole is associated to the vertical arm associated to the horizontal arm. Revolving movement of the shaft is changed over into responding movement of the hacksaw with the assistance of wrench and interfacing pole. Work piece of wanted length can be cut by nourishing it to hacksaw by holding it into seat bad habit. The different component of the machine were outlined and built. Test was carried out on the machine utilizing diverse metals.

1. INTRODUCTION

A hacksaw may be a handheld device utilized to cut through materials like plastic tubing and metal channels. Its cutting component is given by detachable edges which include sharp teeth along their external edge. In most cases, a hacksaw comprises of a metal outline that takes after a downward-facing. A handle of plastic, wood, or metal is regularly attached to one conclusion of the outline. The frame's closes include movable pegs that can be fixed to secure a edge in put, and extricated to expel it. Hacksaw edges are long, lean strips of solidified steel that include a push of teeth along their cutting edge. Each conclusion of the edge is punched with a little gap that fits onto the saw frame's pegs. Most edges extend in length from ten to 12inches (25.4 to 30.48 cm), in spite of the fact that six-inch (15.24 cm) edges can be obtained to fit littler hacksaw models. A gadget that applies drive, changes the course of a drive, or changes the quality of a constrain, in arrange to perform a errand, by and large including work done on a stack. Machines are frequently outlined to abdicate a tall mechanical advantage to decrease the exertion required to do that work.

Kinematic synthesis of the three-position static balancing mechanism for an input torque

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ABSTRACT

The point of this work is to plan the links–spring instrument for adjusting, within the three positions of the working extend, a rotating plate subjected to a torque. An energy-related approach towards the conditions of the mechanical framework adjust for a discrete number of positions leads to the detailing of a errand of looking for a four-bar linkage which guides a coupler point through the endorsed positions, where, at the same time, geometrical conditions (indicating the spring pressure) and kinematic conditions (characterizing the outspread component of the pressure alter rate) are fulfilled. The limitedly and imperceptibly isolated position amalgamation is considered, be that as it may, as it were a component of the coupler point speed is basic. A common strategy was proposed for deciding the four-bar instrument geometry. Instrument reversal was connected in arrange to diminish the number of planned factors and rearrange the arrangement strategy.

Keywords: discrete balancing, torque balancing, machine design, and mechanism synthesis.

1. INTRODUCTION

The adjusting of a spatial and planar linkage-spring framework is of pivotal significance in lessening the vitality expended by machines whereas performing endorsed working capacities the adjusting in a limited (discrete) number of positions may be a specific kind of linkage adjusting. The aim of this work is to plan (to choose the measurements and mechanical parameters) the links-spring framework for adjusting, within the three positions of the working run, a revolving plate stacked with a torque. An energy-related approach towards the conditions of the mechanical framework adjust for a watchful number of positions leads to the detailing of an assignment of looking for a component which guides an working component through the endorsed positions, where, at the same time, geometrical conditions (indicating the spring pressure) and kinematic conditions (characterizing the outspread component of the pressure alter speed) must be fulfilled. In other words, the limitedly and imperceptibly isolated positions union is considered. In this particular errand, the inflexible body movement is spoken to by the three limitedly isolated positions related with three imperceptibly isolated positions.

Optimizing the acceleration of the trolley system for Constant slewing in tower cranes

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ABSTRACT

The article depicts optimization of the method of increasing speed of the tower crane trolley development component amid the unfaltering mode of the slewing instrument. A scientific show of the boom framework of the tower crane was utilized for the optimization of the trolley development. The show was decreased to a sixth-order direct differential condition with consistent coefficients, which speaks to the connections between the drive torque and the arrangement of the stack and its time subsidiaries. Non-dimensional complex model (objective function), which takes into consideration the drive torque and its rate of alter in time amid the temporal handle, was created to optimize the mode of the trolley development component. Based on that, a variational issue was defined and fathomed in an expository shape in which root-mean-square (RMS) values of the quantiles were connected. A complex ideal mode of increasing speed of the trolley development component was gotten and compared with the modes optimized based on diverse criteria. Preferences and impediments of the arrangements were examined based on the investigation of the gotten ideal modes of movement. The investigation uncovered moo- and high-frequency components motions of the trolley development component amid the transitory forms. The conditions for their end were defined.

Keywords: trolley, optimization, movement, criteria, crane

1. INTRODUCTION

In arrange to extend the capacity of a tower crane, a few of its components frequently work mutually. An illustration of such a joint operation is the development of the stack trolley combined with the development of slewing instruments of the crane. In this case, there show up extra dynamical loads in elements of components and within the structure of the crane. These loads can be especially dangerous when one of the instruments is within the temporal process (starting or braking). The loads may cause moo- and high-frequency motions within the components of a crane component, which, in turn, lead to a diminish within the crane unwavering quality and increment the vitality misfortunes within the crane instruments.

Using quick heating to regulate the CNC lathe's thermal displacement

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ABSTRACT

Thermal blunder continuously exists in a machine device and accounts for a expansive portion of the full blunder within the machine. Warm relocation in X-axis on a CNC machine controlled based on a quick warming framework is displayed in this paper. Positive Temperature Coefficient (PTC) warming plates are introduced on the X-axis of the machine. A control temperature framework is developed for fast warming which assist makes a difference the warm relocation to rapidly reach solidness. The framework at that point ceaselessly keeps up steady remuneration of the warm mistake. The displayed quick warming procedure is simpler than the stipend of machine warm mistakes by impedances within the numerical control framework. Comes about appear that the consistent state of the warm relocation within the X-axis can be procured in a shorter time. In expansion, warm mistakes in consistent and changing working conditions may be altogether diminished over 80% and 60%, separately, compared to those without utilizing the fast warming. Subsequently, the proposed strategy encompasses a tall potential for application on the CNC machine for making strides its exactness.

Keywords: rapid heating, CNC lathe, thermal displacement, ball screw, temperature control

1. INTRODUCTION

Machining productivity and exactness of machine apparatuses are key variables of machine device cost. In any case, the machine apparatus collected by a parcel of parts is warmed up and grows (i.e., warm relocation) beneath high-speed cutting condition; extending parts encourage influence fabricating exactness of the machine instruments. In 1990, Bryan demonstrated that the warm blunder accounted for 40-70% of the full machine instrument blunder. A few analysts have attempted to discover the way of decreasing the warm relocation. In 2012, Mayr et al. measured the temperature and relocation of a machine apparatus and they built a warm show based on test information to calculate the warm blunder. Their results about appeared that the warm mistakes decided through warm extension of machine components and the work piece were closely related to machine apparatus warm behavior. Because it is known, the warm development coefficient of carbon steel (screw of S45C) is 12E-6(1/∘C).

. Investigating the Effects of Irregular Degradation in Recycled Polymer materials from the selected properties of the extrusion process

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ABSTRACT

This work deals with the effects of disordered disintegration (shear instability) on recycling. polyethylene terephthalate (PET) bottles in an extrusion process using a twin-screw extruder and hence its effect on the mechanical properties of the product and the amount of electricity consumption. The extrusion process was carried out for PET bottle sizes (4.75, 6.75, 7.15 and 10 mm) in addition to comparable raw material in the temperature (200-205 C) with speed 50 revolutions per minute. The results showed that the cut size has a direct effect on the crystallinity, which affects the mechanical and thermal properties such as elongation and tensile strength decrease as the shear strength increases size, but the modulus of elasticity increases with increasing shear size. The impact and hardness test proved it it was also observed that impact strength and hardness decrease as the cut size increases extrusion process when putting the same number of products of different sizes into the machine and make sure that for comparison, the materials enter the machine immediately, we notice that smaller quantities are used less electricity compared to other different sizes except raw material from (PET).

1. INTRODUCTION

Polymeric (plastic) waste is harmful to the environment and disposal of these wastes is a serious problem that can be implemented by recycling. Especially the current methods of disposal of plastic waste in landfills have caused serious environmental problems which threaten human health [1,2]. The concern was pollution resulting from the accumulation of polymer (plastic) waste, especially in water bodies. Plastic waste is also used as landfill and it occupies a large area on the earth. It is also possible to receive energy through the recycling process. Because polymer products are oil price increase based on oil the material used to produce the polymers can be recycled polymer waste is a sustainable and profitable business. Six special ones steps include processing the waste polymer for recycling; This includes collecting, sorting, cleaning, cutting, granulating and polymer formation.

Fast stereoscopic PIV studying the statistics axial properties limited turbulent current flow in the pipe behind the axial fan

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ABSTRACT

The study of turbulent eddy flow in pipelines is one of the most difficult studies energy and turbulence. Axial fans in a tube, without guide sides, are widely used in practice and their problem   energy efficiency is still widely debated. Analysis of energy and interaction of axial fans   Design parameters are one of the most important issues in defining the energy efficiency potential of fans. On the other hand there is a three-dimensional velocity field in wall-bounded flow with high turbulence intensity. on the other hand,   is a complex wing geometry that creates a turbulent vortex flow. This article introduces the study of turbulence eddy current, Rankine-type, in an axially constrained system using a high-speed stereoparticle imaging velocimeter (HSS) PIV). The flow generator is an axial fan impeller with an outer diameter of 0.399 m and nine twisted blades. Reynolds number In the tube, Re = 176 529 is reached. The Reynolds weights, higher-order statistical moments and invariant maps are is calculated based on the three-component velocity field. Here intense changes occur in all statistical parameters   radial and axial direction. Four flow regions can be identified in the flow domain. The interaction of each of these four flow regions creates a very complex vortex flow that occurs behind the axial fans. Immutable maps defined reveals the turbulence structure.

1. INTRODUCTION

Investigation of the turbulence structure of the inner part (wall-bounded) eddy currents belong to the classical but also to the latest theoretical and numerical studies in the field of fluid mechanics. This article examines a turbulent eddy flow, Rankine type, axially limited, produced with a twisted-blade axial fan roller. The axial fan is built-in this study is defined as free entry, channelized exit according to the international standard ISO 5801 for testing fans.1 Axially confined and unconfined turbulent eddy currents are discussed in Strscheletzky2 and Eck.3 Axially limited cases are very common in practice. In addition,   axial fans without guide shields in most cases there are still built-in tubes. Optimum flow ratio and basic coefficients are given in both cases   Strscheletzky.2 This has important implications for design   of the axial fan impeller.

A study on employee welfare: A review

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ABSTRACT

This literature review examines the concept of employee welfare, focusing on its various dimensions and its importance in organizational contexts. The study explores existing research and theoretical frameworks related to employee welfare, encompassing aspects such as work-life balance, health and safety, compensation and benefits, career development, and overall well-being. Through a comprehensive analysis of the literature, this study aims to identify the key factors that contribute to employee welfare and understand their impact on employee satisfaction, engagement, and organizational outcomes. The findings provide valuable insights for organizations seeking to develop effective strategies and policies that promote employee welfare and create a supportive work environment conducive to employee well-being and overall organizational success. Keywords: Employee welfare, employee wellbeing, employee satisfaction

1. INTRODUCTION

Definition of employee welfare

The ILO (International Labor Organization) defined, "welfare as a term which is understood to include such services and amenities as may be established in or the vicinity of undertaking to perform their work in healthy, congenial surrounding and to provide them with amenities conductive to good health and high morale". According to Arthur James Todd, "welfare as anything done for the comfort or improvement and social of the employees over and above the wages paid, which is not a necessity of the industry".

Meaning of employee welfare

Employee welfare means, such services, facilities and amenities such as canteens, rest and recreation facilities, arrangement for travel to and for the accommodation of workers employed at a distance from their home, and such other services, amenities and facilities including social security measures as contribute to improve the condition under which workers are employed.

A study on student's satisfaction towards online learning application with special reference to Coimbatore city

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ABSTRACT

Online learning helps students to create and communicate new ideas. You get the chance to uplift your skills and gain knowledge apart from school education. One of the prime importance of e-learning is that it helps students and teachers develop advanced skills Keywords: online learning, applications, student, internet.

1. INTRODUCTION

Online education is a type of educational instruction that is delivered through the internet to students using their home computers. During the last decade, online degrees and courses have become popular alternative for a wide range of non-traditional students which include those who want to continue working full-time or raising families. Most of the time, online degree programs and courses are offered via the host schools online learning platform, although some are delivered using alternative technologies. The web-based learning has the potential to meet the perceived need for flexible pace, place and face. This study analyses student's preference, satisfaction and perceived learning in an appbased system.