

STRUCTURAL ANALYSIS OF TRUSSES

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ABSTRACT

Computational structural analysis research is examined and compared in this article. Our analysis is focused on truss because of its vital role in the construction process. The d-SPACE control system was used to study a two-member active truss design with two piezoelectric devices connected. To put it another way: The results of the tests show that active and passive trusses operate differently. It is possible to precisely control the frequencies, modes, and damping ratios of an active truss thanks to two piezoelectric components. An active structure's lower-order damping ratio is higher than that of a passive structure. By comparing active and passive strut transfer functions, it is clear that larger damping ratios are desirable for structural vibration reduction. The dynamic performance of an active truss structure may be improved if it is properly constructed.

An experiment mode analysis, FTTD, embedded steel frames, FTTD, embedded steel frames. Stack actuator for piezoelectric motors;

INTRODUCTION

The usage of composite materials in the building of trusses is rising. Since its better strength and performance, composite trusses have been used in construction projects. Many specialists have researched the usage of concrete and steel in the construction of trusses, which have been thoroughly investigated. An extensive investigation of structural components has taken place, including materials and the joints of trusses. For aeronautical uses in the eighteenth century, composite trusses were studied, which are unique from civil constructions in terms of materials and strength, stiffness, and weight.

The effects of pre-stressed cables on a composite structural system were examined [4]. The usage of pre-stressed steel cables and concrete compression members to produce composite space trusses has been increasing in recent years. [5] These designs have been evaluated for their performance and characteristics [7, 8]. Pre-tensioned cables are documented in the literature, but their systematic design and analysis has to be studied further. This study focuses on composite trusses rather than civil constructions when it comes to aeronautical structures.

In the present steel-design process, internal activities such as forces and moments as well as design evaluations for acceptable strength are two steps. By reducing needless complexity, component-based design may be made more efficient. Using advanced analysis to do both analysis and design validation in a single phase may speed up the design process significantly. The ability to model the structure is made feasible by sophisticated analysis that directly analyses

problems such geometric defects and residual stresses. System-based design underestimates the system's capacity to support heavier loads. The present design code requires all components to fulfil a certain degree of dependability. It is hard to compare a system's dependability to that of a single component. A system resistance factor must be calculated in order to fulfil a particular reliability index. By imposing system dependability, a cost-effective system may be built to fail at a certain rate.

Inquiry into the Literature

Due to their lack of bulk and damping, truss constructions are difficult to manage for researchers. As a technique to maintain structures safe and secure, an active structural control was developed. The term "active truss structure" describes a truss structure that can be controlled. Control laws, smart materials, and sensor and actuator configuration optimization are all being explored in active truss structures right now [4–7]. In order to have a clear picture of the structural properties of the active truss construction, it is important to analyse it in a certain way. Other than a few research by a few scientists, nothing is known about the active truss structural modes. Additionally, Preumont and Zhang [9–11] have examined how to comprehend the modal principles that underpin active truss designs [8–11]. A combination of theoretical reasoning and computer simulations, however, led to these results.

SAP software is used to do finite element analysis on the structure in this research. Finite element analysis is utilised to calculate the bending, shear, and deflection of beams in this application SAP is used to manually compute the load once the structure's load has been defined. 44 metres long, with a span of 10 metres, 15 metres, and 20 metres and an eave height of 10 metres, this shed has a lot of storage space. The howe truss, spine castellated beam system, and tapering cell beam system were all forms of spine cellular beam systems that were investigated in this research. The study of dead load, wind load, and various combinations has been done in accordance with IS: 875-1897. The process of deciding on a suitable candidate. An e truss is shown in this figure with its usual design and loads. The experiment's outcomes are shown in Table 1. The weight of a structure Spine cellular beams are shown below in their many configurations, as well as the loads they can bear.

Concrete Reinforcement using Carbon Fiber Composite

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Abstract Strengthening concrete buildings using Carbon Fibre Composites (FRP) has been common practice for decades. Due to their very effective involvement, they can do so without affecting any of the component's shapes. The trace set for the fundamental material ingredients is critical in the production of concrete in Brazil, which is used for a variety of applications. By using the Brazilian standard ABNT NBR 5739 and the statistical analysis of variance (ANOVA), this research was able to determine how the strength of concrete in compression may be improved by including laminate carbon fibre composites. The lower tensile strength of low strength concrete shows that the specimens' failure was caused by excessive strain, as shown by laboratory testing and ANOVA. This suggests that the reinforcing is more effective in low strength concrete.

Keywords Concrete structures, Structural reinforcement, Carbon fibre

1. Introduction

A huge proportion of the world's buildings are made of reinforced concrete. These buildings may be made in any form or size and have an exceptional lifespan because of the perfect combination of qualities between concrete and steel [1-4]. Despite all the technical advancements, reinforced concrete still has a limited life span despite the best efforts of engineers. As a result, it requires regular maintenance to ensure that the project's usage conditions are maintained throughout time [5-7].

Unfortunately, adequate conservation of a building that has only degraded to the point where reinforcements are required is not made in the majority of situations [8-11].

To understand the reasons for concrete buildings' degeneration, a complicated area of research known as Pathology of Buildings is necessary [12-15].

In the presence of a variety of aggressive chemicals, concrete degradation develops. Steel, despite its present great compactness, is nevertheless susceptible to the effects of external factors, so that when they reach its target, the steel will be damaged.

As indicated in Figure 1, corrosion and subsequent degeneration of the structure [16-18].

Since the pillars sustain the structure and carry loads to the foundations, they play an important function in traditional structural systems. Because any loss of pillar capacity might result in substantial and permanent damage to the structure as a whole, intervention by ribs [8-12] is necessary to prevent further damage.



Figure 1. Deterioration of pillars by etching (Brazilian structure)

However, it should be noted that reinforced concrete degradation is not the primary reason for structural recovery. As a result of factors like adding a library to a building or increasing traffic on an overpass or bridge, or in response to events like a fire or an earthquake, there is often a need to enhance the capacity [15]. Figure 2 illustrates this point.

A COMPACT DESIGN OF WI-MAX APPLICATION FOR CPW BASED FED KOCH FRACTAL ANTENNA SLOT

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Abstract

The double large band CPW took care of adjusted Koch fractal space receiving wire proposed in this article is sensible for WLAN and Wi-MAX errands. The running repeat of a three-sided opening radio wire is obscured here using the Koch new conveyance system, achieving flexible receiving wire tests the impedance and radiation instances of the proposed radio wire, showing that an invigorated Koch fractal space receiving wire has an impedance information transmission of 2.38 to 3.95 5 GHz and 4.95 5-6.05 GHz cautious 2, four/5.2/5.eight GHz WLAN gatherings and the 2, five GHz WLA. In the whole working band, the receiving wire composed radiation incorporation has an increment of more than 2.0 dBi. The disclosures are found and connected with accurate people from their own families.

CPW-dealt with opening radio wires, printed fractal space receiving wires, wide-band receiving wires, and WLAN receiving wires are cases of document terms.

1. INTRODUCTION

The fundamental for low-profile, lightweight, and insignificant cost broadband radio wires has extended actually as short distance far away frameworks relationship, for instance, far away district, has gotten more norm (WLAN). WLANs are planned to work in the 2.4 GHz (2.4-2.48 GHz) and 5 GHz repeat social affairs (5.15-5.35 GHz and 5.725-5.825 GHz in the United States and 5.15-5.35 GHz and 5.47-5.725 GHz in Europe). Wi-MAX (Worldwide Interoperability for Microwave Access) is a quick deployable, inconsequential cost broadband far off structures affiliation standard that works in the 2.5-2.69/3.4-3.69/5.25-5.85 GHz get-togethers. Since these standards may be used in different relationship at the same time, a singular radio wire that covers the two social affairs is required. A co-planar waveguide (CPW) feed is better sensible for lightweight distant constructions affiliation applications because to its portions, for instance, uni-planar turn of events, fast assembling, and circuit joining. Specific opening evaluations like square shape, rectangular, three-sided, trapezoidal, underhanded, contorted, and others have been seen in literature[2]-[11] in blend in with either a rectangular, fork-like, or round tuning stub, invigorated for wide-band working. Using a multiplexer resonance-production overseeing instrument, information move cutoff may be extended. Then, by changing the opening between the tuning stub and the including field, the impedance progress beginning with one reverberating mode then onto coming up next is

restricted, achieving wide band improvement. Since the most lessened resonance of a wide opening receiving wire is obliged by the opening boundary[9]-[11], the space filling pondered the Koch turns utilized in the movement of traditionalist and multi-band patch radio wires may be extended[12]. Given the lower working frequencies[6]-[9], the proposed radio wire, expected WLAN/Wi-MAX executions, everything considered beats the ultra wide band opening receiving wire smoothed out for the FCC upheld UWB band (3.1-10.6 GHz) to the degree adaptability. While a wide band radio wire working some spot in the degree of 2.3 and 6 GHz will do what needs to be done, a twofold band receiving wire will by a long shot decrease the req[6]-[9]. For the divert improvement in this letter, a half-rehash tuning opening is gotten along with a Koch wide-band space radio wire. The radio wire performs twofold wide-band headway, satisfying the WLAN and Wi-MAX packs simultaneously while staying aware of a compact profile, on account of Koch fractal-based space plan.

2. PLAN

The proposed fortified Koch space receiving wire's course of action for twofold band movement is tended to in Fig. 1. A 50CPW feed and a tuning stub implanted with a U-outlined cut on a low scene substrate with relative permittivity and thickness feed the radio wire. Koch snowflake opening that has been changed. Ansoft HFSS[15] is used to review the receiving wire's yield. The fundamental math of the space is a sensible side triangle with various cycles, as found in Fig. 2(a)-(d). Figure 3 shows the virtual return dissatisfaction of the receiving wire (without the tuning opening) for the obvious feature seasons of the Koch estimation, starting with the even triangle. Dazzling The Resonant is a term used to depict a marvel.

Blended Multi-Level and Section Interleaved LLC Converter With More Advantageous Strength Processing Capabilities And Herbal Modern-Day Sharing

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Abstract- This paper introduces a new -segment interleaved flying-capacitor LLC converter topology with high output present day applications. as compared to a traditional -section LLC converter, the new converter provides a single capacitor that contributes to lower voltage stress at the number one facet's switches, mechanically balances the modern distribution between the phases and enhances the strength processing abilities. all the attractive features of LLC converters are preserved, which include zero-voltage switching on the number one facet's MOSFETs, 0-cutting-edge switching at the secondary side's power gadgets, slim switching frequency variety and easy layout. full principle of operation and analysis of the converter are defined, as well as the converter's primary characteristics and the impact of non-best components on the modern-day sharing conduct. A 600W, 400V-to-12V experimental prototype is used as a showcase of the appealing functions of the new converter, demonstrating superb current sharing, simple implementation and excessive performance of up to 97.3%.

Index terms –Multi-level converters, Resonant power conversion, current sharing, LLC Converters.

I. INTRODUCTION

TODAY'S power converters are required to deliver more power and achieve high efficiency over a wide load range. The LLC resonant converter topology is able to address such challenges and is advantageous in front-end DC-DC conversion applications as a result of the zero-voltage switching (ZVS) for the primary side's MOSFETs and zero-current switching (ZCS) for the secondary side's power devices [1]-[5]. In addition, it features narrow switching frequency range to facilitate regulation, fast transient response and relatively low cost mainly due to incorporation of the transformer's leakage inductance as the resonant inductor. In particular in its half-bridge implementation, the topology has been widely and successfully applied to flat panel TVs, 80+ ATX and small form factor PCs, where the requirements on efficiency and power density of their switching mode power supplies (SMPSs) are getting more and more stringent.

In high power applications where the current stress in a converter becomes high, paralleling of two (or more) converters, namely multi-phase operation, is a good solution for distribution of the current stress and

it has been broadly investigated for both PWM [6]-[10] and resonant converters [11]-[13]. It has been found that multi-phase operation of LLC converters introduces implementation challenges that are typically related to the load current sharing between the converter's phases [11]-[24]. Current sharing is required to increase the power processing capability, maintain high efficiency and improve the reliability since the thermal stress is better distributed. Therefore, current sharing is considered mandatory in multi-phase LLC converters operation.

The main reason for an unbalanced load sharing between converter's phases lays in the difference between the components of the resonant networks. When interleaving phases, since the operation hinges on equivalent switching frequency of the different phases, mismatches in the resonant tank components impact the current distribution between the phases [13]. This is since only one phase operates at the frequency where the required voltage gain is achieved. Even small differences, within the resonant components values' tolerances, can have a severe effect on the current sharing and one phase will deliver most of the load current when other phases deliver a significantly smaller portion of it [19]. Several solutions have been proposed to achieve current sharing [12]-[24]. These solutions are used to match the resonant tanks components' values and can be classified as active or passive. In the active solutions, additional circuitry is added in order to control the resonant tank capacitance [13], [14] or inductance [15], to control the switching frequency [16] or to control the phase shift between the phases in case of three-phase structure [17]. However, these solutions suffer from complex control and implementation issues, high component count and

METAL AND METAL OXIDE NANOPARTICLES GREEN SYNTHESIS RESEARCH

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ABSTRACT

Nanoparticles of metal oxide have piqued the attention of many researchers due to their wide range of potential applications in a variety of fields, including medicine, catalysis and pigments as well as electrical and biotechnological sensors and optical devices. The reasonable property of nanoparticles (NPS) as a heterogeneous non-toxic catalyst with environmental reimbursement has increased its significance. Metal oxide NPs, a biogenic novelty, are an eco-friendly option. Numerous researchers in the biological sector have said that NPS may be useful in the treatment of cancer. NPS has been studied as a potent catalyst for a variety of organic changes because of their generous returns. In this part, you'll learn how to make metal oxide NPs naturally.

INTRODUCTION

Since its inception, nanotechnology has been the most active field of current material science research and has established itself as an important invention in nanoscale technology. One billionth of a scale is referred to as a "dwarf" in the Greek term "nano" (10⁻⁹). To synthesise nanomaterials of varied forms and sizes, bottom-up and top-down methodologies have been extensively employed (Fig. 1).

Using a top-down technique, bulk materials are reduced to nanoscale size and then built up from the atom level, using a bottom-up strategy. Spray pyrolysis, laser pyrolysis, chemical vapour deposition, atomic/molecular condensation, and sol-gel processes are all examples of bottom-up procedures. On the other hand, the techniques of top-down approaches to exploitation include mechanical milling and etching/sputtering/electron-beam lithography/laser ablation/photolithographic processing/electron beam lithography. High-reactive agents, high temperatures, high pressures, dangerous chemical vapours, and defiled environments are all part of the synthesis process in both physical and chemical approaches. Several different reducing agents may be utilised in the production of NPS, including sodium citrate, ascorbate and sodium borohydride as well as polyols and Tollen's reagent. In terms of technology, NPs are primitive because of their low surface-to-volume ratio, making them useful only for a limited set of tasks.

as in catalysis, adsorption, drug transport, biotechnology, and DNA modelling, to name just a few. The dimensions, shapes, morphologies, and sizes of NPS virtualize them in their use (Vijayaraghavan et al. 2012, Khin et al. 2012, Dimkpa et al. 2012 and Ain et al. 2013) It may be a 1D, 2D, or 3D model. Thin-film 1D NPs are employed in electrical gadgets and sensors. Because of their stability and excellent adsorption capacity, 2D carbon nanotubes (CNTs) have found more usage in catalysis. 3D NPs include both quantum dots and clusters. Metal NPs such as Ag, Au, Pd, Pt, Zn, and Fe is primarily generated by physical and chemical processes from salt solutions such as AgNO₃, AuCl₄, PdCl₄, PtCl₄, ZnSO₄. NPs may be classified as metals, metal oxides, silicates, non-oxide ceramics, polymers, organics, carbon, or biomolecules based on their chemical make-up. The green synthesis technique contemplates several important topics, including the proper exploitation of environmentally friendly solvents and nontoxic compounds. An important part of this study emphasises the need for environmentally friendly green synthesis of metal nanoparticles in accordance with the 12 principles of green chemistry (Fig. 2).

MATERIALS AND METHODS

Characterization of Metal and Metal Oxide NPs
SEM, transmission electron microscopy (TEM), and X-ray diffraction are among of the methods used to characterise the structural properties of NPs (such as size, shape, lattice constants, and crystallinity).

Drowsiness Detection System Using MATLAB

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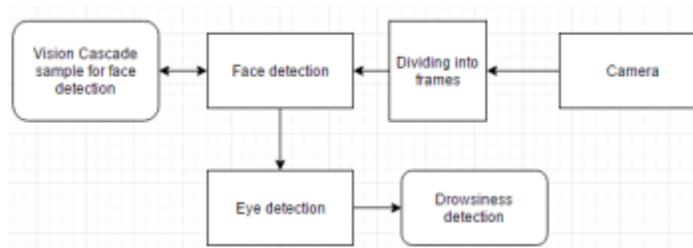
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Abstract:

Despite the fact that life is a wonderful gift, it is also riddled with danger. Therefore, in order to avoid accidents from occurring, safety procedures must be implemented. Automobile collisions have risen in prominence to become one of the most important sources of insecurity in contemporary times. Maintaining a high level of vigilance while driving is extremely important to avoid accidents. It is possible that even a single minute of negligence will have catastrophic implications. The vast majority of traffic accidents occur as a result of the driver's carelessness and inaction while behind the wheel of a vehicle. Consequently, the number of traffic accidents, particularly those involving automobiles, continues to climb year after decade. As a result of drowsiness, When driving, drivers become inactive for a period of time during the journey. It is probable that earlier detection of tiredness could have prevented a number of deaths if the condition had been recognised. It has been possible to develop sleepiness detection technology thanks to the employment of machine vision-based concepts and the assistance of these concepts. Exhaustion or drowsiness must be recognised in order to be properly diagnosed and treated. Using a small camera that is pointed directly at the driver's face and that recognises the driver's eye ball movement as it moves, the driver's performance can be monitored. At the absolute least, you should When the system does its initial detection step, it looks for the presence of a face, following which it looks for the presence of eyes, and after that it determines if an eye detected is open or closed. Changes A difference in intensity in the eye leads the eye to narrow down in size, allowing the system to receive greater information. A system notifies the driver that he or she is becoming asleep at the wheel and that it is important to wake him or her up within a set time period.

Index Terms—Viola Jones algorithm, Hough Transform, Vision Cascade Object Detector, Image Acquisition.

1 INTRODUCTION



“A STUDY ON CREDIT AND RECOVER MANAGEMENT” IN HDFC

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ABSTRACT

The topic of the project report at HDFC Bank, Tumkur, was credit risk management. The research focused on the hazards that a bank must face while doing business. Customers must be able to get loans, and banks must design strategies and methods to reduce the amount owed. A potential risk that arises as a consequence of lending The income statement, for example, is a financial statement that provides information about the company's finances. The balance sheet and profit and loss statement of HDFC Bank. There are four reasons why data is studied. The information was taken from the bank's annual reports from 2014 to 2017. The bank is found to be properly managing its credit risk, as shown by the amount of NPA that has been misplaced There are some non-performing assets, but not as many as there have been in the last four years. Such loans have never resulted in a loss for the bank. There is no indication that the bank effectively controls its credit risk. As a consequence of lending, the bank has experienced a large loss. The bank has a well-thought-out strategy and methodology in place.

INTRODUCTION

Financing means the control of a company's financial flows. He is interested with the application of money management, usage and administration skills. Financial control shows that part of control finance may be characterized as 'time cash provision.'

The focus was on developing strategies and controlling the company's financial resources. The identification of various resources is given for raising money for the business. The assets must be suitable and economical for the organization's requirements. The best use of this money is also the financial control securities.

THE MAIN OBJECTIVES OF THE FINANCIAL CONDITIONAL: -

1. Have sufficient money
- 2 Optimal budget usages.
- 3 higher returns.
- 4 shareholder wealth maximization.

A evaluation of studies in Mechanical Engineering layout. part II: Representations, analysis, and layout for the existence Cycle

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Abstract:

This is the second of a three-part series on the theory and practise of mechanical engineering layout. Laptop-based design procedures were examined in the first half of this section. Languages, representations and settings, layout guide analysis and layout for manufacturing are all covered in this area, as well. A look at the most current full-size advancements in each sector, focusing on the most recent study for each location is conducted. There is a summary of the six main topics here, as well as some open questions.

INTRODUCTION

It is the first of a two-part review of mechanical engineering design research that will publish in the journal Research in Engineering Design. Engineering design sub-topics will be tested on in the following examinations. All engineers are welcome to attend the lectures, which are intended to keep them up-to-date with new developments. Helps researchers put findings in perspective, and so helps them plan for the future. This collection of articles serves as a useful starting point for people interested in engineering design literature. The scope and subject matter of this evaluation must be limited. If possible, go through all of the articles, but this review's goal is to offer an overview and signpost to other sources of information. In spite of our best efforts, some possible candidates will be omitted from our list. There is a chance that our own misperception or ignorance of the subject matter might lead to mistakes. Our sincere apologies go out to you, our respected customers, for any inconvenience this has caused. In certain regions, the scope is restricted. Designing products, equipment, and buildings is what we want to focus on in mechanical engineering. It is only when a subject is directly important to mechanical system designs that topics such as geometric modelling, architectural design, manufacturing, and expert systems are covered. As a result, we have not tried to include the newer commercial computer-aided design (CAD) systems that have started to integrate the many research areas described herein. Most of the research in this review study is undertaken in the United States. It has not been common practise to specify job locations outside of the United States. It isn't addressed unless mechanical design studies focus on highly specialised technical areas (such as mechanisms and heat exchangers) that are straightforward to apply elsewhere. Design philosophy and technique are broken down into six areas in this overview of the concepts. The

EMPLOYEE REMUNERATION SATISFACTION

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ABSTRACT

The pay that an employee gets in exchange for his or her service to the business is referred to as remuneration. The importance of pay in the life of an employee cannot be overstated. The compensation he or she gets determines his or her quality of life, social standing, motivation, loyalty, and productivity. Employee compensation is also important to the company since it influences production costs. Furthermore, numerous fights (in the form of strikes and lockouts) occur between the company and its workers over topics such as pay and bonuses. Employee compensation is also an essential element of human resource management. The HR professional has a tough job in determining appropriate salaries and compensation differentials for workers and supervisors. Because wages and salaries are such a hot topic, books and magazines dedicate a lot of space to in-depth studies of wage and compensation issues.

One of a company's most significant investments is its compensation plan. Despite the fact that fair pay is a cornerstone of contractual and implicit agreements between workers and employers, the basic assumption is that money has a direct impact on behavior. Many workers and managers think that just raising compensation would encourage employees to perform harder and be more loyal. Employee performance is a significant problem for many companies, as they must recruit, inspire, and retain the appropriate talent pool in order to thrive (Cohen et al, 1992). In terms of establishing an atmosphere in which workers feel genuinely engaged, linked to the organization's goals and objectives, and happy with their employment, the need to recruit, motivate, develop, and retain people has never been more critical to any organization's success. Because workers must feel that their compensation is fair in proportion to the job they accomplish, the most important aspect of a payment plan is to guarantee that employees retain a high level of performance at work (Cohen et al, 1992). Furthermore, pay is one of the most important determinants of employee attitudes, motivation, and behavior (Wayne, 1992). The effect of compensation on employee behavior and attitudes, on the other hand, has centered on how pay is handled. The bulk of these research indicate that rewarding outstanding performance with large pay increases reinforces the behavior and makes it more likely to be repeated in the future, which is in line with reinforcement and expectation theories. The economy's overall health, the firm's financial ability to raise wages, union negotiations, and the desire to retain a key individual or group of employees, and the relative performance of a particular employee are all factors that influence a single pay rise. Furthermore, the information conveyed by a single pay shift, which may be affected by the aforementioned external variables, reveals more about an employee's worth to the company than the information offered by a pay level over time (Wayne, 1992). Compensation is also an important aspect of every company's human resources function. It's a dynamic profession that's also a labyrinth of complexities.

CHRONIC KIDNEY DISEASE PREDICTIONS USING MACHINE LEARNING MODELS

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ABSTRACT

When it comes to clinical disorders, chronic kidney disease (CKD) is an umbrella term that refers to a wide range of illnesses that deteriorate as kidney function degrades over time. It refers to a wide variety of medical conditions. The term "chronic renal failure" is sometimes used to describe this illness in some circles. Various factors, including genetic abnormalities in the kidneys and systemic illnesses that damage the kidneys, can contribute to chronic kidney disease. Depending on the underlying reason, it might express itself in a variety of ways. Worldwide, the number of people suffering from chronic kidney disease (CKD) is growing year after year, according to the World Health Organization. As defined by the World Health Organization, chronic kidney disease (CKD) is a worldwide public health concern with an increasing incidence and a vast geographic reach that affects individuals all over the world. GFR rises in the presence of renal failure needing dialysis, and it is widely regarded to be the most reliable overall indicator of kidney function in the general population. Heart disease (including high blood pressure and anaemia) and a variety of metabolic problems, to mention a few, are among the additional risk factors for kidney failure. Because of a statistical approach known as 10-fold cross-validation, the algorithms of logistic regression, support vector machines, random forest, and gradient boosting have all been trained and tested on real-world data. According on the F1measure gathered by the classifier after training, the accuracy of the Gradient Boosting classifier is 99.1 percent correct. In addition, we discovered that haemoglobin has a bigger significance for both random forest and gradient boosting in the diagnosis of chronic renal sickness than was previously believed to be the case, which is in direct opposition to previous notions.

1. INTRODUCTION

Long-term kidney disease (CKD) is a serious public health concern that affects individuals all over the world, but it is most widespread in poor and middle-income nations. Chronic kidney disease is caused by a buildup of waste in the kidneys. Eventually, it is caused by a buildup of waste products in the kidneys, which leads to renal failure. As with renal failure, one of the characteristics of chronic kidney disease (CKD) is that the kidney does not function as expected and is unable to filter blood adequately, as is the situation with chronic kidney disease (CKD). Chronical kidney disease (CKD), also known as Chronic Kidney Disease (CKD), is a chronic

Automotive Chassis Frame Structural Analysis and Design Modification for Weight Reduction.

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Abstract:

Automobile chassis usually refers to the lower body of the vehicle and it is an important part of an automobile. The chassis serves as a frame work for supporting the body and different parts of the automobile. Also, it should be rigid enough to withstand the shock, twist, vibration and other stresses. Along with strength, an important consideration in chassis design is to have adequate bending stiffness for better handling characteristics. So, maximum stress, maximum equilateral stress and deflection are important criteria for the design of the chassis. In this present study work is performed towards the optimization of the automotive chassis with constraints of equivalent stress and deflection of chassis. Sensitivity analysis is carried out for thickness and height by keeping width constant. Structural systems like the chassis can be easily analyzed using the finite element techniques. So a proper finite element model of the chassis developed. FEA is done on the modeled chassis using the ANSYS Workbench. Initially structural analysis was carried out for old and optimized design. Optimized chassis have lower stresses and deflections. Modal analysis is carried out to find natural frequencies and mode shapes of the existing as well as modified chassis. It is observed that all the natural frequencies of optimized chassis were below 100 Hz, varying from 14 Hz to 27 Hz for first three mode shapes. Almost all of the truck chassis designs were based on these frequency ranges to avoid the resonance during the operating condition.

Introduction

Automotive chassis can be considered as the backbone of any vehicle. Chassis is tasked at holding all the essential components of the vehicle like engine, suspension, gearbox, braking system, propeller shaft, differential etc. To sustain various loads under different working conditions it should be robust in design. Moreover chassis should be stiff and strong enough to resist severe twisting and bending moments to which it is subjected to. It should be strong to withstand vibrations. The Automotive chassis has two main goals.

- Hold the weight of the components
- To rigidly fix the suspension components together when moving The first item is an easy design solution and is also the basis of the original chassis designs that were taken from horse drawn carriages. One of the most effective shapes for supporting point loads fixed at two ends is an I-Beam, a box tube, or a C-Beam. One beam on an either side, I or C beams can hold tremendous weight. Truck frames still use this construction as it is an easy and effective method of supporting heavy loads.

The chassis frame consists of side members attached with a series of cross members. Stress analysis using finite element method (FEM) can be used to locate the critical point which has the



Based on Load Maximum Capacity of Distributed Generation unit in Radial Power System

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Abstract

Distributed generation (DG) has been rising in distribution networks as a result of technological advancement, energy market liberalisation, and environmental concerns. DNOs get a number of requests each year for the installation of additional generators in their current networks. The distribution networks are expected to undergo a radical change as a result of this circumstance. In order to keep the power system stable and operational at all times, energy and service must be included in the system's overall structure. As part of this article, it was examined how DSM regulations may assist the growth of distributed generation in a particular distribution system, as well as the economic gains that utilities can get by using both distributed resources in tandem. Real-world distribution networks have been used to conduct simulations that demonstrate the impact of DSM intervention on the expansion of distributed generation (DG) and the resulting technical and economic advantages.

Key Words : Distributed Generation Unit, Radial Networks, Maximum Cost and Penalty Factor. Energy Savings, Environmental Issues and Demand Side Management.

Introduction

1.1 Distributed Generation (DG)

When a client or independent energy producer instals a power production technology at the distribution level of the electric grid, it is known as distributed generation. All on-site generating, such as solar systems serving a home or a cogeneration facility serving an office, is included in this category (Hoff.T., 2007). The definition offered intentionally omits information about the subject matter.

- Power rating and technological advancements are included in this category.
- Effects on the environment

- The area in which the goods will be delivered.

- The method of action

For example, deep and shallow connection costs, as well as protection features, are comparable for all forms of distributed generation. This allows for a more generic examination of numerous aspects.

The most important advantage of a distributed generating system is the guarantee of obtaining electricity from the utility even if your system is not operational. Renewable energy sources like solar and

Telescopic Boom for Mobile Cranes: Design and Analysis

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ABSTRACT

Here, the telescopic boom design, automatic boom extension rope system, and self-compensating rope mechanism are all explained. Finite element software was utilised to ensure that the boom models were accurate, using CAD to create them. Weak spots in the components that had been examined were filled with stiffener plates. To limit the risk of boom failure, two rope alternatives have been selected for this study that minimise human involvement in the extension process.

String Mechanism, Finite Element Analysis, and Telescopic Boom are all explored in this study.

INTRODUCTION

With the use of wire ropes, chains, and sheaves, cranes are able to raise and lower objects as well as carry them from one location to another. The pick and carry crane's telescoping boom assembly is its most critical component. Anywhere from three to 10 components may be used in this configuration. A crane with five boom sections and two rope control systems is involved in this project. Throughout the design and analysis, maximum loading circumstances were taken into consideration. It might be one of the following reasons:

- Access to a wider range of options
- Adjusting the rope may be done in two ways:
- Boom cross-sectional measures are shown in Figure 1.
- For the optimal weight/strength ratio, you may want to choose the right materials.
- Boom parts may be made in SolidWorks
- ANSYS software is used to simulate the boom components.
- Stiffener plates should be used in regions where research demonstrates they are essential.
- According to sectional failures, boom length is established.
- It's possible to categorise the assembly's components into the following:
- The album's opening song is titled Mother

Boom.

- There are two boom parts in the centre (3 in number)
- Suggestions for the 3rd section
- Rope mechanisms are utilised to stretch the booms.

Typically, the extensions are operated by separate levers. As a consequence, the weight of the booms is unevenly distributed among them. A hydraulic cylinder that could extend two booms at the same time was designed by J.L. Grove in 1968, which was subsequently modified for five booms in this study. Using a system of pulleys, drums, and a single piston, each boom segment may be moved in relation to the previous portion. It aids in the uniform distribution of the boom's weight. Having a separate hydraulic system for each boom is also superfluous. The first intermediate element will be pushed by the mother boom's hydraulic piston, and the rope tension will result in the movement of the other booms. Each boom travels a different distance depending on how far the hydraulic piston extends. Mechanics are shown through diagrams in Figure 1.



A Buck and Boost Based Grid Connected PV Inverter Maximizing Power Yield From Two PV Arrays in Mismatched Environmental Conditions

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Abstract:

To extract the maximum power from two serially connected subarrays, it is proposed in this paper that a single phase grid connected transformerless photovoltaic (PV) inverter, which can operate in either buck or boost mode and can extract the maximum power simultaneously from two serially connected subarrays while each subarray is subjected to a different environmental condition, be used. It is much less restrictive to employ a minimal number of serially connected solar PV modules to form a subarray when using an inverter that can operate in either buck or boost mode depending on the application since the inverter can operate in either mode depending on the application. It is as a result of this that the power yield from each subarray increases when each subarray is exposed to a different set of environmental variables. According to the design specifications, the topological configuration of the inverter and its control approach should be such that high-frequency components are not present in the common mode voltage, allowing the amplitude of the leakage current associated with the PV arrays to remain within a specified range of values. Additionally, a high degree of operating efficiency is achieved across the whole working range. Having completed a thorough analysis of the system, which eventually results in the development of a mathematical model of the system, it is assessed whether or not the project is practical by conducting extensive simulation studies. Extensive experimental experiments are required in order to demonstrate the accuracy of the design, and a 1.5 kW laboratory prototype is required.

Index Terms—Buck and Boost based photovoltaic (PV) inverter, grid connection, maximum power point (MPP), mismatched environmental condition, series connected module, single phase, transformer less.

INTRODUCTION

If you are designing a photovoltaic (PV) system, one of the most important considerations to make is making sure that individual PV modules in a solar-electric (PV) array perform to their maximum potential even when the modules are subjected to different environmental conditions as a result of differences in

insulation level and/or differences in operating temperature. An incompatibility between the operating parameters of the modules results in a significant reduction in the power produced by a solar-electric array. When there are a large number of PV modules connected in series in a solar PV array, dealing with the problem of mismatched environmental conditions



Review of medical image retrieval systems and future directions

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Abstract:

The goal of this study is to present an overview of online systems for content-based medical image retrieval, with a focus on the United States (CBIR). The authors of this study hope to identify the advantages and disadvantages of these systems, as well as approaches to improving the relevance of multi-modal (text and picture) information retrieval in the iMedline system, which is currently under development at the National Library of Medicine, by the end of the study (NLM). A total of seven medical information retrieval systems were investigated in this study, including Figuresearch, BioText, GoldMiner, Yale Image Finder, Yottalook, Image Retrieval for Medical Applications (IRMA), and iMedline. Figuresearch was the most popular system among participants. The systems were assessed in accordance with the system of gaps described in [1]. However, not all of these systems make advantage of the visual information supplied in biological literature in the form of figures and drawings, but a significant number of them do. All, on the other hand, make an attempt to extract image information from the full-text of the articles and to acquire figures and photos in response to a search query, which is a common practise. It is the purpose of iMedline to advance the state-of-the-art in multimodal information retrieval by merging image and text data in the calculation of relevance, a goal that has so far been accomplished. In this work, we discuss the shortcomings of current medical image retrieval systems, as well as future directions and next phases in the development of iMedline's context-based medical image retrieval system.

1. Introduction

In addition to online literature databases like PubMedCentral® [2] and BioMedCentral® [3], there is a wealth of biomedical information available, including case studies from patient records kept in electronic health

records (EHRs). The recovery of this information may be valuable to physicians, patients, and those who teach or study medical sciences since it may aid in better diagnosis, treatment planning, classroom



TIE INTERGRATION FOR EFFICIENT POWER MANAGEMENT BASED ON SOLAR.

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Abstract:

Today, solar energy is being used to power a diverse variety of commercial applications, including solar water heaters and pumps, as well as stand-alone solar-powered homes and buildings. Solar cells, which capture the massive quantity of energy emitted by the Sun, have the potential to be used to create electrical power. As a result, the demand for power in our country has hit an all-time high and is projected to continue to increase in the coming days. This project is mainly concerned with the conversion of excess solar energy into usable electricity in order to ease the issue of power shortage in the country in question. It is possible to convert solar energy into electricity and then connect it to the power grid in order to solve the issue of power shortage. It is possible to generate direct current voltage by using solar cells to gather solar energy, which is then utilised to generate direct current voltage. In order to convert this direct current voltage into alternating current voltage, an IGBT-based three phase six pulse inverter will be used. Filters are used to remove the higher order harmonics that are present in the output signal of the signal inverter, which might cause interference. With the help of a Phase Locked Loop (PLL) base control system, it is possible to sync the filtered alternating current voltage with the power grid power grid.

Keywords— Solar cells, Grid, Dc chopper, Phase Locked Loop.

INTRODUCTION

For this reason, and due to the fact that solar energy is such an important source of renewable energy, it is separated into two categories of technologies, which are distinguished by the manner in which they absorb, distribute, or convert solar energy into electricity. Although both passive and active solar technologies gather and distribute sunlight, active solar technologies transform the energy absorbed by the sun

into electrical current. In the case of solar energy, active solar technologies such as photovoltaic systems, concentrated solar power, and solar water are examples of renewable sources of energy. Most of the energy generated on the globe is derived from solar energy, which is available in many forms. Passive solar architecture entails orienting a building toward the Sun, selecting materials with adequate thermal

METHOD OF CO-PRECIPIATION FOR THE SYNTHESIS OF SILVER NANOPARTICLES

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ABSTRACT

Co-precipitation was used to create silver (Ag) nanoparticles with a diameter of less than 20 nm. The reaction was carried out using NaBH₄ as a reduction reagent. By changing the colour of the solution, we were able to validate the reduction process. By employing transmission electron microscopy, we were able to validate the nanoparticles' size and particle dispersion. With the use of a reduction reagent, the procedure is simple and the size may be precisely controlled. Co-precipitated silver nanoparticles were synthesised using transmission electron microscopy (TEM).

INTRODUCTION

The term "nanoparticle" refers to a particle whose diameter is less than one nanometer. Since of their distinct chemical and physical characteristics, nanoparticles are of interest to researchers because they are different from bulk materials[1]. Because of their small size and large surface area, the properties change. The characteristics of metallic nanoparticles alter as they become smaller, which has led to a wide range of applications in the fields of chemistry, medicine, and quantum confinement systems. Chemical and physical methods may be used to synthesise these metallic nanoparticles, including solvothermal synthesis, electrochemical synthesis, and microwave dielectric heating reduction. (6) and (7)

Silver (Ag) and gold (Au) have recently been shown to be effective cancer therapy metals. According to recent research [8], Anticancer activity against three human cancer cell lines U2OS osteosarcoma, MB231 breast cancer, and SW480 colon carcinoma may be developed and employed using PEGylated amino pyrimidines on gold and silver nanoparticle surfaces. Silver and gold nanoparticles have also been shown to target PEGylation in cancer cells and have a significant impact on inducing apoptosis in those cells. 8 and 9

The preparation and characterisation of silver nanoparticles utilising the co-precipitation technique will be the focus of this presentation. Transmission electron microscopy (TEM) was used to examine the specimens and determine their characteristics.

I. SAMPLE PREPARATION

Silver nitrate (AgNO₃), triply distilled water (H₂O), 1% tri-sodium citrate, and NaBH₄ were utilised in this study. Before usage, all solvents and compounds were distilled to ensure they were of synthesis quality. Co-precipitation was used to reduce silver nitrate to silver nanoparticles. There are reducing agents in this procedure, such as 1 per cent tri-sodium citrate and NaBH₄. A 90-mg AgNO₃ solution in 500mL of triply distilled H₂O was heated rapidly to boiling in a 1L flask. Ten millilitres of sodium citrate solution, 1%, was added to this solution. After 30 minutes of boiling, the reaction mixture was diluted to 420mL. Colour changes were seen in a series of reduction processes. Centrifuging the reaction mixture twice for 10 minutes at 10,000 rpm concentrated the AgNPs, which were then collected. All nanoparticles were maintained at room temperature in dark bottles and were normally utilised within a few months after being prepared. The characterization of several reduction reactions the solution's colour changes may be seen. All nanoparticles were maintained at room temperature in dark bottles and were normally utilised within a few months after being prepared.

II. RESULT AND DISCUSSION

Reduction processes marked by colour changes are illustrated in the articles [10-12]. As the reaction continued, the solution's colour changed from translucent liquid to a yellowish hue in our sample preparations. A colloidal solution of silver was prepared, and the nanoparticles were then centrifuged at 10000 rpm and kept in dark vials.

We may infer that the reaction was carried out effectively and that the intended product was created based on the colour change seen in the reaction.

