ESTIMATION OF FLEXURAL STRENGTH ASSESSMENT OF ULTRA-HIGH STRENGTH CONCRETE USING ARTIFICIAL INTELLIGENCE

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Abstract: The development of novel approaches, such as supervised machine learning algorithms that can quickly determine the mechanical characteristics of fiber-reinforced concrete, has been the focus of research. The objective of this study is to predict the flexural strength (FS) of steel fiber-reinforced concrete (SFRC) utilising computational techniques necessary for efficient and rapid examination. To do this, a database containing the SFRC flexural data was compiled from literature research. To forecast the 28-day flexural strength of steel fiber-reinforced concrete, three ensembled models using machine learning techniques—Gradient Boosting (GB), Random Forest (RF), and Extreme Gradient Boosting (XGB)—were taken into consideration. Utilising the coefficient of determination (R2), statistical analysis, and k-fold cross-validation, the effectiveness of each approach was evaluated. To examine how different variables affected the ability to anticipate outcomes, a sensitivity method was also applied. According to the investigation, the GB and RF models performed admirably, and the XGB method was within acceptable bounds. With an R2 of 0.96, Gradient Boosting outperformed Extreme Gradient Boosting (XGB) and Random Forest (RF), which had R2 values of 0.94 and 0.86, respectively. Additionally, based on lowered error levels, statistical and k-fold cross-validation tests supported that Gradient Boosting was the top performance, followed by Random Forest (RF). Performance of the Extreme Gradient Boosting model was good. These ensemble machine learning techniques, especially for fiber-reinforced concrete, can help the construction industry by delivering quick and improved analyses of material characteristics.

Keywords: Concrete; steel fibre; concrete reinforced with steel fibre; flexural strength; mechanical properties; building materials

1 Introduction

According to earlier works of literature [1-6], the addition of steel fibres to concrete enhances its mechanical properties, including compressive strength, flexural strength, and tensile strength. This makes the concrete harder and more resistant to cracking. Flexural strength was much higher in steel fiber-reinforced concrete than in unreinforced concrete [7]. Investigations on the flexural behaviour of SFRC beams revealed that adding more steel fibre enhanced strength, toughness, and load-bearing capacity [8]. Concrete's lifespan and resistance to freezing were both improved by the inclusion of up to 15% steel fibres [9]. In terms of fibre volume fraction and curing time, the FS of SFRC was examined. It was shown that SFRC flexural toughness requires high-performance steel fibre and a high fibre volume percentage. Experimental research on the effects of fibre content and concrete strength on SFRC flexural behaviour was conducted [11].High-strength SFRC's toughness was increased by adding steel fibre and silica fume [12]. The flexural response of SFRC beams was studied analytically, and experimental findings were presented. The results showed that the increased steel fibre volume improved post-peak ductility, deflection capacity, and flexural strength [13]. Concerning the amount of steel fibres and the coarseness of the particle size, the mechanical properties of high-strength concrete were investigated. The findings

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EVALUATION OF DURABILITY PROPERTIES OF FIBRE REINFORCED SELF COMPACTING CONCRETE

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Abstract: This study examines the combined impact of silica fume, fly ash, and polypropylene fibres on the properties of normal strength self-compacting concrete (NSSCC). The preparation of NSSCC using various PPF and class C FA combinations is suggested as a partial cement substitute. By adding SF at 10% and PPF at 0.5%, 1%, and 1.5% by mass of Portland cement, NSSCC was created. The binding strength of PPF improves the cohesion and adhesion qualities of concrete as well as its tightness and deformability. These fibres stop the development of pores in the concrete matrix and stop cracks from forming and propagating through the matrix. Following NT Build 492, the chloride migration coefficient was calculated. As the amount of fly ash in concrete increases, the mass diffusivity of chloride ions decreases. Results show that fiber-reinforced concrete is more durable than other techniques.

Keywords: self-compacting concrete (SCC); poly propylene fibres; durability of SCC; chloride migration test; chloride attack

1. Introduction

Self-compacting concrete (SCC) rose to prominence in recent years as the most cutting-edge type of concrete. The superplasticizer and material mixing ratios are the only differences between SCC and regular concrete. The SCC is a type of revolutionary concrete that is renowned for its ability to self-settlement in a building site without vibratory force. In other words, neither the placement nor the settling of SCC require the application of external (vibrating) force. SCC makes its journey appear fluid, allowing it to sink under its own weight. Self-compacting concrete (SCC) is highly sought after because to its increased cost effectiveness, resilience, and reputation as a concrete with exceptional performance [1]. SCC differs from other forms of concrete in numerous ways thanks to its various benefits. It fills the entire structure slowly because of its outstanding deformability. It quickly penetrates through reinforcements and has a uniform dispersion of aggregate particles throughout [2]. The fact that SCC is fragile under tensile load is one of its

AN INVESTIGATION OF THE BIO-MEDICAL WASTE ASH ON CEMENT MORTAT BRICKS

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Abstract: The use of Personal Protective Equipment (PPE), in particular face masks, due to COVID-19 pandemic, has become a common tool used in averting the spread of the virus. The problem of disposing and managing solid waste materials in all countries has become one of the foremost environmental, economical, and social issues. Incineration plants across the world, but the Bio-Medical Waste (BMW) has always been piled in the environment. This paper presents the influence of Bio-Medical Waste ash as fine aggregate replacement on the strength of cement mortar. A control cement mortar mix for 1:4 ratio was made and three cement mortar mixes were made with three different percentages (15%, 25% and 35%). Compressive strength of the Bio-Medical Waste ash for 15% and 25% replacement has shown good results while 35% replacement strength reduced. After paralleling all the experimental test results 15% replacement level is taken as the optimized percentage

Key words: Incineration, Bio-Medical Waste, Face mask, Cement, Compressive strength

Introduction

Due to COVID-19 pandemic, individuals have started wearing surgical masks in order to take protective measures, which has radically increased the amount of waste created. While masks and other protective items have been vivacious in fight against COVID- 19, they can have incredibly detrimental impact on the environment. Single-use face masks are prepared from a variety of melt blown plastics and problematic to recycle due to both composition and risk of contamination and infection. Plastic masks can take hundreds of years to collapse. The use of Personal Protective Equipment (PPE), in particular face masks, has become a common tool used in averting the spread of the virus, with many jurisdictions instructing the wearing of masks in public. The production of PPE has expanded in an attempt to meet hit the roof demand, and PPE waste has also augmented dramatically. They enter oceans when they are littered, when waste management systems are insufficient or non-existent, or when these systems become overwhelmed due to increased volumes of waste.

The advancement of mask wearing as a way to slow the spread of corona virus has led to an extraordinary increase in the production of disposal masks: the UN trade body, UNCTAD, estimates that international sales will total some $166 billion this year, up from around $800 million in 2019. Recent media reports, screening videos and photos of divers picking up masks and gloves, littering the various waters around the French Riviera, were a wake-up call for many, refocusing minds on the plastic pollution issue, and a reminder the Government needs to address the problem of pollution. The problem of disposing and managing solid waste materials in all countries has become one of the foremost environmental, economical, and social issues. A complete waste management system counting source reduction, reuse, recycling, land-filling, and incineration needs to be implemented to control the increasing waste disposal problems. According to ministry of environment and forest about 4,05,703 Kg Bio-Medical Waste created every day in India out of

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STUDY OF THE EFFECT OF TRAFFIC VOLUME FOR INNER RING ROAD, ONGOLE, INDIA

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Abstract

Traffic volume studies are conducted to determine the number, movements, and classifications of roadway vehicles at a given location. These data can help identify critical flow time periods, determine the influence of large vehicles or pedestrians on vehicular traffic flow, or document traffic volume trends. In order to achieve some of these goals, a Traffic Volume Survey had been conducted for Inner Ring Road, Ongole, India. Data collected from the survey has been analyzed to get required information regarding Average Daily Traffic, Flow Fluctuation, Vehicle Composition, and Directional Distribution etc., which helps to make some educated guess on characteristics of the existing condition of the road and to recommend some measures to promote the level of service of the road.

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EB Performance of OPC Mortars Partially Replaced by Kadapa Slab, Marble and Baritespowder against Chemical Impact

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Abstract. Construction industry uses Cement vividly to meet the demand towards infrastructure development. The type of cement paste formed during reaction of cement with water to produce durable products is very important to sustain in chemical environments. Several industrial by-products produced can be conveniently replaced in concrete to meet such needs of the contruction industry. Stone dust or powder is available in Kadapa slab, marble and barite industries. To improve the serviceability and sustainability against chemical environment, cement is partially replaced by various fractions of powders, barites(15%), marble(15%) and Kadapa slab(10%). Investigations have been made on the performance of cement mortar submerged in, sulfuric acid (H_2SO_4), hydrochloric acid(HCL), Potassium Hydroxide(KOH) and Sodium Hydroxide(NaOH) solutions. All the cement mixes were cured in these solutions for 56 days and determined their compressive strength and density along with conventional cement mortar for comparison. The cement mortar made with 15% replacement by barites powder in cement attained better compressive strength and density in comparison with other cement replacement materials. Also cement mortar offers high resistance against hydrochloric acid (HCL) impact in comparison with the impact of other chemicals.

Keywords- Cement Mortar(CM), Chemical Resistance(CR), Compressive strength(CS), Barites powder(BP), marble powder(MP) and Kadapa slab powder(KSP)

INTRODUCTION

Though the cement is proved to be considerable and leading construction materials, since concrete is strong in exhibiting mechanical as well as the durability properties. Day by day the raw materials for cement manufacturing were becoming absolete, so now its time to think about sustainable construction materials. Though wide research is carried out on different materials like flyash, GGBS and different slags etc,. In the current research, since the author belongs to Southern India-Kadapa district of Andhra Pradesh State where locally available materials such as Barites powder, Marble powder and Kadapa Slab powder i.e., residues during crushing and polishing of these stones are considered in the research without compromising in its size less than 90microns. Though much research is focused even on durability and mechanical properties of these materials. But comparative chemical resistance is not observed yet, hence the current research is concentrated on this comparative CR on CM is carried out. Initially, conventional CM cubes were casted and kept as origin for all the other proportions. Then from the literature review it is observed that at 15% replacement of these mentioned materials in cement has attained optimum strength. Therrefore 15% replacement of materials, MP and BP and 10% replacement of KSP in cement is maintained in CM. The CM with these materials were casted into moulds and cured in potable water for 28 days and the other 28 days in chemical solution with PH values of 2 for acids (HCL & H_2SO_4) and 12 for bases(NaOH & KOH). Then the CR is observed in terms of compressive strength and density after 56 days.

LITERATURE

Singh[1] et al(2017) referred that 15 percent of marble powder shows increased compressive strength as well as bond strength. Sandeep[2] et al (2022) outlined that marble powder can be used as replacement for both cement and lime aggregate over which appreciable compressive strength and tensile strength were achived. Wheras **FA Memon**[3] **et al (2017)** presented that replacement of marble dust with cement by 15% has optimum strength and increase in marble dust leads to reduction in workability. **Meenakshi**[4] **(2017)** revealed that 15% replacement of barite has appreciable increase in strength characteristics of concrete. At the same time, replacement of cement b y partial replacement of barites and lime powder is not appreciable. **Harinath**[5] **et al (2016)** outlined that

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PERFORMANCE EVALUATION OF SPECIAL CONCRETE WITH STEEL SLAG AND WASTE GLASS

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ABSTRACT

In this work, tests on concrete built from waste glass and steel slag are presented. Both lightweight aggregate concrete and concrete with limestone aggregate underwent reference testing. Slump, density, elastic modulus, compressive strength, and flexural strength were used to analyse the material characteristics of various kinds of concrete. To examine the impact of aggregate type on the fire performance, fire tests on plain concrete columns with a diameter of 250 mm and a height of 800 mm were carried out. The study's findings show that it is possible to use steel slag and/or waste glass in place of all coarse aggregate or a portion of fine aggregate. Concrete made from steel slag may be made more workable and less dense by adding waste glass. The compressive strength, flexural strength, and elastic modulus of the steel slag concrete were equivalent to or even greater than those of the control limestone aggregate concrete. Only a slight effect on the mechanical qualities of concrete was noticed when coarse aggregate was substituted by up to 17.5% waste glass. Steel slag and waste glass have shown the capacity to increase the fire resistance of concrete due to their superior thermal and/or mechanical qualities.

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Numerical Analysis and field behaviour of stone columns - strengthened soft clay deposit using PLAXIS 2D

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ABSTRACT: The field behaviour of a soft foundation with stone columns reinforcement at a coal and ore stockyard was detailed in this research, and the results were compared using numerical analysis. Along a 500-operational day period, the performance of a 130 m wide segment with two ore stacks was documented. An elaborate instrumentation system with 14 sensors was employed to track the stabilised area's serviceability behaviour. Using the PLAXIS 2D finite element code, a complementary numerical analysis was carried out in order to properly represent the increase in lateral earth pressure brought on by the placement of columns. The stone columns were transformed into comparable walls for the sake of the numerical analysis, which was conducted using a plane strain technique. The proposed plane strain model was able to accurately forecast the overall deformations of the reinforced foundation, according to the results. The behaviour of the simulated excess pore pressure curves was likewise consistent with the field data, with a peak value at the time of loading application and a slow decline during the consolidation phases.

KEYWORDS: Soil improvement; stone column; field test; soft soil; field instrumentation; in-situ testing; numerical analysis.

1. Introduction

Construction on soft soils is never simple because of the deposits' extreme compressibility and limited bearing capacity. One of the most adaptable and frequently used techniques for reducing and accelerating settlement, increasing load-bearing capacity, reducing horizontal deformations, and improving overall stability of embankments over soft soil deposits is the use

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Research Article

Dynamic Behavior and Stability Analysis of Automatic Voltage Regulator with Parameter Uncertainty

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This research article describes a novel optimization technique called simulink design optimization (SDO) to compute the optimal PID coefficients for an automatic voltage regulator (AVR). The time-domain performance of the proposed controller was analyzed using MATLAB/Simulation, and its performance was compared with that of water cycle algorithm, genetic algorithm, and local unimodal sampling algorithm-based PID controllers. The robustness of the proposed controller was verified by applying the disturbances to the generator field voltage and the amplifier parameter uncertainty. The studies presented in literature were discussed the AVR loop stability using the Bode plot which will not give the minimum stability margins. This study proposes a novel stability analysis called disk-based stability analysis to authenticate the stability of the AVR loop which is obtained by the classical analysis. This stability was compared with the proposed stability analysis. The MATLAB results reveal that the SDO-PID controller regulates the terminal voltage of the generator precisely, is more robust to parameter uncertainty, and is more stable than the other controllers. The maximum allowable parameter uncertainty of the amplifier model was identified as 102% of its nominal parameters. The stability margins are recognized as DGM = 10.40 dB and DPM = 56.50° for the AVR stability.

1. Introduction

Maintaining the power-grid voltage profile is a significant challenge for power engineers. When the grid terminal voltage profile deviates from its idle characteristics, it leads to large variations in the power grid dynamics, and the electrical apparatus, which depends on the power grid, may drop rapidly [1, 2]. In addition, the reactive power consumed by the load was greater than the active power consumption. This can be mitigated by incorporating an AVR into the power grid. The key role of the AVR is to keep the grid terminal voltage as constant, but the AVR does not perform this task alone and requires a PI/PID controller for effective control of the grid terminal voltage [3, 4].

Tuning the PID coefficients is a significant challenge for plant engineers and researchers. Although different control

Voltage Profile Enhancement and Loss Minimization Using Incremental Analysis for Optimal Placement and Sizing of Distributed Generation in Reconfigured Network

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ABSTRACT: Today, power consumption is increasing further because of this distribution systems face many challenges. In order to ensure the continuity and reliability of service for customers, electricity companies are obliged to develop and operate distribution networks efficiently. When high currents pass through the distribution networks with low voltage levels, this increases power losses and voltage instability. To resolve the above issues, consider reconfiguring the network and integrating distributed generation units into the distribution network. On this detail, the optimal placement and dimensioning of DGs are crucial. Otherwise, network performance will deteriorate. The problem of distributed generator (DG units) placement for power loss reduction in distribution systems is investigated in this thesis using Incremental Analysis (IA) method and Particle Swarm Optimization (PSO) method. IA method is based on IA expressions to calculate the optimal size of four different DG types and a methodology to identify the best location for DG allocation. In PSO method, a two-stage methodology is used for placement and sizing of DG units. In both IA and PSO methods a DG injecting only Real power (P) is considered in this paper and are tested on IEEE 15 bus and IEEE 69 bus test systems. Voltage profile graphs are also plotted for both methods. Results shows that IA method is effective when compared to PSO method.

Keywords: DG, Optimal Placement, Incremental Analysis , Particle Swarm Optimization.

I.   INTRODUCTION

1.1 Particle Swarm Optimization

PSO is one of the optimization techniques are used to minimize or maximize the objective function such as to solve the problem in power system. PSO algorithm is considered as one of the modern heuristic algorithms for optimization developed by Kennedy and Eberhart in 1995, based on the swarm social behaviour of birds flocking and fish schooling in nature where that's have their own viewpoint to find food and eventually move only in one direction only for move to the best food in groups. In PSO, swarm means population; particle represents each member of the population. Each particle searches through the entire space by randomly moving in different directions and remembers the previous best solutions of that particle and also positions of its neighbour particles. Particles of a swarm adjust their position and velocity dynamically by communicating best positions of all the particles with each other. In this way, finally all particles in the swarm try to move towards better positions until the swarm reaches an optimal solution. Thus, due to its easy implementation and its ability to

Research   Article

Optimal Generation and Transmission Loss Allocation for Outage and non -OutageConditions Using Lightning Search Algorithm - Particle Swarm Optimization

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Abstract

Deregulation of the Energy sector is primarily intended to lower power costs to all consumers, in the presence of competition, the power sector would be compelled to improve its efficiency while simultaneously reducing losses and the economic generation cost are the most important problemsin the power system operations, while meeting the load demand at minimum total fuel cost, andaccounting for various unit and system constraints. All the users of the transmission facilities(generators and loads) should pay for the network usage of the system following an efficient transmission pricing mechanism that is able to recover cost of transmission loss and allocatethem to transmission network users in a proper way. This results in economic power generationin all the units. For acquiring the optimal cost, a cascaded algorithm combining Lightning Search Algorithm (LSA) and Particle Swarm Optimization (PSO) is utilized. The cost values obtained for the proposed scheme of transmission loss allocation are validated with the existing system (outage and non-outage conditions). The proposed worked is carried on IEEE 30-bus system.

Keywords:- *Lightning Search Algorithm, Particle Swarm, Economic Power Generation Optimization and Transmission Loss Allocation(TLA).*

1. INTRODUCTION
Up to the 1990's, the electric power sector was managed as a "regulated monopoly."

Voltage stability assessment using PMUs and STATCOM

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Article Info	ABSTRACT
	Since the previous few decades, researchers and utilities have been extremely concerned about voltage instability because to the numerous instances of system blackouts caused by voltage instability that have been recorded in various regions of the world. With the development of synchro phasor technology, it appears conceivable to track and manage the system's voltage stability in real time. This study suggests using phasor measuring units (PMUs) placed strategically to monitor voltage stability margin online and to regulate it using a static synchronous compensator (STATCOM). According to the minimum reactive and real power loanability for the most of the line outages, STATCOM has been installed at the critical bus. Based on the difference between the bus voltage and its reference value, STATCOM supplies reactive power into the bus. PMU measurements are used to determine bus voltages at regular intervals, and reactive power is then added to the bus online as necessary. The increased voltage stability margin brought on by STATCOM injecting reactive power is continuously checked. Based on simulations performed on the IEEE 14-bus system and the New England 39-bus system, the effectiveness of the suggested approach for online monitoring and management of voltage stability margin (VSM) has been proven.

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1. INTRODUCTION

Voltage stability maintenance is crucial for the safe operation of power systems. Voltage instability may cause unacceptable low voltages to develop in a sizable portion of the network, which could cause voltage collapse in a sizable area [1]. The system has been advised to use a number of control strategies to guard against voltage breakdown. Lack of reactive support is one of the main causes of voltage instability. Reactive power transmission is challenging, especially under pressure. Local reactive support at essential buses therefore appears to be a workable solution to voltage instability. The advent of flexible AC transmission system (FACTS) controllers, which can efficiently control voltage stability of the system, is the result of advancements in power electronics technology [2]. A shunt controller called static synchronous compensator (STATCOM), which is a member of the FACTS family, can increase the voltage stability margin by injecting reactive power into the bus. Given the high cost, it's crucial to deploy STATCOM at the best position. Voltage stability margin is typically improved by providing adequate reactive power assistance at the crucial bus or weakest bus of the system. For the placement of STATCOM, the L-index based technique to identify key buses has been taken into consideration [3], [4]. Since Tokyo's voltage collapse, the P-V and Q-V curves based approach has been frequently utilized to determine the best position and size for STATCOM [5], [6]. These methods demand a lot of time and space.

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Optimal Placement of PMUs in Smart Grid for Voltage Stability Monitoring using AMPSO and PSAT

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ABSTRACT- Efficient energy use is critical for a growing nation like India. The smart grid (SG) idea enables the creation of a highly dependable electricity system that optimizes existing resources. The Indian electricity grid as it now exists needs fundamental modifications to satisfy increasing demand and to make the system more intelligent and dependable. Since the past several decades, power system stability has been seen as a significant challenge to power system researchers and utilities. With a not many strategically placed Phasor Measurement Units (PMUs), it may be feasible to observe the power system stability of the network. This article suggests an optimum location for PMUs, considering the effect of power system stability-related serious situations. The disturbances have been prioritized according to their voltage stability boundary (the gap among the stand case working and nose points). Changes in the voltage stability tolerance due to shifting load conditions were also considered in the crucial contingency determination. PMUs were inserted in the system based on Adaptive Mutated Particle Swarm Optimization (AMPSO) findings for the intact system and crucial contingency scenarios on the basis of voltage stability. The effectiveness of the suggested PMUs placement strategy was determined by examining nose curves produced with PMUs data and pseudo-observations under increasing demands to nose curves calculated offline using continuation power flow data. Using the software tool Power-System Analysis Toolbox (PSAT), case studies were conducted on a conventional IEEE14 bus system and a realistic 246 bus Indian Power Grid system.

Keywords: Optimal PMUs placement, Voltage stability, Contingencies, Adaptive Mutated Particle Swarm Optimization, Observability.

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1. INTRODUCTION

Reliable electric power is a prerequisite for every country's growth. Around 75% of India's electrical energy is produced by thermal power plants, which significantly affects the environment and contributes to global warming [1, 2]. Additionally, decreasing fossil fuel reserves will be unable to meet the growing need for electricity in the near future. By integrating the idea of the smart grid (SG), it is possible to improve resource usage and incorporate alternative energy resources (solar, wind, etc.) into the power network [2, 3]. The observability requirement ensures the utilization of current, power, and voltage flow data for all buses in the smart grid. With the development of phasor technology, researchers have emphasized its use in monitoring and controlling power system stability. Phasor readings made using Phasor Measurement Units (PMUs) may be used to address a variety of power system

network problems [4]. PMU technology has a long history of monitoring, regulating, and safeguarding power systems [5].

Cost and other constraints prohibit the majority of utilities from deploying PMUs on all network buses. Thus, the optimum position for PMUs may be determined by considering a variety of factors such as network transient stability, vulnerability, observability, and voltage stability. The method based on network observability may use either topological or numerical observability [6]. Numerical observability methods use a gain matrix for jacobian measurement that represents the measurement set and system setup. Several techniques that take numerical observability into account include those that use simulated annealing [7], Tabu search [8], and Genetic Algorithm [9]. The location of PMUs using numerical observability has been studied in light of dynamic susceptibility [10], transitory stability [11], consistency [12], and estimation of state [13]. A semi definite programming method based on arithmetical observability has been explored for the optimum placement of PMUs, taking into account the presence of zero-injections, conventional measurements, and the effect of the PMU ports limit [14].

Arithmetic observability-based techniques are loaded costly due to the massive matrix operations required, and in the event of bulk power system networks, the measured matrices may become ill-conditioned. Methods based on topographical observability take graph theoretic features of power system networks into account. The location of PMUs only considered on topological considerations [15-17] may be insufficient to

Design And Development Of An Automated Writing Machine

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ABSTRACT:-
        The changes in the recent industry trends have given rise to a technological evolution, which is leading to the development of Industry 4.0 with highly automated industries through human-machine interaction. As the process gets more complex and cumbersome, automation becomes more vital for the growth and efficiency of a system. Automated machines are more accurate, versatile and and timely and reduce the probability of error significantly. In recent years, numerous systems were proposed to operate as a writing machine that can give output in predefined fonts. The system proposed in this paper deals with recognizing the text in the document and then giving the output in the user's font. Using this method Additionally, the weight of the entire system is made relatively lower than the other commercially available writing machine.

I.   INTRODUCTION

As the world is entering the dawn of a new era, manufacturing is undergoing an evolution, which has been termed Industry 4.0 or Smart Manufacturing. The speed with which industries are moving towards digital technologies like industrial robotics, 3D printing, machine learning, optical character recognition, cloud computing, augmented reality and sensors can make

the Industry 4.0 revolution more realistic.

The human race is turning to robots to do the work and reduce human effort. In this society which is undergoing rapid change, time and manpower are the major critical constraints in the completion of any tasks on large scales and with efficiency. Therefore automation is playing a significant role in saving a lot of human efforts in most of the regularly carried out works like welding, painting, assembly, container filling, writing, etc. As far as writing is concerned, the time and effort taken in typing the keys on a keyboard which is time-consuming and requires a lot of skills and human effort can be avoided with the help of automation.

Some technologies such as automated voice-to-text converters are used to write only the inbuilt fonts like Roman, Calibri, Arial, Impact, Georgia, etc. The paper aims to design and develop a system that is capable of writing on a page with the help of a pen in the user's specific handwriting

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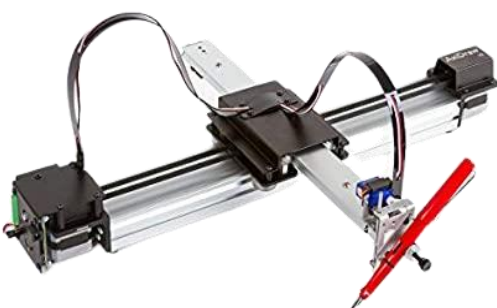
THREE PHASE CASCADE H-BRIDGE MULTILEVEL INVERTER CONTROL OF GRID FREQUENCY BASED PHOTOVOLTAIC SYSTEM

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Abstract:

In this paper another medium voltage staggered multistring configuration is presented in light of a three-phase cascade H-bridge (CHB) converter and various string dc converters. The proposed configuration empowers a huge increment of the complete limit of the PV framework, while further developing power quality and efficiency. The converter structure is very flexible and particular since it decouples the lattice converter from the PV string converter, which permits to achieve free control objectives. The fundamental test of the proposed configuration is to deal with the intrinsic power awkward nature that happen not just between the various cells of one period of the converter yet in addition between the three stages. The control technique to manage these consequences is likewise presented in this paper. Recreation consequences of a cascade H-bridge (seven level) for a multistring PV framework are introduced to approve the proposed geography and control strategy.

Keywords — **Inverters, frequency control, voltage control, THD, MPPT control, PV system.**

I.   INTRODUCTION:

To tackle worldwide energy emergency and natural issues, sustainable power sources, particularly photovoltaic (PV) age has been grown quickly during last many years. With the expanded PV age infiltration into the power framework, the extent of regular simultaneous generators has been diminished emphatically. This prompts the debilitated power framework reaction to control vacillations and framework flaws, carrying expected dangers to the matrix security. What's more, PV cells generally work at most extreme power point following (MPPT) mode. At the point when the network recurrence drops, their result dynamic power can't be expanded to execute the recurrence reaction control. To resolve the previously mentioned issue, lattice recurrence support from the PV age framework has joined wide consideration.

IOT BASED SMART BLOOD BANK SERVICES FOR HEALTHCARE APPLICATIONS

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ABSTRACT:

In order to guarantee reliable and safe blood transfusions, blood banks need to be properly managed. Blood bank management traditionally relies on manual techniques, which can result in errors and inefficiencies. An innovative system incorporating temperature and IR sensors within blood bank racks is proposed to address these challenges. Additionally, an Arduino interface is included to facilitate blood donation requests through GSM. Moreover, a Wi-Fi module allows for real-time data transmission to a central server, and a web-based display shows the status of blood stocks. In order to improve accuracy, reliability, and efficiency in blood bank management, this system automates and streamlines blood bank management. The care of patients will be enhanced as a result.

INTRODUCTION:

A blood bank's management of blood bags received from blood donation events must be systematic and efficient. It is important to handle and treat blood bags carefully, since blood is a vital component of a person's life. Different components of the blood have specific functions, and every component has its own characteristics. India has an average of two blood transfusions every two seconds, according to statistics. Individuals experiencing trauma, including victims of accidents or burns, patients undergoing cardiac surgery, recipients of organ transplants, and premature new borns, as well as those undergoing therapeutic interventions for conditions such as cancer, leukaemia, sickle cell disease, and thalassemia. In relation to its blood needs, India is currently experiencing a 10% shortage of blood. This means that we must cover more than 12 lakh blood shortages. A lack of donors in India is surprising since the country's eligible donor population exceeds 512 million.

Every minute, a vehicle collision happens in India, resulting in terrifying trauma situations. Every year, around 60 million operations are conducted in the country as a consequence of trauma. In addition, 230 million major surgeries are performed, and 331 million cancer-related procedures are performed. Blood units for various medical procedures are in short supply in India due to the waste of more than 10 million litres of blood every day. In order to address this critical issue, it is imperative that advanced technologies are deployed for efficient management of blood banks. It is crucial to have a blood bank management system in place in times of emergency so that the blood search process can be simplified and automated. Also, accurate blood stock records can be maintained with it. By reducing wastage, optimizing blood utilization, and providing better access to blood units for patients in need, such systems can reduce the need for blood units. In order to ensure safe and timely access to blood transfusions in India, it is essential to develop efficient and innovative management systems for blood banks.

EXISTING SYSTEM:

Blood supply status and refrigerator temperature are closely monitored by an embedded system inside the blood bank. Service and administration domains are included in the proposed system. An Arduino Mega with a Wi-Fi module serves as a gateway for the blood bank's service domain along with IR sensors and temperature sensors. Information about the blood bank is processed and analyzed

ADVANCED METAHEURISTIC ALGORITHMS FOR OPTIMIZATION OF MULTI OBJECTIVE OPTIMIZATION PROBLEM IN POWER SYSTEM

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ABSTRACT

The goal of this study is to propose an innovative approach to optimize power systems with heightened voltage stability limits by integrating a Unified Power Flow Controller (UPFC). The optimization is carried out using two meta-heuristic algorithms, namely the Firefly Algorithm (FA) and the Symbiotic Organisms Search (SOS) Algorithm. This methodology aims to find optimal control settings for UPFC devices to simultaneously reduce active power loss and enhance voltage stability. Simulations of 14 IEEE bus test systems are used to evaluate the approach's effectiveness. Both objectives were improved over conventional methods by the results.

1. INTRODUCTION

With the increase in system loading, there is an increase in the power flows that result in lower voltage profiles and increase in losses in the system [1]. A loss of active power on the transmission system results in a loss of revenue. Even a modest amount of loss reduction would be welcome since most of the power is generated at the scale of thousands of Megawatts. Voltage instability in the system is caused by low voltage levels at any bus. Low voltage stability limits or loading points result from insufficient wattless power. Researchers, power system planners, and operators are increasingly interested in optimizing both active power and voltage stability limits to prevent active power loss.

This problem involves finding the most suitable voltage-secure active power loss minimization solution incorporating FACTS components, which is both a nonlinear and non-convex optimization problem. An important and well-known tool for power system optimization is optimal power flow (OPF). The OPF problem has been researched from a variety of angles, including electrical power flow stability and voltage stability. The system should be rearranged to reduce costs, and VARs like taps, shunts, and other contemporary sources should be used to compensate for active power loss [2]. The Newton-based programming approach [3], the approach known as linear programming [4], and more recently, the interior point method [5] are only a few of the well-established methods for addressing the OPF issue that are mentioned in the literature. There is usually only one objective, which is to reduce RPL. Traditional optimisation methods cannot handle sophisticated non convex, non-smooth, and non-differentiable objectives and constraints. Evolutionary algorithms, such as the PSO algorithm [6], TSA algorithm [7], DE algorithm [8], and GS algorithm [9], have been used to address various OPF issues to overcome conventional approaches' limitations. To achieve the goals of lowering generation costs and active power losses, minimising voltage deviations, and enhancing voltage stability, these optimisation algorithms take into account transformer taps, active power production, and shunt capacitors as control variables.

FACTS technology can enhance the performance of existing transmission systems in addition to adjusting power flow and voltage magnitude [10]. A wide range of FACTS devices have been used in OPF problem formulation to improve PS stability in various ways [11]. UPFCs, or unified power flow controllers, are among the most widely used FACTS controllers that provide control flexibility in OPF through series and shunt compensation [12]. The optimal UPFC is a hybrid FACTS device that combines Phase Shifting Transformers (PSTs) and Minor Scale Ratings of UPFCs found in the

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Concurrent Scheduling of Machines and AGVS in Multi-Machine FMS with Alternative Routing Using Symbiotic Organisms Search Algorithm

N. Sivarami Reddy ✉, M. Padma Lalitha, D. V. Ramamurthy, and K. Prahlada Rao

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Abstract

This paper addresses machines and automated guided vehicles (AGVs) simultaneous scheduling with alternative machines in a multi-machine flexible manufacturing system (FMS) to produce the best optimal sequences for the minimization of makespan (MKSN). This problem is highly complex to solve because it involves the selection of machines for job operations (jb-ons), the sequencing of jb-ons on the machines, the assignment of AGVs, and associated trips such as AGVs' deadheaded trip and loaded trip times to jb-ons. This paper offers a nonlinear mixed integer programming (MIP) formulation for modeling the problem and the symbiotic organisms search algorithm (SOSA) for solving the problem. For verification, a manufacturing company's industrial problem is employed. The results show that SOSA outperforms the existing methods and the Jaya algorithm, and using alternate machines for the operations can reduce the MKSN.

History

Keywords

Simultaneous Scheduling of Machines and Tools in a Multi-Machine FMS with Alternate Machines Using Crow Search Algorithm

N. Sivarami Reddy ✉, M. Padma Lalitha, D. V. Ramamurthy, and K. Prahlada Rao

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Abstract

Scheduling jobs and tools is a significant problem for manufacturing systems. Inefficient job scheduling and tool loading planning may result in under utilization of capital intensive machines and a high level of machine idle time. Therefore, efficient scheduling of jobs and tools enables a manufacturing system to increase machines' utilization and decrease their idle times. This paper addresses machines' and tools' joint scheduling with alternate machines in a multimachine flexible manufacturing system (FMS) to minimize makespan (MSN). Only one copy of each type of tool is made available in FMS where tools are expensive. The tools are stored in the central tool magazine (CTM), which shares and serves them to several machines in order to reduce the cost of duplicating the tools in every machine. The problem is to select machines from alternate machines for job-operations, allocation of tools to the job-operations and job-operations' sequencing on machines for MSN minimization. This paper presents nonlinear mixed integer programming (MIP) formulation to model this simultaneous scheduling problem and crow search
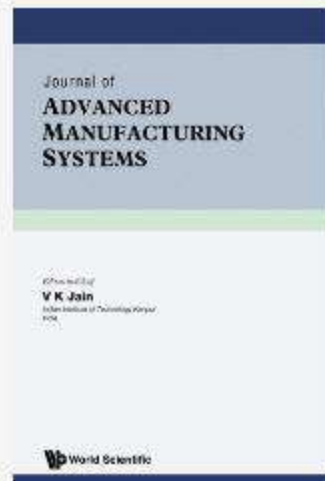
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Parallel Scheduling of Machines, Tool Transporter and Tools in a Multi Machine FMS with Alternative Routing Using Flower Pollination Algorithm

N. Sivarami Reddy, M. Padma Lalitha, D. V. Ramamurthy, and K. Prahlada Rao

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History

Keywords

Abstract

Scheduling jobs and tools is a significant problem for manufacturing systems. Inefficient job scheduling and tool loading planning may result in the underutilization of capital-intensive machines and a high machine idle time. Tools are transferred by a tool transporter (TT) between machines. Therefore, efficient scheduling of jobs, TT, and the tools with alternate machines enables a manufacturing system to increase machines' utilization and decrease their idle times. This paper addresses machines, TT, and tools concurrent scheduling with alternate machines and only one copy of every tool variety is made available where the tools are costly, in a multi-machine flexible manufacturing system, taking into account tool transfer times for makespan (MS) minimization. The tools are placed in a central tool magazine, which shares and serves them to many machines to cut down the price of duplicating the tools in each machine. The problem is to assign machines from alternate machines, tools, and corresponding TT trips, including the deadheading trip and loaded trip, to job operations for MS minimization. This paper uses a nonlinear mixed-integer programming framework to present the problem, and a flower pollination algorithm (FPA) is employed to solve it. The results show that FPA outperforms the Java algorithm, and the usage of alternate machines for the operations reduces the MS. Reduction in MS

Design Optimization of Counter-Flow Double-Pipe Heat Exchanger Using Hybrid Optimization Algorithm

B. Venkatesh [1], Mudassir Khan [2], Bayan Alabduallah [3,*], Ajmeera Kiran [4], J. Chinna Babu [5], B. Bhargavi [6] and Fatimah Alhayan [3]

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Abstract: Double-pipe counter-flow heat exchangers are considered more suitable for heat recovery in the heat transfer industry. Numerous studies have been conducted to develop static tools for optimizing operating parameters of heat exchangers. Using this study, an improved heat exchanger system will be developed. This is frequently used to solve optimization problems and find optimal solutions. The Taguchi method determines the critical factor affecting a specific performance parameter of the heat exchanger by identifying the significant level of the factor affecting that parameter. Gray relational analysis was adopted to determine the gray relational grade to represent the multi-factor optimization model, and the heat exchanger gray relation coefficient target values that were predicted have been achieved using ANN with a back propagation model with the Levenberg–Marquardt drive algorithm. The genetic algorithm improved the accuracy of the gray relational grade by assigning gray relational coefficient values as input to the developed effective parameter. This study also demonstrated significant differences between experimental and estimated values. According to the results, selecting the parameters yielded optimal heat exchanger performance. Using a genetic algorithm to solve a double-pipe heat exchanger with counterflow can produce the most efficient heat exchanger.

Keywords: double-pipe heat exchanger; genetic algorithm; gray

1. Introduction

Global urbanization and a growing population have increased the demand for energy. Oil, gas, coal, etc., are fossil fuels, and their use has a negative impact on the environment. As a result, energy-saving strategies and renewable energy sources have been employed in order to address this problem [1]. As a result, an effective thermal system is being developed to reduce energy consumption. It is widely recognized that heat exchangers are essential components in a variety of industries, including electric, petroleum, electronics, chemical, and aerospace [2,3].

The design of heat exchangers has evolved significantly over time as heavy and light machinery are used in different industries. The Tubular Exchanger Manufacturers Association (TEMA) has developed and adopted standards that specify the design, construction,

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Tensile Test on Friction Stir Welded AZ31B and AZ91B Magnesium Alloys

PDF (https://yanthrika.com/eja/index.php/ijvss/article/view/2588/1619)

M. Yugandhar

B. Devaraj Naik

Prabhakar Kammar

Abstract

Rare earth materials containing magnesium alloy AZ91B and AZ31B is finding widespread use in the automotive, aerospace and military industries due to its greater strength-to-weight ratio and formability. Magnesium is typically regarded as difficult to fuse together through material fusion procedures due to flaws found in welding inclusions, porosity and welded junction distortions. Friction stir welding solid state joining procedure is used for Mg joining alloys successfully. The process variables influencing the combined characteristics of weldments include tool pin geometry, downward axial force, tool welding speed (rpm). In the current research, five distinct tool types were used to create friction stir weldment geometries. There were 18 trials overall with 3 components and 8 stages run in accordance with the primary composite design matrix. The information produced by a mathematical model through response surface approach was sufficient for the developed ANOVA was used to verify the model. Large interaction between

*Developing of Hybrid composite of Al-6068 and Al-7075
by reinforcing TiO2/ BN by Stir Casting Process and finding
Mechanical and Wear Behavior of the Hybrid Composition*

Section A-Research paper

DEVELOPING OF HYBRID COMPOSITE OF AL-6068 AND AL-7075 BY REINFORCING TIO2/ BN BY STIR CASTING PROCESS AND FINDING MECHANICAL AND WEAR BEHAVIOR OF THE HYBRID COMPOSITION

Kishorekumar Nandyala[1], B. Santhosh Kumar[2*], G.I.K. Durga Bhavani[3]

Abstract

In the Current work, hybrid composites were prepared by reinforcing nanoparticles into the aluminum alloys (Al 6068 and Al 7075). The Al 6068 and Al 7075 aluminum alloys are reinforced with TiO_2 and BN by a stir casting process. The wear behavior and mechanical properties were investigated by performing hardness test and tensile test and compressive test and wear test was conducted under the dry sliding conditions. And performed the microstructural study to know the bond formed between the alloy and reinforcements. The samples are prepared as per ASME standards, and stirring speed (650 rpm), stirring time(15 min), % weight of reinforcement (3%), and stirring temperature (750^0 c) is considered as process parameters to fabricate the samples to perform mechanically and wear properties. The samples are fabricated by the combination Al 6068+TiO_2, Al 6068+BN, Al 6068+TiO_2+BN, Al 7075+TiO_2, Al 7075+BN, and Al 7075+TiO_2+BN. And the mechanical test was performed and studied the results obtained, and also the wear behavior of the hybrid composite was recorded and finally the analyzed the bonding between alloy and reinforcements of the composite materials by the SEM images.

Keywords: SEM (Scanning Electron Microscope), Hybrid Composition, Stir casting, Nanoparticles.

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Health Recommendation System using Deep Learning-based Collaborative Filtering

P. Chinnasamy [a] ✉, Wing-Keung Wong [b] ✉, A. Ambeth Raja [c] ✉, Osamah Ibrahim Khalaf [d] ✉, Ajmeera Kiran [e] ✉, J. Chinna Babu [f] ☺ ✉

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Abstract

The crucial aspect of the medical sector is healthcare in today's modern society. To analyze a massive quantity of medical information, a medical system is necessary to gain additional perspectives and facilitate prediction and diagnosis. This device should be intelligent enough to analyze a patient's state of health through social activities, individual health information, and behavior analysis. The Health Recommendation System (HRS) has become an essential mechanism for medical care. In this sense, efficient healthcare networks are critical for medical decision-making processes. The fundamental purpose is to maintain that sensitive information can be shared only at the right moment while guaranteeing the effectiveness of data, authenticity, security, and legal concerns. As some people use social media to recognize their medical problems, healthcare recommendation systems need to generate findings like diagnosis recommendations, medical insurance, medical passageway-based care strategies, and homeopathic remedies associated with a patient's health status. New studies aimed at the use of vast numbers of health information by integrating

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Detection and classification of COVID-19 using supervised deep learning on MRI images

J. Chinna Babu, Mudassir Khan, Mallikharjuna Rao Nuka and C.H. Nagaraju

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Abstract

Healthcare services in many parts of the world, but especially in emerging countries, have been made aware of the risks presented by the COVID-19 pandemic. In areas where bulk traditional testing is not practical, new computer-assisted diagnosis methods are clearly needed to provide speedy and cost-effective screening. Pulmonary ultrasonography can be used to diagnose lung disease since it is portable, easy to clean, inexpensive, and non-invasive. In recent years, computer-assisted analysis of lung ultrasound images has showed considerable promise for identifying respiratory disorders, including COVID-19 screening and diagnosis. Detecting COVID-19 infections from lung ultrasound images using deep-learning algorithms and comparing their results. It was possible to use a variety of pre-trained deep learning architectures to this problem. There are 3,326 lung ultrasound images in the POCUS dataset, which we used to train and fine-tune our algorithm. Computed tomography (CT) proved useful in the diagnosis of corona virus infection particularly in the pandemic of new corona virus (COVID-19). Radiation from patients who underwent CT scans experienced alterations that were comparable to those seen in MRI scans. A chest MRI should be performed if a CT scan is unavailable, according to the study's findings.

Keywords

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Home   SN Applied Sciences   Article

Design and implementation of a wireless communication-based sprinkler irrigation system with seed sowing functionality

Research   Open access   Published: 02 December 2023

Volume 5, article number 379, (2023)   Cite this article

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Bhupalam Venkatesh, Y. Suresh, J. Chinna Babu ✉, N. Guru Mohan, C. Madana Kumar Reddy & Manoj Kumar

📄 **1340** Accesses   Explore all metrics →

Abstract

This study addresses the critical health risks faced by farmers owing to the use of harmful chemical pesticides in agriculture. The primary objective is to create an effective solution to minimize these risks and reduce the use of pesticides. To achieve this, a smart irrigation

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Home > Modern Approaches in IoT and Machine Learning for Cyber Security > Chapter

An IoT Framework to Support Rural Population with Diabetic Related Issues via Optimization Algorithms

| Chapter | First Online: 08 December 2023

| pp 387–394 | Cite this chapter

Modern Approaches in IoT and Machine Learning for Cyber Security

Vinit Kumar Gunjan, Fahimuddin Shaik & Rashmi Pathak

📖 **Part of the book series:** Internet of Things ((ITTCC))

📑 258 Accesses

Abstract

Currently, image processing and IoT technologies are notable in unravelling various challenges for medical imaging. The use of the proposed method is known to include high-risk disorders such as diabetic cardiomyopathy and diabetic myonecrosis. This research aims

Multi-region minutiae depth value-based efficient forged finger print analysis

M. Baskar, Renuka Devi Rajagopal, PRASAD B. V. V. S., J. Chinna Babu   , Gabriela Pajtinková Bartáková, T. S. Arulananth

Abstract

The application of biometrics has expanded the wings to many domains of application. However, various biometric features are being used in different security systems; the fingerprints have their own merits as it is more distinct. A different algorithm has been discussed earlier to improve the security and analysis of fingerprints to find forged ones, but it has a deficiency in expected performance. A multi-region minutiae depth value (MRMDV) based finger analysis algorithm has been presented to solve this issue. The image that is considered as input has been can be converted into noisy free with the help of median and Gabor filters. Further, the quality of the image is improved by sharpening the image. Second, the preprocessed image has been divided into many tiny images representing various regions. From the regional images, the features of ridge ends, ridge bifurcation, ridge enclosure, ridge dot, and ridge island. The multi-region minutiae depth value (MRMDV) has been computed based on the features which are extracted. The test image which has a similarity to the test image is estimated around MRMDV value towards forgery detection. The MRMDV approach produced noticeable results on forged fingerprint detection accuracy up to 98% with the least time complexity of 12 seconds.

Data Availability: All relevant data are within the paper and Supporting Information.

Competing Interests: The authors have declared that no competing interests exist.

1. Introduction

Various organizations have used the development of information technology to meet their goals. As the organizations have a variety of information on their system, which belongs to different users and business partners, they are responsible for securing the data most effectively. Any organization faces various challenges against the data maintained through threats. The security measures which can be different are enforced to secure the data and handle the problem of illegal access. Access restriction is the most dominant one, which restricts the illegal user from accessing the available data. In this way, different approaches are used, like profile-based access and key-based access restriction methods. However, the performance of such methods is not efficient in meeting the system's security requirements as they can be tampered with easily by various adversaries. Using biological features is more effective in enforcing such security systems. The facial features and thumb features are more challenging for the adversary that can support such security systems. Fingerprints and palm prints can be used towards the problem effectively.

Human fingerprint has great independence among other features of biometrics. It has unique characteristics which vary between any number of users. It has components of Minutiae ending, bifurcation, islands, dots, and so on. These components can be common in all human fingerprints but vary in numbers and sizes. The components and their numbers can be obtained by processing the fingerprint image. These numbers will not correlate with any other numbers. So, by adopting such finger analysis in security systems, the performance of authentication and illegal access restriction can be enforced most strictly.

The picture of the sample fingerprint is presented in Fig 1, which has both original and altered fingerprints. The adversary or malformed user would try to breach the security walls by producing an altered print to the system. However the system should be capable of differentiating the original and altered one. So, the security system should consider various features from the ridge like dots, islands, ends, enclosure, and bifurcation. By considering such features in the authentication and verification process, the problem of forgery detection can be handled effectively.

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Deep concatenated features with improved heuristic-based recurrent neural network for hyperspectral image classification

Multimedia Tools and Applications

Aims and scope

Submit manuscript

Marri Venkata Dasu ✉, P. Veera Narayana Reddy & S. Chandra Mohan Reddy

ⓐ 102 Accesses   Explore all metrics →

Abstract

Hyperspectral remote sensing is one of the important approaches in the area of remote sensing owing to the latest enhancements in the Hyper Spectral Imaging (HSI) technology. The classification represents a direct approach in the HSI field that provides every pixel a particular semantic label based on its behavior automatically. Nowadays, deep learning-oriented techniques have gained wide attention in the area of HSI classification. Although Convolutional Neural Network (CNN)-oriented techniques are subjected to the HSI classification, their performances are not up to the expectation. This is because; the majority

Home > Biological Science > Evolutionary Biology > Hybrid

Article   PDF Available

A hybrid model for lung cancer prediction using patch processing and deeplearning on CT images

Authors:

C. Venkatesh   J. Chinna Babu   Ajmeera Kiran   C. H. Nagaraju
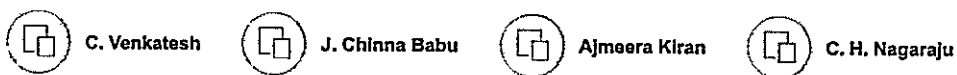
Show all 5 authors

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Citations (1)   References (54)   Figures (12)

Abstract and Figures

Cancer is a common disease with an increasing mortality rate in recent years. Lung cancer is the most common cancer in men and women alike. It is caused by uncontrolled cell development in the lungs. These cells are divided into two types: benign and malignant. Benign tumours are usually harmless, do not spread to other cells, and have a smooth and regular shape, whereas malignant tumours can be dangerous and spread to other body cells to form a new cancerous nodule with an. uneven shape. If lung cancer is detected early, it can be treated. Lung cancer symptoms typically appear in the human body when it is in its final stage, but advanced technology and computer-aided systems can detect it at an early stage. Currently, numerous conventional and machine learning techniques are used for such automated detection systems to detect lung cancer in its early stages, but such automated detection systems do not provide accurate detection and the processing of lung cancer detection takes a long time. As a result, a novel method for detecting lung cancer that employs deep learning techniques for accurate detection while requiring less computation time is proposed. CT images are used in this study because they have less noise disturbance than MRI and X-ray images. Median filtering and patch processing are used to improve image quality on such CT scans. These pre-processed images are then subjected to a clustering segmentation process, which segments the image and feeds it to a CNN classifier. For feature extraction and classification, CNN architecture is used. In the future extraction section, various low-level and high-level features are extracted. The classification layer is in charge of determining whether the provided image contains a malignant, benign, or normal tumour. Finally, statistical parameters like MSE, PSNR, Accuracy, Sensitivity, Specificity, and others were computed and combined with the existing system in this work.

Proposed block diagram   K-means clustering   CNN Architecture   CNN architecture... a CT lung input image...
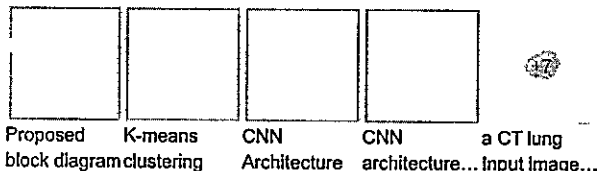
Figures - available from: Multimedia Tools and Applications

ScienceDirect

Application of multi agent systems for advanced energy management in cyber physical hybrid microgrid systems

P. Balachennaiah [a] ⊠ , J. Chinna Babu [b] ⊠

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Abstract

This paper develops a multi agent system in real time for hybrid microgrids as advanced energy management (ADEM) protocol using a Java agent development environment (JADE) frame work. The proposed system is configured with two micro-grids, each having 1kw solar photo voltaic power, 1.5Kw wind power, 24V, 150AH battery along with a local load, thus making it a hybrid Microgrid, modelled in MATLAB/Simulink. Due stability constraints while using MATLAB/Simulink, in a multi-threading environment, a middle ware called Multi agent Control Using Simulink with Jade Extension (MACSimJX) is adopted. The microgrid environment variables are captured through sensors, delivered to the agents operations in JADE, for the implementation of dynamic operation in hybrid microgrids. This results in maximizing operational efficiency of hybrid microgrids system. The simulation suggests that MAS can successfully manage dynamic loads, generated power in real time microgrids.

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Making Cell-Free Massive MIMO Using MRC Technique

| Conference paper | First Online: 27 September 2023

| pp 1–10 | Cite this conference paper
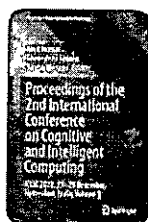
Proceedings of the 2nd International Conference on Cognitive and Intelligent...
(ICCIC 2022)

Sk. Khudsia Tabassum, D. Vishnuvardhan, G. Mamatha & Fahimuddin Shaik ✉

📖 **Part of the book series:** Cognitive Science and Technology ((CSAT))

🖥 **Included in the following conference series:**
International Conference on Information and Management Engineering

👁 193 Accesses

Abstract

While demonstrating that partially or completely centralising signal processing at the
central processing unit (CPU) improves spectral efficiency, this study advocates for the
utilisation of maximum ratio trying to combine at each access point (AP) (SE). Cell-free

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VIP Development of SPI Controller for Open-Power Processor-Based Fabless SOC

| Conference paper | First Online: 27 September 2023

| pp 11–22 | Cite this conference paper
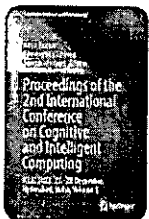
Proceedings of the 2nd International Conference on Cognitive and Intelligent...
(ICCIC 2022)

D. Anu Priya, D. Vishnuvardhan, G. Mamatha, Fahimuddin Shaik ✉ & Shaik Karimullah

Abstract

The SPI-Serial Peripheral Interface is considered as one of the most used bus protocols for attaching processors to associated devices with low/medium data transmission rates (SPI). In SoC applications, the SPI architecture is utilized to connect a large number of

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Morphology and EMD-Based Patch-Wise Image Fusion

| Conference paper | First Online: 16 August 2023

| pp 121–133 | Cite this conference paper
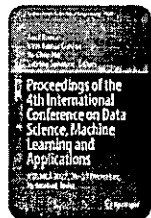
Proceedings of the 4th International Conference on Data Science, Machine Learning and... (ICDSMLA 2022)

Y. Pavan Kumar Reddy, Y. Sunanda ✉, S. Charitha Adena, Sharmila Eruru, Naveen Chennamsetty & Naveen Reddy Pothireddy

Abstract

The process of integrating various source photos into a single image that is more informative than all the source images is known as image fusion. It is an efficient way of

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Performance Enhancement of Wireless Systems Using Hybrid RIS Technique

| Conference paper | First Online: 16 August 2023
| pp 163–173 | Cite this conference paper
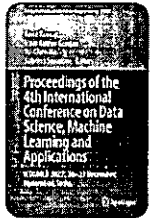
Proceedings of the 4th International Conference on Data Science, Machine Learning and... (ICDSMLA 2022)

Shaik Karimullah ✉, M. Lalitha, Mounika, S. Mahesh Reddy, S. Mahammad Waseem & Shaik Mohammad Irfan

👁 110 Accesses

Abstract

In this, we must characterize statistically and examine the performance of MRCIS— multiple reconfigurable intelligent surface-supported systems. We must first take into

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Multifocus Image Fusion Based on Convolutional Simultaneous Sparse Approximation

| Conference paper | First Online: 16 August 2023

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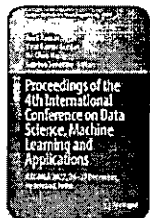
Proceedings of the 4th International Conference on Data Science, Machine Learning and... (ICDSMLA 2022)

G. Obulesu ✉, M. Sai Padma Thulasi, K. Kusuma, G. Bhavya & N. Kesava Naidu

👁 **109** Accesses

Abstract

Convolutional simultaneous sparse approximation algorithms are based on the alternating direction approach of multipliers with various sparsity structures. Outdoor VL photos are improved using the NIR images. The NIR images utilised in this study are

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Monitoring the Farming Conditions Using IoT

| Conference paper | First Online: 16 August 2023

| pp 103–112 | Cite this conference paper
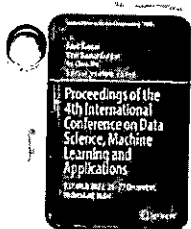
Proceedings of the 4th International Conference on Data Science, Machine Learning and... (ICDSMLA 2022)

K. Riyazuddin ✉, R. Anitha, A. Devika Chowdary, P. Durga Prasad & C. Girish Varma

📚 **Part of the book series:** Lecture Notes in Electrical Engineering ((LNEE,volume 1038))

🔖 **Included in the following conference series:**
International Conference on Data Science, Machine Learning and Applications

👁 113 Accesses

Abstract

The Internet of Things will transform every sector and everyone's lives by giving everything a sentient existence. It is a group of various devices that function as a self-configuring network. The use of Internet of Things in smart farming is revolutionising conventional agriculture by enhancing its productivity, expanding its accessibility to

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Smart Reflecting Surface Approach for Reconfigurable Wireless Signal Transmission

| Conference paper | First Online: 16 August 2023

| pp 87–94 | Cite this conference paper
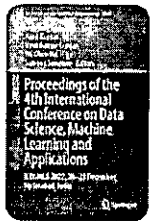
Proceedings of the 4th International Conference on Data Science, Machine Learning and...

(ICDSMLA 2022)

K. Shankar ✉, V. Yashwanth, A. Sumana, G. Sree Sandhya & S. Vinay Kumar

🔖 112 Accesses

Abstract

In Wireless communication, when direct route is insufficient, wireless channels can be Reconfigure with an effective Intelligent Reflecting Surface (IRS) by utilizing the software control metasurfaces that serve as mirrors to reflect signals from source to target. In this

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ML Based Intelligent Transport System Through GPS and Traffic Analysis

| Conference paper | First Online: 16 August 2023

| pp 95–102 | Cite this conference paper
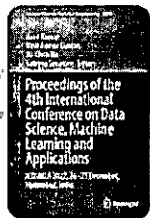
Proceedings of the 4th International Conference on Data Science, Machine Learning and...

(ICDSMLA 2022)

K. Shankar ✉, P. Guru Hema Sree, D. Harsha Vardhini, C. Abhinavi, S. K. Abdul Kalam & P. Gowtham

📖 **Part of the book series:** Lecture Notes in Electrical Engineering ((LNEE,volume 1038))

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International Conference on Data Science, Machine Learning and Applications

👁 114 Accesses

Abstract

Machine learning and feature extractions are playing a vital role in internet and health domain. The aim of this paper is to develop a system for forecasting precise and timely

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Blake–Zisserman Model of Segmentation Method for Low-Contrast and Piecewise Smooth Image

| Conference paper | First Online: 16 August 2023

pp 155–162 | Cite this conference paper
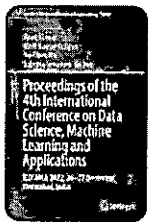
Proceedings of the 4th International Conference on Data Science, Machine Learning and...

(ICDSMLA 2022)

B. Lakshmi Devi ✉, E. Haripriya, D. Jaya, P. Anjali, G. R. Venkatesh Prasad Gowd & K. Hemanth Kumar

Abstract

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PSO-Based Evolutionary Image Segmentation System for Analysis of Fatty Liver Level Recognition

| Conference paper | First Online: 16 August 2023

pp 135–153 | Cite this conference paper

Proceedings of the 4th International Conference on Data Science, Machine Learning and...
(ICDSMLA 2022)

C. H. Nagaraju ✉, S. Ramya Sree, P. Jameela, C. Kartheek & B. Madhu Sudhan

📖 **Part of the book series:** Lecture Notes in Electrical Engineering ((LNEE, volume 1038))

🖥 **Included in the following conference series:**
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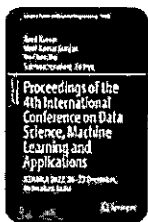
🔖 110 Accesses

Abstract

One of the most frequent liver conditions nowadays is fatty liver, often known as liver hepatic glycogen. As our way of life pushes us toward this occurrence, clinical diagnosis of

processes

MDPI

Article

Low-Power Very-Large-Scale Integration Implementation of Fault-Tolerant Parallel Real Fast Fourier Transform Architectures Using Error Correction Codes and Algorithm-Based Fault-Tolerant Techniques

M. Kalpana Chowdary [1], Rajasekhar Turaka [2], Bayan Alabduallah [3,*], Mudassir Khan [4], J. Chinna Babu [5] and Ajmeera Kiran [1]

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Abstract: As technology advances, electronic circuits are more vulnerable to errors. Soft errors are one among them that causes the degradation of a circuit's reliability. In many applications, protecting critical modules is of main concern. One such module is Fast Fourier Transform (FFT). Real FFT (RFFT) is a memory-based FFT architecture. RFFT architecture can be optimized by its processing element through employing several types of adder and multipliers and an optimized memory usage. It has been seen that various blocks operate simultaneously in many applications. For the protection of parallel FFTs using conventional Error Correction Codes (ECCs), algorithmic-based fault tolerance (ABFT) techniques like Parseval checks and its combination are seen. In this brief, the protection schemes are applied to the single RAM-based parallel RFFTs and dual RAM-based parallel RFFTs. This work is implemented on platforms such as field programmable gate arrays (FPGAs) using Verilog HDL and on application-specific integrated circuit (ASIC) using a cadence encounter digital IC implementation tool. The synthesis results, including LUTs, slices registers, LUT–Flip-Flop pairs, and the frequency of two types of protected parallel RFFTs, are analyzed, along with the existing FFTs. The two proposed architectures with the combined protection scheme Parity-SOS-ECC present an 88% and 33% reduction in area overhead when compared to the existing parallel RFFTs. The performance metrics like area, power, delay, and power delay product (PDP) in an ASIC of 45 nm and 90 nm technology are evaluated, and the proposed single RAM-based parallel RFFTs architecture presents a 62.93% and 57.56% improvement of PDP in 45 nm technology and a 67.20% and 60.31% improvement of PDP in 90 nm technology compared to the dual RAM-based parallel RFFTs and the existing architecture, respectively.

Keywords: FFT; soft errors; ABFT; FPGA; ASIC

1. Introduction

Due to the shrinkage of device dimensions in terms of length, width, and oxide thickness, as well as diminishing operating supply voltages, tolerating soft errors has become a major design technology problem that is challenging the reliability of VLSI system implementation. In turn, scaling reduces the area consumption and improves the

Edge detection using fast pixel based matching and contours mapping algorithms

T. S. Arulananth, P. Chinnasamy, J. Chinna Babu, Ajmeera Kiran, J. Hemalatha, Mohamed Abbas

Abstract

Current methods of edge identification were constrained by issues like lighting changes, position disparity, colour changes, and gesture variability, among others. The aforementioned modifications have a significant impact, especially on scaled factors like temporal delay, gradient data, effectiveness in noise, translation, and qualifying edge outlines. It is obvious that an image's borders hold the majority of the shape data. Reducing the amount of time it takes for image identification, increase gradient knowledge of the image, improving efficiency in high noise environments, and pinpointing the precise location of an image are some potential obstacles in recognizing edges. the boundaries of an image stronger and more apparent locate those borders in the image initially, sharpening it by removing any extraneous detail with the use of the proper filters, followed by enhancing the edge-containing areas. The processes involved in recognizing edges are filtering, boosting, recognizing, and localizing. Numerous approaches have been suggested for the previously outlined identification of edges procedures. Edge detection using Fast pixel-based matching and contours mappingmethods are used to overcome the aforementioned restrictions for better picture recognition. In this article, we are introducing the Fast Pixel based matching and contours mapping algorithms to compare the edges in reference and targeted frames using mask-propagation and non-local techniques. Our system resists significant item visual fluctuation as well as copes with obstructions because we incorporate input from both the first and prior frames Improvement in performance in proposed system is discussed in result section, evidences are tabulated and sketched. Mainly detection probabilities and detection time is remarkably reinforced Effective identification of such things were widely useful in fingerprint comparison, medical diagnostics, Smart Cities, production, Cyber Physical Systems, incorporating Artificial Intelligence, and license plate recognition are conceivable applications of this suggested work.

Data Availability: All relevant data are within the paper and its Supporting Information files.

Competing interests: The authors have declared that no competing interests exist.

Introduction

For edge detection in an image, the Prewitt operator is utilized. It recognizes Horizontal and Vertical Edges, two different sorts of edges [1, 2]. It is determined using the difference between the intensities of the relevant pixels in an image. Derivative masks refer to any mask that is utilized for edge detection. Because an image is also a signal, as we have often explained in this tutorial series, only differentiating allows for the calculation of signal modifications. Due of these kinds of operators are also referred to as hypothetical operations or dynamic filters. The following characteristics ought to be shared by all derivative masks:

> The mask must have the opposite sign

> The sum of the mask must be zero

> More mass equals more edge

When applied, this mask gives the photo its sharp vertical boundaries. Like a first-order derivate, it solely determines the variation in pixel illumination in an edge section [3]. Since the middle column is zero, the calculation only takes into account the discrepancy among the opposite right and left pixel numbers along that edge. Consequently, compared to the original appearance the edge brightness has been enhanced and improved. The masking device will only pick up edges in the direction that's horizontal because of how the zeros section is oriented. The image's horizontally limits will be plainly visible once you place this mask on it. Hence, we should develop a system with new hardware and which must to overcome the above limitations. Implement the hardware for the fulfillment of the above-mentioned objectives in effective manner [4, 5]. This specific hardware is implemented on the Digital signal processors and FPGA kits using the suitable software tools. It is essentials for the image processing environment. FPGA and DSP processors having the capabilities of implanting image processing features in it. Two new methodologies are namely fast pixel-based matching and contours mapping algorithms introduced for the betterment from the above problems. These methods are different from the traditional edge detection techniques [5]. Some of the existing systems have the limitations like high computational cost and other methods leads to poor performance. Edges and boundaries are giving a genuine parameter of the face. Important features of the face can be extracted from the edges with maximum detection probabilities. Critical scenarios in image processing environment can be handled by an effective hardware [16].
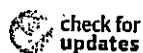
Article

Design Optimization of Counter-Flow Double-Pipe Heat Exchanger Using Hybrid Optimization Algorithm

B. Venkatesh [1], Mudassir Khan [2], Bayan Alabduallah [3,*], Ajmeera Kiran [4], J. Chinna Babu [5], B. Bhargavi [6] and Fatimah Alhayan [3]

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[3] Department of Information Systems, College of Computer and Information Sciences, Princess Nourah bint Abdulrahman University, P.O. Box 84428, Riyadh 11671, Saudi Arabia; fnalhayan@pnu.edu.sa

[4] Department of Computer Science and Engineering, MLR Institute of Technology, Hyderabad 500043, Telangana, India; kiranphd.jntuh@gmail.com

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* Correspondence: bialabdullah@pnu.edu.sa

Abstract: Double-pipe counter-flow heat exchangers are considered more suitable for heat recovery in the heat transfer industry. Numerous studies have been conducted to develop static tools for optimizing operating parameters of heat exchangers. Using this study, an improved heat exchanger system will be developed. This is frequently used to solve optimization problems and find optimal solutions. The Taguchi method determines the critical factor affecting a specific performance parameter of the heat exchanger by identifying the significant level of the factor affecting that parameter. Gray relational analysis was adopted to determine the gray relational grade to represent the multi-factor optimization model, and the heat exchanger gray relation coefficient target values that were predicted have been achieved using ANN with a back propagation model with the Levenberg–Marquardt drive algorithm. The genetic algorithm improved the accuracy of the gray relational grade by assigning gray relational coefficient values as input to the developed effective parameter. This study also demonstrated significant differences between experimental and estimated values. According to the results, selecting the parameters yielded optimal heat exchanger performance. Using a genetic algorithm to solve a double-pipe heat exchanger with counterflow can produce the most efficient heat exchanger.

Keywords: double-pipe heat exchanger; genetic algorithm; gray

1. Introduction

Global urbanization and a growing population have increased the demand for energy. Oil, gas, coal, etc., are fossil fuels, and their use has a negative impact on the environment. As a result, energy-saving strategies and renewable energy sources have been employed in order to address this problem [1]. As a result, an effective thermal system is being developed to reduce energy consumption. It is widely recognized that heat exchangers are essential components in a variety of industries, including electric, petroleum, electronics, chemical, and aerospace [2,3].

The design of heat exchangers has evolved significantly over time as heavy and light machinery are used in different industries. The Tubular Exchanger Manufacturers Association (TEMA) has developed and adopted standards that specify the design, construction,

Parameters Describing Student Learning Environments Through Experiential Learning Technologies for Entrepreneurial Creativity:
A Study From a B School

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ABSTRACT

The proposed explorative study utilizes the partial least squares-structural equation modeling (PLS-SEM) for the testing of the auxiliary relationship lies in the factors focusing on the respondent's pioneering aim. This study examines student's learning desire in entrepreneurship, the value addition on student, impact on the student career path from employment to ownership, the impact on society, and the state-of-the-art practices for training thereby getting the suitable aptitudes and related information. This assists the communities to change their focus from employment to entrepreneurship. Hence, creating enterprises encompassing personality enrichment and better insights through training will promote significant benefits to the growing society.

KEYWORDS

Employment, Entrepreneur, Innovation, Self-Viability, Student Learning

*Corresponding Author

International Conference on Communications and Cyber Physical Engineering 2018
ICCCE 2023: **Advances in Cognitive Science and Communications** pp 161–168

Contourlet Transformed Image Fusion Based on Focused Pixels

M. Ravi Kishore ✉, K. Madhuri, D. V. Sravanthi, D. Hemanth Kumar Reddy, C. Sudheer & G. Susmitha

Conference paper | First Online: 10 March 2023

336 Accesses

Part of the Cognitive Science and Technology book series (CSAT)

Abstract

In these works, multi-focus image fusion is performed using the contourlet transform and the removal of residual image components. The main goal of this type of fusion is to integrate the focused pixels and combine them into a fused output image. The most difficult aspect of this method is removing the pixels that are not focused. This methodology is implemented using the MATLAB computation tool, which is included with the image acquisition tool box and the digital image tool box. The experiments conducted here are primarily concerned with image fusion and pixel analysis.

Keywords

Image fusion   Counterlet transforms   Focused pixel

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ICCCE 2023: **Advances in Cognitive Science and Communications** pp 99–103

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Design of Low-Power OTA for Bio-medical Applications

R. Mahesh Kumar ✉, C. Jaya Sree, G. Rama Krishna Reddy, P. Naveen Kumar Reddy & T. Bharat Kumar

Conference paper | First Online: 10 March 2023

334 Accesses

Part of the Cognitive Science and Technology book series (CSAT)

Abstract

The OTA would be a crucial element of any biological IMD. Perhaps for the first instance in the analogue chain, the biological information from the human body has been analysed, defining some critical device settings. Due to the highly restricted frequency, it also is challenging to develop a completely integrated biological data recording device. This article proposes a completely integrated OTA architecture with minimal power dissipation. It utilizes a novel mirror bulk-controlled OTA to produce low power and good gain. The OTA has quite a 45 dB connection and consumes 0.168 uW of power. The simulation has been carried out in TSMC 180 nm CMOS technology.

Keywords

Biological IMD   OTA   Low power   Biological information

Analogue chain

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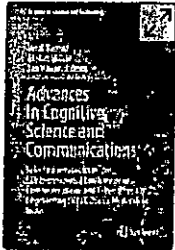
<u>International Conference on Communications and Cyber Physical Engineering 2018</u>

ICCCE 2022: **Advances in Cognitive Science and Communications** pp 65–73

Design and Implementation of Built-In Self-Test (BIST) Master Slave Communication Using I2C Protocol

<u>CH. Nagaraju</u> ✉, <u>P. L. Mounika</u>, <u>K. Rohini</u>, <u>T. Naga Yaswanth</u> & <u>A. Maheswar Reddy</u>

Conference paper | <u>First Online: 10 March 2023</u>

202 Accesses

Abstract

The IIC protocol (inter-integrated circuit) is a communication bus protocol that allows many masters and slaves to communicate with each other. The I2C bus is a well-known and widely used communication technology in the electronics industry that can be found in a wide range of electronic devices. Circuit complexity is increasing as new technologies are created at a rapid pace.

International Conference on Communications and Cyber Physical Engineering 2018

ICCCE 2022: **Advances in Cognitive Science and Communications** pp 119–126

Design of Efficient 8-Bit Fixed Tree Adder

K. Riyazuddin ✉, D. Bhavana, C. Chamundeswari, M. S. Firoz & A. Leela Sainath Goud

Conference paper | First Online: 10 March 2023

196 Accesses

Abstract

Adder tree would be the parallel arrangement of adders. The typical (AT) adder tree has both full-width and fixed-size adder trees. The present technique truncates the input data to facilitate the building of the fixed-size tree and to provide better precise output. RCA has been utilized in the construction of the adder tree. The suggested design is now more efficient than previous designs,
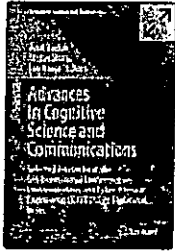
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Multimodal Medical Image Fusion Using Minimization Algorithm

Fahimuddin Shaik ✉, M. Deepa, K. Pavan, Y. Harsha Chaitanya & M. Sai Yogananda Reddy

Abstract

By merging anatomical and functional imaging, this multimodal image fusion technique aims to capture certain types of tissues and structures throughout the body. Anatomical imaging techniques can produce high-resolution images of interior organs. If we measure or find medical images independently, such as anatomical and functional imaging, we risk losing essential information. The
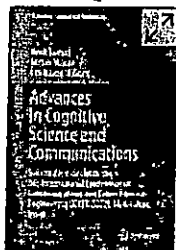
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Detection and Classification of Lung Cancer Using Optimized Two-Channel CNN Technique

C. Venkatesh ✉, N. Sai Prasanna, Y. Sudeepa & P. Sushma

Conference paper | First Online: 10 March 2023

196 Accesses

Part of the Cognitive Science and Technology book series (CSAT)

Abstract

Lung cancer is one among the most dangerous diseases that cause deaths across the globe. Within the respiratory organs, cells can display through the bloodstream or humour fluid that surrounds through the lung tissues. Respiratory organ affected 297 (13.1%) males and fifty-nine (2.5%) females. With a male-to-female magnitude relation of 5:1, this respiratory organ abnormality stands second
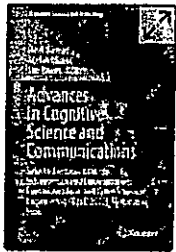
International Conference on Communications and Cyber Physical Engineering 2018

ICCCE 2022: **Advances in Cognitive Science and Communications** pp 291–304

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A Neural Network-Based Cardiovascular Disease Detection Using ECG Signals

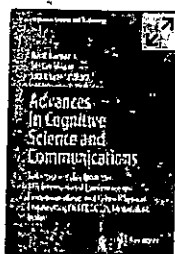C. Venkatesh ✉, M. Lavanya, P. Naga Swetha, M. Naganjaneyulu & K. Mohan Kumar Reddy

Conference paper | First Online: 10 March 2023

202 Accesses

Part of the Cognitive Science and Technology book series (CSAT)

Abstract

Heart disease is also known as cardiovascular disease (CVD). It is a type of illness that affects the heart and blood vessels (veins and arteries). Cardiovascular disease (CVD) is the most major cause of mortality in both men and women around the world. The enormous increase of these diseases and associated consequences, as well as their high expenses, have communities will be harmed, and

Article

Grade Classification of Tumors from Brain Magnetic Resonance Images Using a Deep Learning Technique

Saravanan Srinivasan [1], Prabin Selvestar Mercy Bai [2], Sandeep Kumar Mathivanan [3],
Venkatesan Muthukumaran [4], Jyothi Chinna Babu [5] and Lucia Vilcekova [6,*]

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Abstract: To improve the accuracy of tumor identification, it is necessary to develop a reliable automated diagnostic method. In order to precisely categorize brain tumors, researchers developed a variety of segmentation algorithms. Segmentation of brain images is generally recognized as one of the most challenging tasks in medical image processing. In this article, a novel automated detection and classification method was proposed. The proposed approach consisted of many phases, including pre-processing MRI images, segmenting images, extracting features, and classifying images. During the pre-processing portion of an MRI scan, an adaptive filter was utilized to eliminate background noise. For feature extraction, the local-binary grey level co-occurrence matrix (LBGLCM) was used, and for image segmentation, enhanced fuzzy c-means clustering (EFCMC) was used. After extracting the scan features, we used a deep learning model to classify MRI images into two groups: glioma and normal. The classifications were created using a convolutional recurrent neural network (CRNN). The proposed technique improved brain image classification from a defined input dataset. MRI scans from the REMBRANDT dataset, which consisted of 620 testing and 2480 training sets, were used for the research. The data demonstrate that the newly proposed method outperformed its predecessors. The proposed CRNN strategy was compared against BP, U-Net, and ResNet, which are three of the most prevalent classification approaches currently being used. For brain tumor classification, the proposed system outcomes were 98.17% accuracy, 91.34% specificity, and 98.79% sensitivity.

Keywords: local-binary grey level co-occurrence matrix; enhanced fuzzy c-means clustering; convolution recurrent neural network; magnetic resonance image; image classification

1. Introduction

One of the crucial tasks in medical image processing is segmenting a brain tumor. Early diagnosis of brain tumors is thought to play a crucial role in improving treatment prospects and increasing patient survival rates. The most popular technique for diagnosing tumors is magnetic resonance imaging (MRI). Additionally, since contrast-enhanced MRI provides precise information about the tumors, current research aims to enhance the MRI diagnosis by including contrast agents. Images from computed tomography (CT) also show the internal structure of organs. The involvement of radiotherapists and their expertise is necessary for the manual segmentation of tumors. Due to the vast amount of MRI (magnetic resonance imaging) data, it might result in some errors. It is a demanding and challenging task. The conditions for automatic brain tumor segmentation were thus created. Currently,

Article

Smart Contract-Enabled Secure Sharing of Health Data for a Mobile Cloud-Based E-Health System

P. Chinnasamy [1], Ashwag Albakri [2], Mudassir Khan [3,*], A. Ambeth Raja [4], Ajmeera Kiran [1] and Jyothi Chinna Babu [5]

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Abstract: Healthcare comprises the largest revenue and data boom markets. Sharing knowledge about healthcare is crucial for research that can help healthcare providers and patients. Several cloud-based applications have been suggested for data sharing in healthcare. However, the trustworthiness of third-party cloud providers remains unclear. The third-party dependency problem was resolved using blockchain technology. The primary objective of this growth was to replace the distributed system with a centralized one. Therefore, security is a critical requirement for protecting health records. Efforts have been made to implement blockchain technology to improve the security of this sensitive material. However, existing methods depend primarily on information obtained from medical examinations. Furthermore, they are ineffective for sharing continuously produced data streams from sensors and other monitoring devices. We propose a trustworthy access control system that uses smart contracts to achieve greater security while sharing electronic health records among various patients and healthcare providers. Our concept offers an active resolution for secure data sharing in mobility computing while protecting personal health information from potential risks. In assessing existing data sharing models, the framework valuation and protection approach recognizes increases in the practicality of lightweight access control architecture, low network expectancy, and significant levels of security and data concealment.

Keywords: Health Data Sharing; IoT cloud; blockchain technology; smart contracts; proof-of work; confidentiality; integrity

1. Introduction

Currently, there is a resurgence of interest in using blockchain technology to build therapeutic and e-health facilities. With its distributed and reliable structure, blockchains have tremendous potential in several e-health sectors, such as the safe distribution of electronic health records (EHRs) and access control management among multiple therapeutic societies. Blockchains offer innovative ways to accelerate healthcare delivery, thus reinvigorating the healthcare sector [1–3].

With the proliferation of emerging technologies, especially mobile cloud computing and the Internet of Medical Things [4], the medical field has experienced substantial changes in e-health services. Patients can already access their personal information from home through smartphones and wearable devices, and then exchange information utilizing the cloud, where clinicians can access patient data and offer suitable health support. This
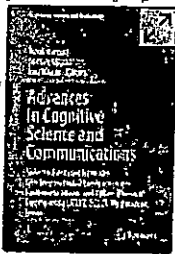
International Conference on Communications and Cyber Physical Engineering 2018

ICCCE 2022: **Advances in Cognitive Science and Communications** pp 405–411

Design of a Highly Reliable Low Power Stacked Inverter-Based SRAM Cell with Advanced Self-recoverability from Soft Errors

M. Hanumanthu ✉, L. Likhitha, S. Prameela & G. Pavan Teja Reddy

Conference paper | First Online: 10 March 2023

94 Accesses

Part of the Cognitive Science and Technology book series (CSAT)

Abstract

Soft error self-recoverability SRAM cell is designed as an extremely reliable SRAM cell. Because the SRAM cell consists of interior nodes which have a unique feedback mechanism and a larger number of access transistors, it is more expensive than the SESRS cell that is a conventional SRAM cell. has several advantages over standard SRAM cell such
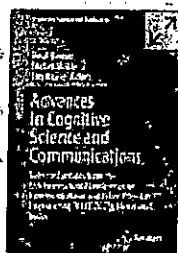
International Conference on Communications and Cyber Physical Engineering 2018

ICCCE 2022: **Advances in Cognitive Science and Communications** pp 319–326

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Design of High Efficiency FIR Filters by Using Booth Multiplier and Data-Driven Clock Gating and Multibit Flip-Flops

P. Syamala Devi ✉, D. Vishnu Priya, G. Shirisha, Venkata Tharun Reddy Gandham & Siva Ram Mallela

Conference paper | First Online: 10 March 2023

03 Accesses

Part of the Cognitive Science and Technology book series (CSAT)

Abstract

In today's digital signal processing (DSP) applications, power optimization is one of the most significant design goals. The digital finite duration impulse response (FIR) filter is recognized as one of the most important components of DSP, and as a result, researchers have done numerous significant studies on the power refinement of the filters. FIR
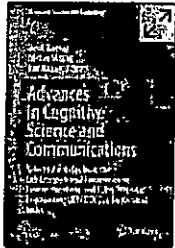
International Conference on Communications and Cyber Physical Engineering 2018

ICCCE 2022: **Advances in Cognitive Science and Communications** pp 327–334

Detecting the Clouds and Determining the Weather Condition and Coverage Area of Cloud Simultaneously Using CNN

M. Venkata Dasu ✉, U. Palakonda Rayudu, T. Muni Bhargav, P. Pavani, M. Indivar & N. Sai Madhumitha

Conference paper | First Online: 10 March 2023

93 Accesses

Part of the Cognitive Science and Technology book series (CSAT)

Abstract

We need to consider certain elements of the climate system to forecast the climate; one of it is the role of clouds in evaluating the climate's sensitivity to change. Here, we will determine the area covered by cloud and the weather condition at specific time. Before performing this, we will detect the clouded part from satellite image using pre-
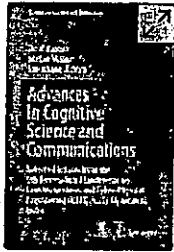
International Conference on Communications and Cyber Physical Engineering 2018

ICCCE 2022: **Advances in Cognitive Science and Communications** pp 591–597

Medical Image Classification Based on Optimal Feature Selection Using a Deep Learning Model

M. Venkata Dasu ✉, R. Navani, S. Pravallika, T. Mahaboob Shareef & S. Mohammad

Conference paper | First Online: 10 March 2023

201 Accesses

Part of the Cognitive Science and Technology book series (CSAT)

Abstract

Medical images can be used to diagnose and treat disease. It provides valuable information about internal organs for treatment and assists physicians in diagnosing and treating disease. We use deep learning improved classifier for the classification of lung cancer, brain tumors, and Alzheimer's disease in this study. The classification of medical images is a serious problem in computer-based diagnoses.
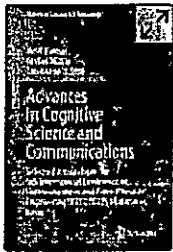
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Preterm Birth Classification Using KNN Machine Learning Algorithm

K. Naga Narasaiah Goud ✉, K. Madhu Sudhan Reddy, A. Mahesh & G. Revanth Raju

Conference paper | First Online: 10 March 2023

204 Accesses

Part of the Cognitive Science and Technology book series (CSAT)

Abstract

Premature births are on the rise all around the world, and there is currently no way to prevent them. The recent study is focused on the examination of ECG records. It includes data on the electrophysiological characteristics of the mother's and foetal heart signals. The purpose of this study is to employ the KNN classifier to categorise foetal ECG heartbeats and predict premature delivery. In
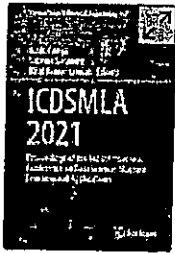
ICDSMLA 2021 pp 773–780

Multimodal Medical Image Fusion Approach Using PCNN Model and Shearlet Transforms via Max Flat FIR Filter

Y. Pavan Kumar Reddy ✉, A. Vaishnavi, M. Sudheeshnavi Devi, M. Siva Prasad & B. Sreenadh Reddy

Abstract

Pulse-coupled neural networks are a subpart of deep learning (DL) methodologies, which has vast number of applications. One of the preferred applications is multimodal medical image fusion, where different modality images such as MR scan images, CT scan images, and PET scan images are needed to be fused in one of the combinations to
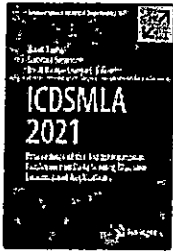
ICDSMLA 2021 pp 741–748

Reader for Blind Using the Raspberry Pi

Y. Pavan Kumar Reddy ✉, G. Hemadri, U. Jaya Nithya, D. S. Haneef Basha & Y. Hari Krishna

Conference paper | First Online: 07 February 2023

170 Accesses

Abstract

The Raspberry Pi-based reader for the blind is based on the Raspberry Pi processing board. The primary goal of this initiative is for the blind person to be able to understand the context with in paper without the assistance of others. The Python script may be used to create this. Previously, visually handicapped persons used only to understand the context through understanding braille. Braille would be a writing method for blind that employs
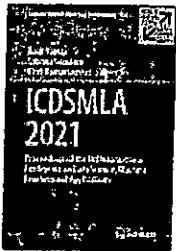
ICDSMLA 2021 pp 837–849

Image Dehazing Using Improved Dark Channel and Vanherk Model

S. Fahimuddin ✉, D. Lavanya, T. Manasa, S. Maruthi Praveen & M. Raveendra Babu

Abstract

The various bad climatic whether conditions occur in our daily life are snow, sandstorm, haze, fog etc., which will effects the natural scene and the visibility and these will be restore by image dehazing. In this work, we compute the relativity of Gaussian for red, green, and black color spaces to produce guidance image and improved dark channel prior is used to improve the transmission depth map construction in our work. There are different dehazing methods
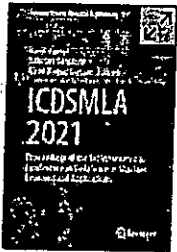
ICDSMLA 2021 pp 827–836

Parametric Analysis for Channel Estimation in Massive MIMO Systems with 1-Bits ADCs

CH. Nagaraju ✉, S. Arshia Shajarin, V. Bhaskar Reddy, V. Bhaskar Reddy & C. Anil Kumar Reddy

Conference paper | First Online: 07 February 2023

162 Accesses

Abstract

An analytical methodology for channel estimation and data decoding in huge multiple input multiple output uplink systems using 1-bit analog-to-digital converters is given (ADCs). Various approaches have been developed, but the quadrative amplitude modulation (QAM) method is the most commonly employed. The receiver had to identify the "amplitude and phase" of each incoming symbol in
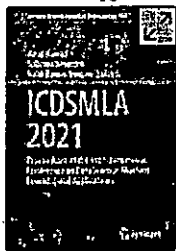
ICDSMLA 2021 pp 851–861

A Novel Bayesian Fusion Model for IR and Visible Images

S. Fahimuddin ✉, A. Sree Keerthana Reddy, B. Rajitha, K. Sai Prasanth & U. Sai

Conference paper | First Online: 07 February 2023

167 Accesses

Abstract

Infrared and visible image fusion expects to obtain images that highlight the thermal radiation information from infrared images and texture details from visible images. In this work, a novel fusion of Bayesian model is established for visible and infrared images. In our model, the image fusion task is cast into a regression problem. To measure the uncertainty in a better manner, the model is formulated in a hierarchical Bayesian manner.
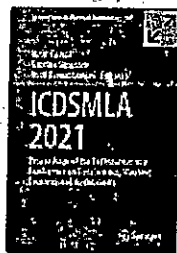
ICDSMLA 2021 pp 781–789

A Novel Wideband Millimeter-Wave-Based OFDM Uplink System to Analyze Spectral Efficiency

C. H. Nagaraju ✉, Manoj Kumar Patil, C. Maheswari, U. K. Rahul & D. Rajesh

Abstract

This research paper investigates and experiments with millimeter-wave-based orthogonal frequency division multiplexing (OFDM) uplink transmission. The spectral efficiency of the system is examined by taking the signal-to-noise ratio (SNR) into account, in the channel model. The research and simulation findings reveal that the number of antennas has an effect on spectral efficiency values and SNR values.
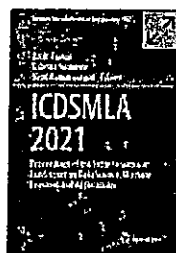
ICDSMLA 2021 pp 873–885

Spectral Efficiency for Multi-bit and Blind Medium Estimation of DCO-OFDM Used Vehicular Visible Light Communication

Shaik Karimullah ✉, E. Sai Sumanth Goud & K. Lava Kumar Reddy

Conference paper | First Online: 07 February 2023

157 Accesses

Abstract

Because of its relatively high and license-free bandwidth, great security, and low cost, visible light communication (VLC) is a strong competitor for vehicle VLC (V2LC). Its durability, high spectral efficiency, and ability to deal with inter-symbol interference make it an excellent choice for autonomous and connected vehicle applications
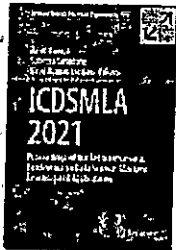
ICDSMLA 2021 pp 863–872

Retinal Boundary Segmentation in OCT Images Using Active Contour Model

Shaik Fahimuddin ✉, T. Subbarayudu, M. Vinay Kumar Reddy, G. Venkata Sudharshan & G. Sudharshan Reddy

Abstract

Optical coherence tomography (OCT) imaging is a precise and significant approach in retinal diagnostics at the layer level. The diseased effect in the retina poses a barrier to a computational segmentation approach at the boundary layer level for defect evaluation and diagnosis. The noise in the computing approach misguides the layer segmentation and border edging operation. In
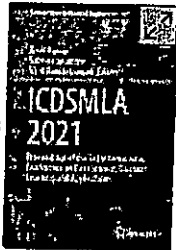
ICDSMLA 2021 pp 893–901

Design of QCA-Based BCD Adder

S. Javeed Basha ✉, B. Shilpa, A. Vyshnavi, Y. Soma Sundar Reddy & C. Sudharshan

Conference paper | First Online: 07 February 2023

157 Accesses

Abstract

IC technology advances daily in order to improve device efficiency and density of small devices. For the last 4 decades, standard CMOS technology has been a critical component of digital computing. However, scaling CMOS systems has been a struggle over the previous several years. QCA has indeed been recognized as a unique nanoelectronic technology. To provide a novel idea of integrated circuit design in an effective and optimal way, an effective design for BCD adders in QCA technology
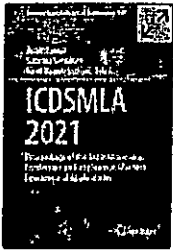
ICDSMLA 2021 pp 759–765

An Effective CNN Method Using Multi-SVM Process for Brain Tumor Segmentation and Detection from MR Images

M. Ravi Kishore ✉, V. Dinesh Kumar, J. Kiranmai, G. Bhuvaneshwar, E. Koteshwara Goud & Delampady Suresh

Conference paper | First Online: 07 February 2023

161 Accesses

Abstract

In most of the medical applications, the accuracy of detecting and diagnosing the disease in a proper procedure is always a challenging issue. One of the most searched research works is brain tumor detection with most effective way; here, deep learning-based algorithms yield better outcomes.
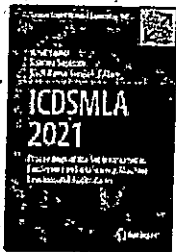
ICDSMLA 2021 pp 791–798

Design of QCA-Based 2 to 1 Multiplexer

M. Ravi Kishore ✉, B. Amaravathy, V. Siva Nagendra Prasad, M. Surya Prakash Reddy, P. Sudarshan & N. Bala Dastagiri

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157 Accesses

Abstract

In regards of switching frequency and energy efficiency, QCA technology would be thought to be a viable solution for electronic circuit. A MUX may be considered a viable option for constructing QCA circuits. Throughout this study, a distinct topology of energy-efficient QCA-based 2×1 MUX is suggested. This MUX exceeds the best available design in regards to energy usage. Furthermore,
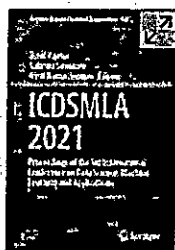
ICDSMLA 2021 pp 817–825

A Novel Multimodal Anatomical Medical Image Fusion Using Structure Extraction

G. Obulesu ✉, K. Aparna, S. Afrin, G. Abhinav Kumar Reddy & A. Kavitha

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182 Accesses

Abstract

The significant advancement in medical imaging methodology is a multimodal medical image fusion method. Its primary goal is to provide a complete overview of medical image fusion methods, including theoretical foundations and recent breakthroughs. The primary goal is to gather useful information by merging several images obtained from different sources into a single image
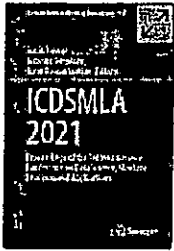
ICDSMLA 2021 pp 887–891

An Efficient Retinal Layer Segmentation Based on Deep Learning Regression Technique for Early Diagnosis of Retinal Diseases in OCT and FUNDUS Images

L. Siva Yamini ✉, S. Shylu, G. Viveka, J. Sai Dheeraj & N. Srihari

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63 Accesses

Abstract

Diabetic retinopathy (DR) is defined using progressive identification of the retina which appears in various varieties of retinal disease such as microaneurysms, hemorrhages, exudates, and so on. The detection of these retinal diseases is critical for the early diagnosis of DR. In order to detect

Wireless Sensor Networks Based on Multi-Criteria Clustering and Optimal Bio-Inspired Algorithm for Energy-Efficient Routing

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Abstract: Wireless sensor networks (WSNs) are used for recording the information from the physical surroundings and transmitting the gathered records to a principal location via extensively disbursed sensor nodes. The proliferation of sensor devices and advances in size, deployment costs, and user-friendly interfaces have spawned numerous WSN applications. The WSN should use a routing protocol to send information to the sink over a low-cost link. One of the foremost vital problems is the restricted energy of the sensing element and, therefore, the high energy is consumed throughout the time. An energy-efficient routing may increase the lifetime by consuming less energy. Taking this into consideration, this paper provides a multi-criteria clustering and optimal bio-inspired routing algorithmic rule to reinforce network lifetime, to increase the operational time of WSN-based applications and make robust clusters. Clustering is a good methodology of information aggregation that increases the lifetime by group formation. Multi-criteria clustering is used to select the optimal cluster head (CH). After proper selection of the CH, moth flame and salp swarm optimization algorithms are combined to analyze the quality route for transmitting information from the CH to the sink and expand the steadiness of the network. The proposed method is analyzed and contrasted with previous techniques, with parameters such as energy consumption, throughput, end-to-end delay, latency, lifetime, and packet delivery rate. Consumption of energy is minimized by up to 18.6% and network life is increased up to 6% longer compared to other routing protocols.

Keywords: cluster head; moth flame optimization; multi-criteria clustering; salp swarm optimization; wireless sensor networks

1. Introduction

The WSN consists of many tiny, low-priced sensor devices that are used in many recent applications [1]. It can be easily and efficiently connected wirelessly with multiple sensor devices. The WSNs are very flexible and easily modified due to their self-organizing capabilities. WSNs are preferred since it is used in many applications, such as multimedia information transmission, multimedia device tracking, populace tracking, improvising commercial process, fitness tracking, and so on [2]. These networks are maintained to detect event information and transmit it to the BS for further processing.

Article

Local-Ternary-Pattern-Based Associated Histogram Equalization Technique for Cervical Cancer Detection

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Abstract: Every year, cervical cancer is a leading cause of mortality in women all over the world. This cancer can be cured if it is detected early and patients are treated promptly. This study proposes a new strategy for the detection of cervical cancer using cervigram pictures. The associated histogram equalization (AHE) technique is used to improve the edges of the cervical image, and then the finite ridgelet transform is used to generate a multi-resolution picture. Then, from this converted multi-resolution cervical picture, features such as ridgelets, gray-level run-length matrices, moment invariant, and enhanced local ternary pattern are retrieved. A feed-forward backward propagation neural network is used to train and test these extracted features in order to classify the cervical images as normal or abnormal. To detect and segment cancer regions, morphological procedures are applied to the abnormal cervical images. The cervical cancer detection system's performance metrics include 98.11% sensitivity, 98.97% specificity, 99.19% accuracy, a PPV of 98.88%, an NPV of 91.91%, an LPR of 141.02%, an LNR of 0.0836, 98.13% precision, 97.15% FPs, and 90.89% FNs. The simulation outcomes show that the proposed method is better at detecting and segmenting cervical cancer than the traditional methods.

Keywords: cervigram; associated histogram equalization technique; finite ridgelet transform; gray-level run-length matrices; morphological operation; enhanced local ternary pattern

1. Introduction

Cervical cancer is the second most common cancer in women worldwide, with a mortality rate of 60%. Cervical cancer begins with no overt signs and has a long latent period, making early detection through regular checkups vitally important. In this study, we compare the performance of two different models, machine learning and deep learning, for the purpose of identifying signs of cervical cancer using cervicography images. [1]. In a study by Chang et al., innovative data mining approaches for recurrent cervical cancer survival analyses were used. The medical records and pathology were obtained from the Chung Shan Medical University Hospital Tumor Registry. Twelve variables were studied after a literature review, expert consultation, and data collection from patients, including age, cell type, tumor grade, tumor size, pT, pStage, surgical margin involvement, LNM, number of fractions of other RT, RT target summary, the sequence of locoregional therapy and systemic therapy, and LVSI [2]. Adjuvant therapy for patients with intermediate-risk cervical carcinoma (CC) remains unclear. A study by Chu aimed to examine the prognoses of patients with early-stage CC who had pathological characteristics of intermediate risk

ICDSMLA 2021 pp 809–816

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Design of QCA-Based 1-Bit Magnitude Comparator

P. Syamala Devi ✉, K. Vaniha, K. Vidya Sagar, P. Vinitha & K. Sumanth Kumar

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156 Accesses

Abstract

QCA is a transistor-free method of realizing nanoscale circuit architectures. When compared to the commonly utilized CMOS technology, QCA circuits perform faster, more dense, and consume less energy. In this study, a new digital comparator structure based on QCA nanotechnology is suggested. The digital comparator, that contains 2 binary integers, is a fundamental and crucial module of the CPU. As compared to previous

MDPI

Article

Image Noise Removal in Ultrasound Breast Images Based on Hybrid Deep Learning Technique

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Abstract: Rapid improvements in ultrasound imaging technology have made it much more useful for screening and diagnosing breast problems. Local-speckle-noise destruction in ultrasound breast images may impair image quality and impact observation and diagnosis. It is crucial to remove localized noise from images. In the article, we have used the hybrid deep learning technique to remove local speckle noise from breast ultrasound images. The contrast of ultrasound breast images was first improved using logarithmic and exponential transforms, and then guided filter algorithms were used to enhance the details of the glandular ultrasound breast images. In order to finish the pre-processing of ultrasound breast images and enhance image clarity, spatial high-pass filtering algorithms were used to remove the extreme sharpening. In order to remove local speckle noise without sacrificing the image edges, edge-sensitive terms were eventually added to the Logical-Pool Recurrent Neural Network (LPRNN). The mean square error and false recognition rate both fell below 1.1% at the hundredth training iteration, showing that the LPRNN had been properly trained. Ultrasound images that have had local speckle noise destroyed had signal-to-noise ratios (SNRs) greater than 65 dB, peak SNR ratios larger than 70 dB, edge preservation index values greater than the experimental threshold of 0.48, and quick destruction times. The time required to destroy local speckle noise is low, edge information is preserved, and image features are brought into sharp focus.

Keywords: local speckle noise destruction; hybrid deep learning technique; logical-pool recurrent neural network; signal-to-noise ratio; spatial high-pass filter; glandular ultrasound image

1. Introduction

The process of noise removal from an image has been studied for decades as academics attempt to tackle this "classical challenge". Filters were once used by scientists in order to lessen the visual disturbances in photographs. In the past, they were effective up to a certain degree of noise in an image. However, using such filters would cause the image to blur. In addition, if the image is overly noisy, the final product will be so fuzzy that important information will be lost [1]. Breast illness is on the rise, and breast hyperplasia is the most prevalent breast condition, while malignancy is the most frequent female malignancy. Early identification and efficient treatment boost the clinical outcome of breast illness, according to this research [2]. Ultrasound imaging technology is now used to diagnose and treat breast

CROP YIELD PREDICTION USING MACHINE LEARNING ALGORITHM FOR SUSTAINABLE AGRARIAN APPLICATIONS

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Kavya Sree J, B. Akhil Reddy, K. Hima Bindu, G. Chakreedhar Reddy, K. Hari Priya, Department of Computer Science and Engineering, Annamacharya Institute of Technology and Sciences (Autonomous), Rajampet, Andhra Pradesh, India-516126

ABSTRACT:

Due to the fact that agriculture produces a significant amount of the world's food supply, it is one of the topics of interest that the public is most focused on. India's frugality is primarily influenced by the agricultural industry. The majority of India's agricultural crops are constantly adversely impacted by changes in the global environment. An extremely important and challenging task before cultivation is predicting the crop yield based on the location and the season. The Random Forest Algorithm is used. It gives growers and manufacturers a way to promote their products effectively and a technique to anticipate crop yields before planting. Deep reinforcement learning creates a comprehensive crop yield prediction framework that can transfer the raw data to the crop prediction values by combining the intelligence of reinforcement learning and deep learning. The dataset is used as the input. In the end, the experimental results display the accuracy rating and project the crop yield.

INDEX TERMS:

Crop yield prediction, deep recurrent Q-network, deep reinforcement learning, intelligent agrarian application.

INTRODUCTION:

Agriculture produces the majority of the world's food, it is one of the areas of interest. Due to a shortage or lack of food, famine is currently occurring in several nations. A convincing method to eliminate shortages is to increase food production. The stated and most significant goals of the United Nations are to increase food security and decrease hunger by 2030. Therefore, it is essential for the world's food production that crop protection, land mapping, and crop yield forecasts are done. Since the advent of tools for mechanical learning (ML), information science, and neuroscience, agriculture has become a significant trade partner. In order to enhance human health, agriculture tries to continuously improve agricultural yields and, therefore, crop quality.

Similar to an umbrella, machine learning contains crucial color theories and methods. The usage of machine learning with the Random Forest algorithm can be shown when examining excellent agricultural models. A well-liked machine learning algorithm is Random Forest. It has the ability to manage very huge data collections. To extract potential knowledge from the information already accessible, data scientists employ a variety of machine learning methods.

Since a significant percentage of the food that society consumes is produced by the agricultural sector, it is one of the major areas of interest to society. Currently, an increasing population combined with a shortage or absence of food causes famine in many countries. Increasing food production is a powerful way to end starvation. By 2030, the United Nations must achieve two important goals: increasing food security and reducing hunger. Therefore, crop protection, land evaluation, and crop yield forecast are of more significant importance to the production of food globally [1].

The ability of a nation's policymakers to analyze exports and imports appropriately and strengthen national food security rests on accurate forecasting. The forecast of yield helps cultivators and farmers make financial and management decisions. To establish the level of food security in a region, agricultural supervision, especially the observation of crop productivity, is essential [2]. On the other hand, crop yield forecasting is extremely difficult due to a number of complex factors. Crop yield is largely influenced by climate factors, soil quality, landscapes, insect infestations, water availability and quality, genotype, and other factors [3] – [5]. The

Vehicle License Plate Detection OpenCV and Tesseract OCR

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ABSTRACT Licence plate detection identifies the vehicle by using the licence plate and image processing. The objective is to create and implement a system that is efficient at recognising automobiles by their licence plates, which act as a key to their identity. The system can be installed at parking lot entrances, toll booth entrances, or any other private area, such as a college, to keep track of vehicles arriving and exiting. It could be used to limit vehicle access to people who have permission to enter the premises. The developed system takes a photo of the front of the car, searches for the licence plate, and then reads the plate. The vehicle's licence plate is obtained by image processing. The employing of feature extraction and classification for modeling purposes. Regarding the software's implementation using computer vision numerous photographs are utilised to evaluate its accuracy. As per inferences, the proposed model correctly locates and classifies the vehicles numberplate.

INDEX TERMS Vehicles License plate images, OpenCV, PyTesseract OCR, License Plate Recognition

I. INTRODUCTION

Since China's social and fiscal status has been progressively rising over the past few decades, the degree at which the nation's automobiles are gaining popularity globally has increased significantly. Even so, as the amount of motor vehicles has expanded dramatically as a consequence of the creation of global travel and urban manufacturing, increasing numbers of road user failures have occurred in China, especially with the building projects of roadways, in which the high injury costs of crashes had also risen exponentially. Currently, the best way to reduce traffic is to build more transit system, but this option is limited by a number of challenges, including limited funding and poorly planned roadways. Adopting a transit network, a mass transit system based on automated processes, artificial, and computerization, is one alternative.

IMPROVEMENT IN AUTOMATED DIAGNOSIS OF LIPOSARCOMA USING MACHINE LEARNING

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ABSTRACT

Sarcomas in the form of soft tissue tumours (STT) can develop in the connective, encircling, and supporting tissues of the body. When seen by Magnetic Resonance Imaging, they appear to be heterogeneous due to their shallow frequency in the body and their great diversity. They are frequently confused with other illnesses such as lymphadenopathy, struma nodosa, and fibro adenoma mammae, and these diagnostic mistakes have a significant negative impact on the medical treatment of patients. Numerous machine learning models have been put forth by researchers to categorise cancers, but none have sufficiently addressed the issue of incorrect diagnoses. Additionally, comparable studies that have suggested methods for evaluating these tumours typically do not take the heterogeneity and magnitude of the data into account. For this reason, we suggest a machine learning-based strategy that combines a novel method of preprocessing the data for feature transformation, resampling methods to remove bias and the deviation of instability, and performing classifier tests using the Support Vector Machine (SVM) and Logistic Regression algorithms (LR). Tests conducted on data gathered at Yogyakarta, Indonesia's Nur Hidayah Hospital, reveal a significant advancement over earlier research. These findings support the idea that machine learning techniques could offer practical and useful tools to support STT diagnostics' automatic decision-making procedures.

Keyword: *Support Vector Machine, LogisticRegression, Random Forest.*

I. INTRODUCTION:

The word "soft tissue" describes tissues such as fat, muscles, and blood vessels, deep cutaneous tissues, nerves, and tissues lining joints that support, connect to, or surround other bodily structures and organs. These delicate tissues, as their name implies, are susceptible to a variety of diseases, including tumours, which can grow practically anywhere on the human body. Because they have a lot in common on a microscopic level, show comparable symptoms, and respond to treatment practically identically, the malignant varieties of these tumours, also known as Soft Tissue Sarcomas (STS), are categorised together. However, due to the difficulties in finding these tumours, efficient detection of Soft Tissues Tumors (STT) is still a significant challenge. In order to improve the detection of such malignancies, a number of approaches have been developed, including MRI analysis. With well-known biological characteristics including cellular origins and tumour specimens utilised to identify tumours, MRI is currently regarded as the gold standard diagnostic method for the detection and classification of STT. For several reasons, including ease of computation, extensive correlation between textural characteristics and tumour pathology, and robustness to changes in MRI acquisition parameters such as changes in the resolution of the tumour

SPAM MESSAGE IDENTIFICATION USING MACHINE LEARNING APPROACH

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ABSTRACT:

We use some communication means to convey messages digitally. Digital tools allow two or more persons to coordinate with each other. This communication can be textual, visual, audio, and written. Smart devices including cell phones are the major sources of communication these days. Intensive communication through SMSs is causing spamming as well. Unwanted text messages define as junk information that we received in gadgets. Most of the companies promote their products or services by sending spam texts which are unwelcome. In general, most of the time spam emails more in numbers than Actual messages. In this paper, we have used text classification techniques to define SMS and spam filtering in a short view, which segregates the messages accordingly. In this paper, we apply some classification methods along with "machine learning algorithms" to identify how many SMS are spam or not. For that reason, we compared different classified methods on dataset collection on which work done by using the Weka tool.

Index Terms: Spam Messages, Classification, Spam Filtering, Comparison

I.   INTRODUCTION:

In five years, there will be 3.8 billion mobile phone (smartphone) users, up from 1 billion . China, India, and the US are the top three countries in terms of mobile usage. Short Message Service, sometimes known as SMS, is a text messaging service that has been around for a while. You can use SMS services even without an internet connection. SMS service is thus accessible on both smartphones and low-end mobile devices. Although there are numerous text messaging apps on smart phones, such as WhatsApp, this service can only be used online. However, SMS is available at all times. Consequently, the need for SMS services is growing daily.

Implementation of ai based protective mask detector

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ABSTRACT

The global impact of the corona virus disease is significant. Firmly stop the corona virus from spreading. A single-shot detector (SSD)-based object identification technique that focuses on accurate, real-time face mask detection in densely populated settings such as communities and workplaces where there are a lot of people is described. On the basis of two methodologies, we suggest a system in this project. Single-shot multi-box recognition, often known as SSD, is a technique for identifying people wearing face masks in an image in a single attempt. By removing the area recommendation network, which causes an accuracy loss, SSD is employed to accelerate the cycle. Implementing our application in closed-circuit television (CCTV) surveillance systems. It will identify who is wearing the mask and who is not by using mobilenetV2 and machine learning techniques. With the aid of the single shot detection technique, it can filter photographs on the spot and distinguish between them. The data collected during this process, such as image capture, is kept in the cloud to ensure that the application functions properly.

Keywords: *MobilenetV2, Single Shot Detection, Mask, Detection, Dataset, Virus, and Data Sets.*

1. INTRODUCTION

The newest virus that has swept the globe in only a few months is the coronavirus (COVID-19). The World Health Organization labeled this virus a global pandemic on March 11, 2020, although it first appeared at the beginning of December 2019 close to Wuhan City in Hubei Province, China (WHO). More than 2 million fatalities have been documented globally, and the World Health Organization estimates that many millions of individuals have been infected with the virus up to this point. Fever, a dry cough, and exhaustion are among the most typical symptoms of a coronavirus. Close physical contact with those who have been exposed to the virus through coughs, sneezes, or exhales makes it easy to spread. Throughout the world, the WHO had issued a state of emergency and programme for detecting face masks that can be utilized in a variety of settings, including business offices, malls, theatres, and other venues where there are plenty of people. We utilised the historical object detection model MobilenetV2 to create this application. We frequently use them. In the Kaggle face mask detection dataset, which is openly accessible.

A 224*224 pixel starting network resolution is used to train this model. Higher detection will be achieved with higher resolution. "Validating the usage and detection of the mask using machine learning" is used to determine whether or not someone is using a face mask. People who work in big groups, those who have moderate symptoms, and those who are caring for others who are ill have all been advised by medical professionals to wear masks. The system is tailored to MobilenetV2[6] technology, the Voila Jones algorithmic programme, and a Single-shot detection tool depending on the requirements in order to make our work easier. It may also determine what percentage of people are wearing masks and what percentage are not. The result produced by this model is accurate and cost-effective.

A 224*224 pixel starting network resolution is used to train this model. Higher detection will be achieved with higher resolution. "Validating the usage and detection of the mask using machine learning" is used to determine whether or not someone is using a face mask.

Employing Machine Learning, A Multiclass Prediction Model For The Student Grading System

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ABSTRACT

In today's higher education institutions, predictive analytics applications have become a pressing need. In order to generate high-quality performance and valuable data for all educational levels, predictive analytics used sophisticated analytics that included the application of machine learning. the majority of people are aware that One of the main metrics that may be used by educators to track students' academic progress is their grades. In the last ten years, a wide range of machine learning algorithms has been proposed by researchers in the field of education. To improve the performance of predicting student grades, addressing imbalanced datasets presents serious difficulties. Therefore, this study gives a thorough review of machine learning algorithms to predict the final student grades in the first semester courses by enhancing the performance of prediction accuracy. In this study, we'll emphasize two modules. Using a dataset of 1282 genuine student course grades, we assess the accuracy performance of six well-known machine learning techniques: Decision Tree (J48), Support Vector Machine (SVM), Nave Bayes (NB), K-Nearest Neighbor (kNN), Logistic Regression (LR), and Random Forest (RF). In order to reduce overfitting and misclassification results brought on by imbalanced multi-classification based on oversampling Synthetic Minority Oversampling Technique (SMOTE) using two feature selection methods, we have suggested a multiclass prediction model. The outcomes demonstrate that the suggested model integrates with RF and gives a notable improvement with the greatest f-measure of 99.5%. This model's suggested findings are comparable and encouraging, and they have the potential to improve the model's performance predictions for imbalanced multi-classification for student grade prediction.

Keywords: *Predictive Model, Unbalanced Issue, Forecasting Student Grades, and Multi-Class Classification*

1. INTRODUCTION

Every institution in higher education institutions (HEI) has a system for managing the academic performance of its students. This system is used to keep track of all the information about students, including their grades on final exams and their performance in various courses and programmes. Every semester, a student academic performance report is produced using the total number of recorded student grades and marks to assess the course's success. Insightful data about student academic performance can be found using the repository's data. According to Solomon et al., a significant difficulty in HEI is assessing students' academic performance.The influencing factors that might significantly affect a student's academic performance have been well-defined as a result by numerous earlier researches. In contrast to final student scores on the final exam, the most frequent determinants depend on socioeconomic background, demographics, and learning activities. For this reason, we see that one strategy for enhancing students' academic performance is the tendency of anticipating their grades.

The HEI has successfully benefited from predictive analytics. Finding hidden patterns and making predictions about trends in a sizable database may be a promising strategy to help the competitive educational field. It has been applied to address issues in a number of educational fields, including course selection, academic early warning systems, dropout prediction, and student performance. Furthermore, over time, the use of predictive analytics to forecast student academic success has grown. One crucial aspect that might aid to enhance a student's academic success is their capacity to predict grades. Numerous studies conducted in the past have discovered that different machine learning techniques are effective at forecasting student academic achievement. However, it is challenging to locate the associated studies on mechanisms to enhance the imbalanced multi-classification problem in predicting

A fused machine learning technique for diabetes prediction.

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ABSTRACT

Early disease diagnosis and prevention are crucial in the medical field. One of the world's most hazardous diseases is diabetes. Sugar and fat are commonly found in modern lifestyles. In our eating behaviours, which has elevated the risk of diabetes. It is crucial to comprehend the disease's signs in order to predict it. Machine-learning (ML) techniques are useful at the moment for disease identification. The model for predicting diabetes in this paper uses a fused machine learning technique. Support Vector Machine (SVM) and Artificial Neural Network (ANN) models make up the two different sorts of models that make up the conceptual framework. The dataset is examined by these models to assess if a diabetes diagnosis is accurate or not. The training data and testing data ratios for the dataset employed in this study are, respectively, 70:30. While the fuzzy logic ultimately decides whether a diabetes diagnosis is positive or negative, the output of these models serves as the input membership function for the fuzzy model. The fused models are saved in a cloud storage system for further usage. The fused model makes a prediction about the patient's diabetes status based on the patient's current medical record. The suggested fused ML model outperforms the previously published approaches with a prediction accuracy of 94.87.

Keywords: *Logistic Regression , SVM , ANN ,ML techniques.*

1. INTRODUCTION

One of the most widespread and chronic metabolic diseases in the world is diabetes. Diabetes comes in Type-1 and Type-2 varieties. Type-1 diabetes develops inside the body when the immune system harms pancreatic Beta cells (-cells), which results in the release of either very little or no insulin. An autoimmune condition known as type 2 diabetes occurs when the pancreas cells do not make enough insulin or the body's cells do not respond to insulin, causing blood glucose levels to become out of control.

Type-1 diabetes is a condition marked by an insufficiency of the hormone insulin, which raises blood glucose levels and weakens the metabolism of proteins, carbs, and lipids. Polyuria, Polydipsia, and Weakness are among the diabetes symptoms (iv) (v) Obesity and Polyphagia (vi) Sudden-Weight-Loss (vii) (vii) Genital-Thrush (viii) (viii) Itching (x), irritability (ix), and visual blurriness (xi) Delayed-Healing \s(xii) Partial-Paresis (xiii) (xiii) Muscle-Stiffness (xiv) (xiv) Alopecia, \setc. [1] . . Due to several health consequences, diabetes, a metabolic illness, is responsible for millions of deaths worldwide each year. Between 2000 and 2019 worldwide, there was a 70% increase in the fatality rate due to diabetes [2].

To identify these lethal diseases, a sophisticated ML-based diagnostic system is needed.Patients with diabetes can be successfully diagnosed at an early stage using an ML-based expert decision system. For the purpose of predicting diabetes, researchers used a variety of different datasets. An adequate dataset with the required features for training and validation is required for ML-based frameworks. The dataset's selection of pertinent and important features improves the ML model's capacity for precise prediction. The dataset utilized in the suggested system was assembled by the hospital in Sylhet, Bangladesh and is available in the (University of California Irvine) UCI Machine Learning repository [3].

When food is not properly absorbed by the body, it results in diabetic mellitus (DM), which changes the body's glucose levels. Healthy eating and a change in lifestyle are two diabetes prevention strategies against malnutrition or obesity, which are occasionally the disease's main causes. Additionally, by lowering the risk of health issues and controlling blood pressure, these steps aid.

IDENTIFICATION OF HATE SPEECH USING NATURAL LANGUAGE PROCESSING AND MACHINE LEARNING

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Abstract:

Twitter's main objective is to make it possible for everyone to create and exchange information, as well as to freely express their beliefs and presuppositions. The purpose of Twitter is to facilitate public discourse, which necessitates the representation of a variety of viewpoints. Nonetheless, it does not encourage violence against, openly attack, or undermine people based on their ethnicity, country, public cause, rank, sexual orientation, age, incapacity, or real sickness. Hate speech may be harmful to an individual or a community. Thus, using hate speech is not suitable. Hate speech is now widely employed on social media platforms as a result of a rise in their use. Hence, it is impossible to recognise hate remarks by hand. Hence, it is essential to create a model for automatically detecting hate speech, and this study illustrates many methods of using Natural Language Processing to classify hate speech using machine learning algorithms.

Keywords: Hate Speech, Random Forest, Tf-Idf, Logistic Regression, and Bag of Words.

I.INTRODUCTION

People are adopting social media platforms to share their opinions due to social media's growing popularity. It might be challenging to express harsh or disrespectful thoughts to someone face-to-face. Many thus believe it is acceptable to abuse others or publish objectionable content online. As a result, people feel comfortable sharing such material online. As a result, hate speech on social media is becoming more prevalent every day. In order to manage such a big number of users on social media, technologies for automated identification of hate speech are needed. In this study, we classify whether or not a statement constitutes hate speech using machine learning techniques[13]. There are many uses for machine learning, and text-based categorization is one of them. The same set of characteristics utilised by machine learning algorithms is employed to represent each instance, or in this case, each tweet. Machine learning algorithms may address two different sorts of problems: supervised and unsupervised. The task of training a model using a given dataset that contains both a collection of features and labels is known as supervised learning. Even though the training system function for unsupervised learning uses data sets that are neither labelled nor categorised[3]. Based on the labels in the dataset, supervised learning is further separated into two types: regression and classification. Here, our sole focus is

Infectious Disease Patient Count Prediction Using Machine Learning Algorithm

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ABSTRACT: A pandemic COVID-19, which started in Wuhan, China, in December 2019, and within Several weeks it had expanded to around 200 nations. Each nation that had the sickness began to take its toll the required steps to preventing the spread, give sick individuals the greatest medical treatment possible, and implement safeguards to restrict the growth. It became necessary to simulate the progress of infection in order to predict the number of patients, using calculation because the infection spread exponentially. The essential ingredient is steps perhaps regional governments might implement to stop the span, manage hospital burden, and allocate resources is their evaluation of these people. In this study, long short-term memory was used to anticipate the number of COVID-19 patients in Pakistan. For classification, prediction, and regression, recurrent neural networks of a specific type known as LSTM are used. We trained the RNN model with Pakistani Covid-19 data from March 2020 to May 2020 in order to anticipate the Covid-19 Percentage of Positive Patients for June 2020. Finally, we computed the mean absolute percentage error to measure the model's prediction performance on various LSTM units, batch sizes, and epochs. (MAPE). When anticipated patients are compared to a prediction model for the same time, the results reveal that the proposed model's predicted patient count is substantially closer to the actual patient count.
Keywords— COVID-19, robust learning, prognosticate, lstm, infection, risk assessment, prognosis.

1.INTRODUCTION

Since December 2019 in Wuhan, China, the global pandemic Corona infection illness (COVID-19) [1] began. Initially, only 2873 deaths in China were reported, while 104 deaths were reported outside of China. Up until February 2020, it increased mortality rate by 3.6% and 1.5%. Although it started in China, it quickly spread over the world and had a high fatality rate, particularly in the US, Italy, the UK, and Spain. Despite it started in China, it quickly lay off over the world and had a high fatality rate, particularly in the US, Italy, the UK, and Spain. Around 80 000 patients were recorded in China as of March 1, 2020, while 7 200 people were spotted elsewhere in the world [3]. The coronavirus outbreak first appeared in China, but by March 15, 2020, the region's population had overtaken that of Europe and the USA. There are currently more deaths in a few areas than there are overall China. Positive indicators numbered more than 3,000,000 in the world by the end of April 2020, having over 210 000 fatalities [4].

A zoonosis called COVID-19 that starts in creatures and can spread to people through reconnecting, variation, and adaptation. Despite the fact that Covid-19 and the flu appear to be similar [5], there are important differences between the two viruses in the pace of transmission. Compared to the Covid- 19 virus, influenza has shorter serial incubation time and midway time interval [5]. In this example, During the gestation stage, the amount between being exposed to the disease and the

PREDICTION OF HEART DISEASE USING MACHINE LEARNING ALGORITHMS WITH RELIEF FEATURE TECHNIQUES

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ABSTRACT:

One of the most prevalent and deadly diseases affecting human health is cardiovascular disease (CVD). Early diagnosis may allow for CVD mitigation or prevention, which may lower mortality rates. A viable strategy is to locate risk indicators using machine learning algorithms. To obtain accurate cardiac disease prediction, we would want to suggest a model that combines various techniques. We have successfully created accurate data for the training model using effective approaches for data collection, pre-processing, and data transformation. In order to allow for comparisons, the findings are presented separately. Using the RFBM and Relief feature selection approaches, we can infer from the outcome analysis that our suggested model provided the maximum accuracy (99.05%).

KEYWORDS: CVD, heart disease, machine learning, K-nearest
neighbours, gradient boosting, decision trees, random forests, and relief feature selection techniques.

INTRODUCTION:

The most serious and fatal disease affecting people has been described as cardiovascular disease. A significant danger and burden is being placed on the healthcare systems around the world by the rise in cardiovascular illnesses with high death rates. Although children can also have similar health problems, men are more likely than women to develop cardiovascular disorders, especially in middle or late life.

One-third of deaths worldwide are attributable to heart disease, according to data supplied by the WHO. About 3% of the overall health care budget is spent on treating heart disease, and roughly half of all patients with heart disease pass away within just 1-2 years of diagnosis. Multiple tests are necessary to predict cardiac disease. False projections could be caused by a lack of medical staff experience. It can be challenging to make an early diagnosis. Surgery for heart disease is difficult, especially in underdeveloped nations where there is a dearth of skilled medical personnel, diagnostic equipment, and other resources needed for accurate diagnosis and treatment of heart disease patients.

When taught on relevant data, machine learning algorithms are capable of accurately recognising the disorders. The comparison of prediction models may be done with publicly available datasets on heart disease. Using the vast resources that are accessible, researchers may create the best prediction model with the use of machine learning and artificial intelligence. It has been stressed in recent research that there is a need to lower CVD-related mortality in both adults and children. Proper pre-processing is an important step since the available clinical datasets are inconsistent and redundant. It is crucial to choose the key aspects that can be included as risk variables in prediction models.

Malicious Website Identification and Detection Using Machine Learning Approach

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ABSTRACT

In Our project, Malicious website identification and detection is usually get to know the websites which are fake and hazard using Machine Learning. Hazard websites or malicious websites, is a common and serious threat to cyber security. Our daily lives now include extensive internet usage. Therefore, in a bid to capture users' attention, many browser suppliers compete to include cutting-edge features and new capabilities that serve as a target for hackers and endanger websites. The current methods, however, fall short of what is needed to safeguard web users, who need a quick and accurate model that can tell apart between safe and dangerous web pages. In this study, we develop a new classification system that uses machine learning classifiers like random forest and support vector machine to assess and identify harmful web pages. Naïve Bayes, logistic regression and some special URL (Uniform Resource Locator) based on extricated features the classifiers are trained to predict the malicious web pages. The experimental results have shown that the performance of the random forest classifier achieves better accuracy of 95% in comparison to other machine learning classifiers.

Keywords: URL, malicious websites, machine learning, detection.

INTRODUCTION

With the web's quick expansion, consumers now have access to an increasing number of services including online banking, e-commerce, social networking, shopping, bill payment, e-learning, etc. Users browse the internet using browsers [4] or web applications. As more sophisticated features and capabilities are added to browsers, users run the danger of losing their sensitive and personal data [3]. Because uninformed visitors are unaware of the many forms of malware, they are readily taken advantage of by attackers with only one click on malicious websites, which enables attackers to identify web page vulnerabilities and inject payloads to gain remote access to the victim's website. Because of this, it is crucial to accurately identify web pages in an online environment that is constantly expanding. In order to combat problems, blacklisting services were built into browsers, however they have a number of drawbacks, such as inaccurate listing[3]. In this paper, we investigate a self-learning method for web page classification using a limited feature set. Four machine learning classifiers are used to divide the website into benign and harmful web page categories.

"The remaining study is organised as follows: Section II covers relevant work, Section III discusses methodology, Section IV illustrates the analysis of the experimental results, and Section V offers the research's conclusion and makes recommendations for more research."

RELATED WORK

Blacklisting, static analysis, and dynamic analysis are three separate strategies that research practitioners recommend using to identify dangerous online pages. Each strategy aims to achieve a certain goal, and we've covered some of these methods in order. DatasetIdwairi et al. gathered benign web sites. According to the features listed, [3] proposed a novel lightweight selflearning technique for recognising dangerous web pages. The Genetic Algorithm (GA) was employed in the MALURL framework to train classifiers that can recognise malicious online pages. Consideration was given to the data sets Phis Tank for harmful websites and Alexa for benign websites. It was discovered that the typical system precision was 87%.

MACHINE LEARNING BASED ANDROID APP RECOMMENDATION SYSTEM

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ABSTRACT:

Due to the expansion of smartphones and the App stores, the number of mobile applications is exponentially growing. Users can download a variety of Apps that offer useful services for practically every part of modern life, including socialising, listening to music, watching videos, and browsing the web, to name a few. The current Google and Google Play store recommendation system is said to make suggestions for apps that are similar to the target application while also taking into account the popularity of each app.

However, it does not account for the security features of each programme or the user's preferences. End users can access a wide variety of mobile applications (or apps) through app stores. These apps typically produce network traffic, which uses up users' mobile data plans and could potentially pose a security risk. Due to the lack of a standardised measuring methodology, it is currently difficult to understand how much and what kind of network traffic a mobile app produces in the real world.

In this paper, we quantify and examine the network traffic costs associated with Android apps available in the official Android stores. Our analysis of the data reveals that the traffic costs for apps in various categories vary. Regarding the cost of network traffic, there is a notable variation among the apps with comparable functionality. Then, in contrast to traditional app recommendation methods, we incorporate measurements of traffic cost into our algorithm for app recommendation. According to experimental findings, the recommended recommendation algorithm can successfully guide mobile app users away from a number of potential security and privacy problems brought on by the unneeded network traffic consumption.

Keywords: Content Based Filtering, Recommendation Systems, Unsupervised Machine Learning, Android Applications.

Covert Channel detection in Wireless Sensor Network

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ABSTRACT:

Since computer networks and modern communications have advanced, it is now simpler, quicker, undetectable, and more secure to establish covert connections than it was in the past. A system security protocol can be violated to allow the release of encrypting messages over a channel. Among the most challenging aspects is still identifying such dangerous, invisible, and camouflaged risks. Traditional Security procedures are not able to identify this hazard since it uses ways that are not intended to be used for communication. An introduction to covert operations was given in this review. definitions, varieties, and developments in channels, with a focus on machine learning testing methods computer learning techniques. It offers a thorough analysis of the most common hidden channels, along with an analysis of the ML techniques employed to counter them and an analysis of their successes as well as restrictions. Moreover, this work provides experiment that compares analysis of many widely utilised ML techniques in this field. This led to evaluation and reporting of these classifiers' performance. The report's findings include that absolutely nothing is safe, our info is still in danger, and more work on finding secret passageways is required. This project's main objective is to determine whether or not a covert channel in the network is normal. To do this, we have employed the classification techniques Random Forest, Decision Tree, Naive Bayes, ANN, and Support Vector Machines.
KEYWORDS: Machine learning*. ,* Support Vector Machines, ANN, Random Forest, Decision tree and Naive Bayes.

INTRODUCTION:

A way of establishing communication between two parties in order to leak information discreetly is known as a covert channel. The organization's established security policies are broken by this communication. The development of clandestine channels across computer networks was later made possible by grilling, which expanded this idea to computer network platforms. There are now various situations that are complex enough to be of hidden channels discovered thanks to the enhanced development of computer network techniques, creating many difficulties for those trying to establish clandestine communication. A variety of malevolent acts have been made easier through network-covert channels. A covert channel differs from more established secret message transfer techniques in that it hides both the content and the route of the transmission. Network-covert channels are used to protect the transmission of private messages, in particular, have two things in mind. Security of communication links and material is one of these features. The security of these aspects is significantly enhanced by network hidden channels. Techniques by using covert channels are increasing everyday as a result of the influence of modern communication technology. These key elements for creating covert channel approaches are outlined in. Among these elements are recent advancements in internal control protocol technology, switching techniques, and network and communication technologies. This section offers a succinct overview of attacks on covert channel demonstrate the threat that quickly materialise into significant issues that require attention.

An explanation of the numerous covert channel types is given in the section that follows, with a focus on the two main categories of covert methods. The widespread application of covert channel strategies in cutting-edge technologies, such as the Internet of Things (IoT), the IPv6 protocol, and VoLTE technological advances, is then covered in Section III. It explains how covert channel assaults can employ these technologies and techniques to their advantage and provides a flexible framework for creating different covert channels of distribution that pose a variety of security challenges. The heart of our work

Sentiment and Emotion Classification using Convolutional Neural Networks with Long Short Term Memory (CNN-LSTM)

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ABSTRACT:

As a result of increase in internet usage, there is a massive amount of information available to web users, as well as a massive amount of new information being created daily. To facilitate internet pick-up, trading ideas, and disseminating assessments, the internet has evolved into a stage of large volumes of data. Facebook, Online product Reviews and Twitter generate a lot of data every day. As a result, text handling is crucial in making decisions. Sentiment analysis has surfaced as a method for analyzing Twitter data. In this paper, we collected a Kaggle dataset on multimedia-text information. It contains three variants: neutral, positive, negative. First, we used Deep Learning methods to clean the text data. Later, we applied Convolutional neural networks and recurrent neural networks with LSTM techniques for classifying multimedia-text in three different ways: positive, negative sentiment analysis. As we didn't want the neutral so we dropped the neutral and only considered the positive and negative sentiment. We achieved a good accuracy for the classification of positive and negative.

INDEX TERMS:

Deep Learning, Sentimental Analysis, Convolutional Neural Network, Long-Short Term Memory, Recurrent neural networks.

1. INTRODUCTION:

1.1. MOTIVATION

The popularization of the Internet has brought the extreme convenience of information exchange. Hot issues can trigger a great quantity discussion on the Internet in a short time. The collection, analysis and response of the public opinion is called public opinion analysis. Its key technology is emotion classification, which is an important subtask in natural language processing. Because of the top trending search mechanism and public discussion feature of social media, the objects of online public opinion analysis are selected from Twitter, Weibo and other social media. Text emotion classification technology has developed by leaps and bounds over the years. Since bidirectional encoder representation from transformers (BERT) [1] published in 2018, the state of the art of natural language processing (NLP) each sub-tasks are monopolized by models based on Transformer and pre-training. That is because, on the one hand, the Transformer network has good parallel computing ability and has the advantages such as coding by location are very suitable for NLP tasks [2], on the other hand, the two- stage mode of sub-tasks after the pre-training can improve the effect of text processing.
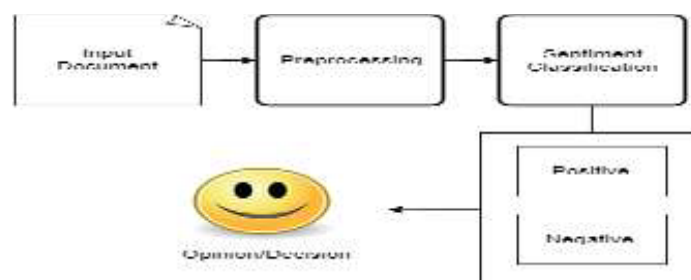
PHISHING DETECTION USING MACHINE LEARNING TECHNIQUES

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Abstract

The trend of shifting practically all real-world operations to the cyberworld has been developing in recent years due to the increased use of mobile devices. Due to the Internet's anonymous nature, even though it simplifies our daily lives, it also leads to numerous security breaches. The majority of attacks can be avoided by using firewall and antivirus software. However, skilled attackers aim to exploit computer users' vulnerabilities by sending them phoney websites. To steal sensitive information like user names, passwords, bank account numbers, credit card details, and more, these pages mimic well-known social media, e-commerce, banking, and other websites. A number of solutions, including a blacklist, rule-based detection, anomaly-based detection, etc., but they are not giving the accurate results. This paper will discuss the machine learning algorithms such as SVM, gradient boosting, Random Forest, XG boost and naive bayes by applying all these algorithms on the dataset and the best algorithm having the best precision and accuracy is selected for the phishing website detection. This work can provide more effective defenses for phishing attacks of the future.

I. INTRODUCTION

We do the majority of our work on digital platforms in our daily lives. Our personal and professional lives are made easier by using computers and the internet in numerous ways. It enables us to finish our transactions and operations rapidly in a variety of industries, including banking, aviation, health, education, communication, research, and other technical fields as well as the arts and public services. Since the advent of mobile and wireless technologies, users that require access to a local network can now quickly and simply connect to the Internet from any location. Despite the fact that this circumstance is really convenient, it has exposed major information security flaws. Users in cyberspace must now take precautions to protect themselves from such threats.

Cybercriminals, pirates, non-malicious (white-capped) attackers, and hacktivists are only a few examples of those that carry out attacks [1]. The objective is to get access to the computer, the data it holds, or to collect personal data in various methods. Morris Worm, an internet worm, was used to launch the attacks, which have continued to this day. Fraud, forgery, coercion, shakedowns, hacking, service blocking, virus software, illicit digital materials, and social engineering are the major targets of these attacks [2]. Attackers try to obtain a lot of data and/or money by targeting a broad spectrum of users. Kaspersky's statistics indicates that, depending on the size of the attack, the average cost of an attack in 2021 will be close to $5 billion. The average cost of an assault in 2019 is between $ 108K and $ 1.4 billion, according to Kaspersky's research, depending on the scale of the attack. A further $ 124 billion is spent annually on goods and services related to global security [3].

Among these assaults, "phishing attacks" are the most pervasive and important. The use of email or other social networking contact channels by cybercriminals in this kind of assault is particularly prevalent. The main aim is to steal the sensitive information like user personal information or the bussiness information. Every attacker choosing the phishing because it is simple and there is no need of virus software for it.   Attackers trick people into becoming victims by making it appear as though the post came from a reputable organisation, such a bank, an online store, or another comparable entity. They attempt to access their sensitive data in this way [4]. After exploiting this information, attackers get access to their victims' accounts. As a result, it results in financial loss as well as intangible losses.

Machine Learning Technique for SDN: DDOS Attacks and Defense Mechanisms

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ABSTRACT:

Network architecture called a "software-defined network" (SDN) allows for the virtual construction and design of hardware components. The configuration of network connections can be changed dynamically. Since the link in the traditional network is fixed, changes cannot be made on the fly. Although SDN is a sound strategy, DDoS attacks can still happen. Internet users are at risk from the DDoS attack. The machine learning algorithm is useful for preventing DDoS attacks. Multiple systems working together to simultaneously target a specific server constitute a DDoS attack. When using SDN, the infrastructure layer's devices are controlled by software from the control layer, which is centrally located and connected to both the application and infrastructure layers. In this article, we suggest using Decision Tree and Support Vector Machine (SVM) machine learning techniques to identifying harmful traffic Our test results demonstrate that the Support Vector Machine (SVM) and Decision Tree algorithms offer superior accuracy and detection rates.

KEYWORDS:

Security, Distributed Denial of Service(DDoS), Machine Learning, Software defined network (SDN), Support Vector Machine (SVM), Decision Tree.

INTRODUCTION

A distributed denial-of-service (DDoS) attack is a malicious attempt to obstruct a targeted server's, service's, or network's regular traffic by saturating the target or its surrounding infrastructure with a torrent of Internet traffic. Several compromised computer systems are used as sources of attack traffic in DDoS attacks to achieve efficacy. Computers and other networked devices, including IoT gadgets, can be exploited machinery. A DDoS assault might be compared to an unforeseen traffic congestion that blocks the roadway from a distance, preventing ordinary traffic from reaching its destination. With networks of Internet-connected devices, DDoS attacks are conducted. These networks are made up of computers and other devices infected with malware, such as Internet of Things (IoT) devices, allowing an attacker to remotely manage them. A collection of these devices is known as a botnet, and each individual device is referred to as a bot (or zombie). An attacker can control an attack once a botnet has been established by sending each bot remote instructions. Each bot in the botnet sends queries to the IP address of the victim's server or network while it is being targeted by the botnet, which may overwhelm the victim's server or network and disrupt normal traffic. Separating attack traffic from regular traffic can be challenging because each bot is a valid Internet device.

A website or service suddenly becoming delayed or unavailable is the most evident sign of a DDoS assault. However, since numerous factors, including a real increase in traffic, might result in performance problems, more research is typically needed. You can recognize some of these DDoS assault telltale signals using traffic analytics tools, unusual spikes in traffic to a single page or endpoint, suspicious quantities of traffic coming from a single IP address or IP range, or a flood of users with the same device, geographic location, or web browser version. Unusual traffic patterns, such as spikes at strange times of day or patterns that seem abnormal (such as a spike every ten minutes), Depending on the type of assault, there are further, more precise indications of DDoS attack.

FAKE JOB DETECTION USING MACHINE LEARNING APPROACH

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Abstract

Advertising new job openings has recently become a very prevalent problem in the modern world as a result of advancements in social communication and modern technologies. Therefore, everyone will have a lot of reason to be concerned about bogus job postings. Fake job posing prediction presents a variety of difficulties, much as many other categorization problems. In order to determine whether a job posting is legitimate or fraudulent, this paper proposed using various data mining techniques and classification algorithms like KNN, decision tree, support vector machine, naive bayes classifier, random forest classifier, multilayer perceptron, and deep neural network. 18000 samples from the Employment Scam Aegean Dataset (EMSCAD) were used in our experiments. For this classification challenge, a deep neural network classifier excels. For this deep neural network classifier, three thick layers were employed. A bogus job advertisement may be predicted with a classification accuracy of about 98% by the trained classifier using DNN.

Index Terms—false job prediction, SVM, Logistic Regression, Random Forest, XG Boost

Introduction

Modern-day job searchers now have a wealth of fresh and varied work opportunities because to advancements in business and technology. Job searchers learn about their possibilities based on their availability, qualifications, experience, appropriateness, etc. with the aid of the advertisements for these job offers. The strength of the internet and social media now has an impact on the recruitment process. Social media has a huge influence on this since a recruiting process's ability to be successful depends on how well it is advertised. There are ever more opportunities to communicate employment details thanks to social media and electronic media marketing. Instead of this, the opportunity to share job postings quickly has increased the number of fraudulent job postings, which harass job seekers. People don't respond to new job postings because they want to keep their personal, academic, and professional information secure and consistent. The genuine goal of legitimate job advertisements via social and electronic media thus has a very difficult struggle to win over people's trust and trustworthiness. Technologies are all around us to improve and ease our lives, not to create unsafe working conditions. Recruiting new personnel will improve greatly if job postings can be correctly screened to identify fake job postings. False job postings make it difficult for job seekers to locate the positions they desire, which is a significant waste of their time. A fresh doorway for dealing with challenges in the field of human resource management is opened by an automated approach to predict fake job postings.

Background Study

A. Job Scam: Fake Job Posting

Using Artificial Intelligence Techniques to Filter Fake Job Post

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ABSTRACT

As a consequence of improvements in social communication and contemporary technology, advertising new job opportunities has lately grown to be a very common issue in the current world. Everyone will therefore have many reasons to be concerned about fake job postings. Like many other classification issues, fake job posing prediction poses a range of challenges. This research suggests utilising several data mining techniques and classification algorithms as KNN, decision tree, support vector machine, naive bayes classifier, random forest classifier, multilayer perceptron, and deep neural network to evaluate whether a job ad is genuine or fake. In our studies, we employed 18000 data from the Employment Scam Aegean Dataset (EMSCAD). In this classification task, the A deep neural network classifier excels. Three thick layers were used to construct this deep neural network classifier. The trained classifier using DNN can predict a fake job advertising with a classification accuracy of roughly 98%.

Keywords—false job prediction, SVM, Logistic Regression, Random Forest, XG Boost.

INTRODUCTION

As a result of improvements in commerce and technology, job seekers today have access to a wide range of novel and interesting employment prospects. The adverts for these job offers let job seekers learn about their options based on their availability, credentials, experience, suitability, etc. The power of social media and the internet now has an effect on the hiring process. Due to the fact that how well a recruitment process is publicized determines its likelihood of success, social media plays a significant role in this. Thanks to social media and electronic media marketing, there are more and more options to provide employment-related information. Instead of this, the ability to swiftly distribute job posts has led to a rise in the quantity of fake job postings that annoy job searchers. Technology are all around us, but they should not be used to create hazardous working situations. If job advertisements can be accurately filtered to identify false job advertising, recruiting new employees will improve significantly. Fake job posts make it challenging for job searchers to find the opportunities they want, which is a huge time waster. A new avenue for addressing issues in the area of human resource management has been made possible by an automated system that can identify bogus job listings.

BACKGROUND STUDY

A. Job Scam: Fake Job Posting

An online job advertisement that is fraudulent and typically eager to steal the personal and professional information of job seekers in place of offering them appropriate employment is referred to as a "job scam." On sometimes, dishonest people try to take money from job applicants. According to a recent UK survey by ActionFraud [2], more than 67% of those who look for work online without being aware of fake job advertising or job scams are at high risk. In the UK, over 700,000 job seekers claimed to have lost more than $500 000 as a result of employment scams. According to the poll, the UK had an increase of about 300% during the preceding two years [2]. Students and recent graduates are the main targets of fraudsters since they frequently want to as they typically desire to acquire a solid employment for which they are willing to spend more money, students and recent graduates are the major targets of scammers. Cybercrime prevention and protection strategies fall short because con artists frequently change their job fraud techniques.

B. Common types of Job Scam

Fraudsters use fake job postings to get other people's personal information, including insurance information, bank account information, income tax information, date of birth, and national identification number. When con artists seek money while providing excuses such administrative fees, information security check expenses, management expenditures, etc., they are committing advance fee scams. As part of a pre-employment screening, con artists may occasionally assume the identity of employers and ask candidates for information on their passports, bank accounts,

Hand Written Text Recognition Using Machine Learning

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ABSTRACT

The study of handwritten character recognition has gained popularity. The handwritten characters that were scanned as input in the proposed technique were identified using a variety of machine learning algorithms..It segments each character in the image and recognises the letters after receiving the handwritten document as input in the form of a high resolution image. Additionally, it recognises the letters before going on to find the words in the image.Based on the training it received from the training data, this is accomplished with the help of machine learning algorithms. The specified input image will be provided in word document format as the intended output. Large data sets of images that display the various writing styles and shapes can be used to train the system. When training the system with vast amounts of data, machine learning is crucial. This can also be used to businesses and organisations that only keep critical records in writing form.

Keywords: OCR algorithm, digit recognition.

INTRODUCTION

The process of turning a handwritten text image into a text file that a computer can read and utilize for a variety of applications is known as handwritten recognition. The goal of this method is to create software that can comprehend handwritten documents. The technique extracts contour-based information to identify the character or word. One flaw in handwritten papers is that they are challenging to read through. In recent years, one of the difficult study areas in the realm of image processing and pattern recognition has been handwriting recognition.The task of handwriting recognition is difficult for a variety of reasons. The main explanation is that different writers have distinctive writing styles. The abundance of characters, including capital letters, small letters, digits, and special symbols, is a secondary factor. As a result, to train the system, a sizable dataset is needed. Since the system scans and detects static images of the characters, optical character recognition (OCR) is frequently referred to as an off-line character recognition method. We use the term "handwriting" to describe manuscript and cursive written writings. Because the characters are separated and written in block letters, manuscript-style texts are simpler to recognise. Cursive handwriting, on the other hand, joins the characters as they are written. To correctly perceive and recognise each individual character, handwriting recognition software is required.To create various text recognition algorithms that can be converted from paper format to electronics.The writing style is not constrained in a handwritten manuscript. The various human writing styles, variations in letter size and shape, and angles make it difficult to read handwritten alphabets.A branch of OCR technology called handwriting recognition, often known as handwriting OCR or cursive OCR, converts handwritten characters into corresponding digital text or commands in real-time. These systems use pattern matching to recognise diverse handwriting styles to accomplish this goal. According to Wikipedia, handwriting recognition is: a computer's capacity to read and comprehend legible handwritten input from sources like paper documents, photos, touch-screens, and other devices.

RELATED WORK

The task of handwritten text recognition has been figured out during the past few decades with emphasis work. Various techniques have been intended to be used in that effort. There have been difficult tasks that have required creative solutions for increased precision and efficiency. Below is a brief summary of the various forms of recognition for work well done. Because of the numerous areas of application, including the interpretation of ID numbers, processing of bank checks, recognition of ZIP codes, vehicle registration numbers, and handwritten text, the topic of handwritten text recognition has received increased attention in pattern recognition. As a result, handwritten text recognition is more widely used.around the globe. The feature extraction strategy that produced the greatest results with the highest degree

Online Transaction Fraud Detection System

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ABSTRACT

Online credit/debit card transactions appear to be a factor in the expansion of the internet and e-commerce. Fraud is on the rise as a result of more people using credit and debit cards. The frauds can be found using a variety of methods, but each has its own limitations in terms of accuracy. The behaviour-based on approach to categorization is employed in this study to increase accuracy using Support Vector Machines. The frauds are anticipated and taken for further action if there are any changes in the transaction's conduct. The proposed solution solves the problem of credit/debit card fraud detection caused by the vast volume of data.

Keywords—credit card frauds, fraud detection, fraudulent, Support Vector Machine (SVM), One Time Password (OTP), Security questions.

INTRODUCTION

Credit/debit card sales have increased over the past few years, and they are also utilised for shopping. People find it convenient to conduct business online, which leads to an increase in fraudulent activity. Fraud detection techniques must be used to identify these fraudulent transactions.Support Vector Machine (SVM) can be used to handle classification issues in complicated and noisy environments. SVM played a significant part in the generalisation of performance in a variety of machine learning problems, including face identification, webpage classification and handwritten digital recognition. In SVM applications, over fitting is significantly less of a concern. The minimum problem and curse of dimensionality rarely appear in SVM. SVM is a mathematical learning-based algorithm. SVM is utilised here to estimate the data for fraud detection. SVM has recently been employed in commercial applications such as credit rating analysis, bankruptcy prediction, and time series prediction and classification.

LITERATURE REVIEW

For the Online Transaction Fraud Detection System, numerous studies have been conducted. Prior to beginning the project and learning about the different approaches that have been employed in the past, this study is conducted. The advantages and disadvantages of the current system were better understood thanks to this study.

In earlier studies, [1] the framework was offered to develop the age of diversity in digital convenience, carrying along an empirical universe of financial fraud. The goal was to increase consumer loyalty to businesses. The likelihood of fraudulent transactions is explained by this definition, which also explains the significance and frequency of using master cards. An ongoing effort is made to users while making a conceptual distinction between fraud detection and the prediction of potential fraudulent possibilities in the digital world of transactions. A different aspect of financial fraud emerges as an upscale phenomenon that can take many various shapes according on the customer segments and the players involved. However, the system is unable to analyse the subsample ratios and characteristics for unbalanced datasets. A different aspect of financial fraud emerges as an upscale phenomenon that can take many various shapes according on the customer segments and the players involved. However, the system is unable to analyse the subsample ratios and characteristics for unbalanced datasets.

[2]In a study of master card fraud detection approaches, data technique-oriented perspective, the definition of master card plays a very major role in today's economy. Families, businesses, and global operations must inevitably live there. While using credit cards properly and responsibly has many losses.

There are several solutions suggested to stop the growth of Master Card fraud. However, both of these strategies share the same goal of preventing master card fraud; each has its own drawbacks, advantages, and features, such as the

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Predict Customer Churn through Customer Behaviour using Machine Learning Algorithms

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Abstract

Customers are becoming more concerned to the quality of service (QoS) offered by organizations in the present. However, the present day shows greater rivalry in offering the clients with technologically innovative QoS. However, an organization may benefit from effective customer relationship management systems in order to increase sales, maintain relationships with existing customers and improve customer retention. The customer retention strategies can benefit greatly by the use of machine learning models like Decision Tree, Naïve-Bayes Classification, Logistic Regression algorithms.

1. Introduction

Every organization's profit and revenue are always increased by its customers, so it is crucial for organisational managers to maintain an effective customer relationship management system by identifying their target clients and building strong relationships with them. (Brandusoiu, Toderean, et al.) Additionally, the company will benefit from the CRM system by being able to recognise the most significant client group and their behaviour which helps to better understand its retention strategy. Lower customer churn rates are associated with stronger customer loyalty, therefore applying machine learning algorithms like the Decision Tree, Naïve-Bayes Classification, Logistic Regression algorithms can help to prevent the customer churn. (Maldonado et al.)

2. Background

Churning can occur voluntarily where a customer chooses to end their relationship with a specific seller or involuntarily where the customer's act forces them to avoid engaging in any kind of business relationship with a specific entity. (Tsai, Lu, et al.) Forceful churning occurs when a customer violates the traditional rules for conducting business within a specific location. In this situation, it may be the result of illegal activities like theft or a failure to make a timely payment. A voluntary kind of churning is sparked by issues related to consumer satisfaction or the loss of an organizations competitive edge. (Burez and Van Den Poel) Any company that deals with a variety of consumers should regularly rotate its evaluation practices.

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Using a Hybrid Model of Machine LearningAlgorithms for Efficient Cardiovascular illness Prediction

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Abstract

Researchers have paid more attention to the field of medicine. Researchers have found several kinds of factors which leads to human early mortality. According to the relevant studies, illnesses are brought on by a variety of factors and heart-related illnesses is one of them. Numerous scholars suggested unconventional ways to prolong human life and aid medical professionals in the diagnosis, treatment and management of cardiac disease. Some practical techniques help the expert make a choice, but every effective plan contains some drawbacks. The suggested techniques in this paper examines an act of Decision Tree, Random Forest, XGBoost and Hybrid Model. Based on the results, we created a hybrid approach to archive data with more precision.

1. Introduction

Medical care is one of the most important issues in human life. In accordance with WHO recommendations, everyone has a right to a reasonable standard of health. (Dogan and Tanrikulu) Only a small portion of deaths from heart diseases are brought on by natural or medical reasons, the majority of which is brought about by the diseases slow detection. (Sarkar et al.) The most recent WHO report shows that heart disease is spreading. A consequence of this results in 17% of deaths worldwide each year. Any problem that could make it difficult for the heart to pump blood is referred to as heart disease. Any issue that can impair the heart's ability to beat and function is referred to as heart disease. (Verma and Mehta) Diagnoses and early therapy initiation become more difficult to achieve as the population increases.Over the past 200 years, researchers have been working to predict cardiac disorders using a variety of approaches. People in today's fast-paced culture desire to live a rich lifestyle, so they labour tirelessly to earn a lot of money and enjoy comfortable living. And as a result, people modify their eating patterns and overall way of life, as well as forget to care for themselves. (Giri et al.) They get more anxious as a result, develop high blood pressure and diabetes at an early age, don't get enough sleep, and eat anything they can.

Heart failure can be brought on by several things. Disease diagnosis is the most significant component of healthcare. (Almaw and Kadam) The early stages of cardiac disease require an automated method to forecast and detect the condition, its cause, and a treatment strategy.With the use of this contemporary technology, professionals will be able to spot diseases more promptly, and individuals will be able to assess their own health status. (jatav and Sharma)

Data mining techniques can be quite helpful for understanding and analysing huge amounts of data.

Explicit finite difference simulations for accelerating cross diffusion flow over a perpendicular shield with parabolic motion

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ARTICLE INFO

ABSTRACT

The heat transfer phenomenon subject to thermos-diffusion effects convey important applications in the heating processes, extrusion systems, chemical processes and various engineering systems. The objective of current work is to observe the contribution of Soret and Dufour effects in oscillating shield for cross diffusion flow. The perpendicular shield with oscillating motion induced the flow. The magnitude of oscillations is assumed to be small so that laminar flow due to oscillating shield has been resulted. The motivations for addressing the thermos-diffusion phenomenon due to oscillating of shield are due to applications in oscillatory pumps, moving surface, metal detectors, power systems etc. The dimensionless problem is obtained via introducing the appropriate set of variables. The numerical outcomes are suggested by using the most interesting explicit finite difference scheme. The physical illustration for flow parameters is presented. Moreover, the aspect of physical quantities involving the flow are graphically reported.

1. Introduction

The heat transfer is the key factor in all industrial and engineering processes. The thermal phenomenon in heavy industries and engineering systems is based on applications of heat transfer. The applications of heat transfer are commonly observed in nuclear systems, solar energy, climate control, thermal processes, materials processing, chemical reaction, insulation, power station engineering etc. The fluctuation in heat transfer in various configurations is important and discussed widely by researchers. Nazir et al. [1] observed the improved thermal model with enhancing heat transfer effects with hybrid nanomaterial. Sohail et al. [2] contributed the heat transfer evaluation for Casson fluid in view of fluctuated thermal constraints. Bilal et al. [3] examined the heat transfer observations for Darcy–Forchheimer flow. The optimized aspect of heat transfer with theoretical outcomes was inspected by Sohail et al. [4]. Dawar and Acharya [5] reported the heat transmission with nanolayer

due to revolving of sphere. Acharya et al. [6] investigated the aspect of thermal phenomenon with interaction of nanoliquid for mixed convection flow. Dero et al. [7] reported the stable pattern of heat transfer under injection features. Acharya [8] explored the heat transfer applications in enclosure supported with fins due to buoyancy forces. In another heat transfer problem, Acharya [9] examined the control of thermal transport due to inclined disk with heat transfer obsevrations. Li et al. [10] presented observations for Hall features of heat transfer phenomenon with Jeffrey nanofluid flow.

The combined heat and mass transfer phenomenon is important in various engineering processes and industrial transport. The phenomenon of heat and mass transfer contributed a significant application in thermal systems, power generation, energy systems, diagnoses of diseases, HVAC, cooling processes, solar systems, monospacing processes etc. Different research model has been endorsed by researchers to illustrating the object of heat and mass transfer phenomenon. For

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NUMERICAL INVESTIGATION ON UNSTEADY MHD CONVECTIVE FLOW OF A CASSON FLUID THROUGH A VERTICAL PLATE FILLED WITH UNIFORM POROUS MEDIUM

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Abstract

We investigate the effects of thermal radiation, heat generation/ absorption, first-order chemical reaction, and thermal diffusion on the MHD convective flow of a Casson fluid passing through a vertical

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English Language Acquisition through Comparative Literature

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Abstract

Comparative literature facilitates amalgamation of cultures, traditions and nations bringing them all onto one common front. Reader gets an opportunity to compare and contrast these major features realizing cultural and religious sensitivity. When regional literatures are compared with English literature, reader may have a broader scope to learn English language from the context. Through this, reader may gain functional and practical English. Thus, my paper throws light on comparative literature between regional and English literatures with a note of practical and functional English acquisition.

Key Words: Comparative literature, Regional languages, Language acquisition, Functional English and Cultural sensitivity

Comparative literature, as one is aware, draws comparisons and contrasts with many aspects of literature as well as life. Besides, it also facilitates language acquisition. One may wonder how this will be possible. If the comparison is made between regional literature and English literature, reader with that regional language background can find a clue about how such intentions can be expressed in his language and in turn how can they be conveyed in English. In this context, it should be remembered that translated works also serve the stated purpose but in a different way. When a work in regional language is translated into English, it's a linear process and messages are straightly translated into it. If the same work is compared with an English one with more or less similar backdrop, it helps the reader to find subtle differences between the portrayals of the themes. Variety of expression exhibiting cultural modalities, religious sentiments and traditional differences can be observed and learned.

It has long been recognized that the 'comparative literature' has casually been used by Mathew Arnold in 1840s. During this long journey, it has undergone many tussles. At present it is enjoying an exclusive status of eradicating borders between nations. Globalization also contributed a lot for this positive impact.

When it comes to English language, it has almost pervaded the world turning it into a global village. In this globalized and privatized world, one can survive by changing one's self in accordance with the prevailing circumstances. No doubt, person with proficiency in English language can outsmart others in this cut-throat competitive world.

Language doesn't mean phonetics and syntax alone. It has many paralinguistic features like accent, intonation, inflexion etc. All these are so significant in spoken communication but written communication requires intonation. One can understand these features by observing the native speakers

Argument Composition in Certain Types of Complex Predicates

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Abstract

Complex Predicates (CPs hereafter) are multi-headed and are composed of more than one grammatical element (Alsina *et al* 1997). This paper concentrates on the composition of argument structure of Adjective/ Adverb plus Light Verb (LVs hereafter) CPs in Telugu which are traditionally called Conjunct Verbs. There has been very little work done on these two types of CPs, so this paper will address this interesting phenomenon syntactically as well as semantically in a better way. In general, as for nominal CPs, the argument structure depends on the preverbal noun in Telugu. Coming to adjectives and adverbs, can these preverbs decide the number of arguments of the CP they are part of or is it the LV which determines the number of arguments or do they have an equal share is the main concern of this study.

1. Introduction

One of the main components of a CP is an LV that carries inflections indicating tense, agreement, aspect and so on. LVs play a vital role in deciding the meaning of the whole predicate. Typically, LVs often indicate perfectivity (Hook 1991, 1993, sigh 1994) or inception/ completion (Butt 1995) and other semantic information such as forcefulness, suddenness, benefaction and volitionality (Hook 1974). They can also indicate displacement, loosing, transformation, separation and so on. The main concern of this paper is to find out what LVs can attach to what adjectives and adverbs and how the argument composition and transitivity of the entire predicate is determined.

2. Complex Predicates in Telugu

I. Adjective + Light Verb forming CPs

Telugu, the most wide-spread Dravidian language spoken in the Southern states of Andhra Pradesh and Telangana as official language, allows both attributive and predicative adjectives. In the combination of adjective and LV construction, the agreement is always realised on the LV and not on the adjective which is the same case with other types of CPs too. Just like V+N and N+V, the order of this type too is not reversible. The LVs that go with adjectives are very limited in number and the very constructions of this type are very few. Let us look at the list of LVs that can go with adjectives.

Light verb	Gloss
paḍu	to fall
ekku	to climb
avvu	to become

THE USE OF AI (ARTIFICIAL INTELLIGENCE) IN ENGLISH LEARNING AMONG ENGINEERING STUDENTS: A CASE STUDY

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Abstract

Aim: This research aim is to analyze an artificial intelligence platform that can be used in imparting education as well as evaluating student performance**. Method:** This research was conducted with a qualitative method by conducting in-depth interviews and a literature study. **Results:** The findings of this study shows that Artificial Intelligence technology can be used as a means of developing English learning for students. **Discussion:** There have been several studies that support research results, that AI can be used to improve students' English skills through applications, websites, Virtual Reality technology, and other AI-based learning and teaching systems. **Limitation:** The limitation of this research is that it does not examine how far the role of AI in students' English learning is. **Suggestion:** For further research, it is expected to test how far the role of AI is to improve students' English skills, especially Jawaharlal Nehru Technological University Anantapuramu (JNTUA)

KEYWORDS:

Artificial intelligence, English language, English skills, higher education, online learning patterns

Hyperfine structure measurements on a forbidden transition of Bi I using fourier transform spectroscopy

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ARTICLE INFO

ABSTRACT

Hyperfine structure (*hfs*) investigations have been performed on a forbidden transition of the Bi I emission spectral line in the visible region at 15,437.49 cm^{-1}, between the levels $6p^3\ ^4S_{3/2}$ and $6p^3\ ^2D_{5/2}$, by means of a Fourier Transform spectrometer. Electrodeless discharge lamps (EDL) containing BiI_3 were utilized to generate the bismuth plasma. In these observations, all the 6 components of electric quadrupole ($\Delta F = \pm 2$) transitions have been detected for the first time, in addition to the 12 components of magnetic dipole ($\Delta F = 0, \pm 1$) transitions. Magnetic dipole constant (A) and electric quadrupole constant (B) have been derived for the combining levels.

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1. Introduction

The selection rules and transition probabilities for atomic radiation have been well formulated for the electric dipole radiation which is significantly more intense than the higher order multipole transitions. Forbidden transitions are those transitions which do not follow these rules, having usually extremely weak transition probabilities. Mrozowski [1] classified the forbidden lines as those with extremely small transition probabilities compared to the highest transition probabilities between levels of approximately the same total quantum numbers in an atom. Such transitions have importance in fundamental physics and in astrophysics, as many lines detected in the spectra of terrestrial objects remain un-classified. Bowen [2] has described such lines in terms

of the transitions among low-lying metastable states and ground states of neutral and highly ionized atomic configurations. Subsequently, Rubinowicz [3] utilized a second order radiation theory for electric quadrupole radiation to calculate selection rules for multipole radiation, which are different, not only from those for electric dipole radiation, but also for different order multipoles. Brinkman [4] showed that the first order term corresponding to a radiation of a magnetic dipole also contributes to the forbidden transitions. Since then, there have been many reports on the theory of forbidden lines and substantial experimental work has been carried out [5–7].

The concentration of the atoms in the meta-stable states is proportional to the intensity of the forbidden lines. However, forbidden lines can be relatively bright if they are produced by the decays of excited levels which cannot de-excite by an E1 (Electric dipole) transition. Thus, forbidden lines are important in nuclear spectroscopy, as often found to be more intense than allowed lines in the gamma-ray spectra. The intensity of these forbidden lines

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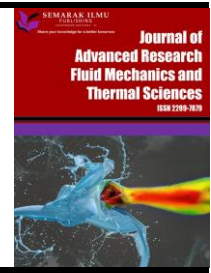
Analysis of Energy and Mass Transport Flow of Ethyleneglycol (C$_2$H$_6$O$_2$) Based Nanofluid over an Infinite Porous Plate

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ARTICLE INFO	ABSTRACT
               	The main aim of this article is to analyze the flow properties of energy and mass transport flow of ethylene glycol (C$_2$H$_6$O$_2$) based nanofluid over an infinite porous plate. A constant velocity U0 is applied to the plate, and warmth and attention are unspecified to fluctuate harmonically as of a steady denote at the shield through occasion. Three kinds of fluid nanoparticles namely Cu-C$_2$H$_6$O$_2$, CuO-C$_2$H$_6$O$_2$ as well as TiO$_2$-C$_2$H$_6$O$_2$ nano fluids are used. Through graphs and tables, the impacts of different fluid flow parameters are examined. The new parameters added in this analysis are thermal radiation and the angle of inclination. The objective of this work is to derive exact solution by perturbation method and analyze the variations in the flow. The diffusion thermo parameter as well as the radiation absorption parameter have been observed to improve the speed, the hotness, plus the resistance between skin cells. An examination of the skin friction coefficient numerically in detail for the engineering industry. This development has main consequences for Particles of nanoscale. The solid particles have an elevated conductivity, which accounts for this of Cu, CuO than those of TiO$_2$. In addition, by means of an augment in the substance response constraint, it is seen so as to the solutal border layer thickness decreases.

1.Introduction

Recently, attention has been drawn to mesoscopic approaches. The primary heat transmission method in many applications is free convection. Because of its many uses in businesses, electronics, solar energy, and the cooling of electrical and mechanical components, convection has an essential place in nature and engineering. Nanofluid may be suggested as a practical means of enhancing

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Synthesis and Characterization of ZnS Nanoparticles by Chemical Co-precipitation Method

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ABSTRACT

ZnS nanomaterials were effectively synthesized by the chemical co-precipitation method by using Zinc Acetate (Zn $(CH_3COO)_2 \cdot 2H_2O$), sodium sulfide (Na_2S) and Poly Vinyl Pyrollidine (PVP) as precursor materials. The reactions were carried out at ambient temperature. The X-ray diffraction (XRD) studies confirmed the cubic zinc blende shape of ZnS. Surface morphology of the prepared material was analyzed by scanning electron microscopic (SEM) and transmission electron microscopic (TEM) techniques. The average particle size of the ZnS is found to be around 2 to 3 nm. Optical studies were carried out to calculate band gap energy by using UV-visible spectroscopy. The band gap energy of prepared ZnS nanoparticles is found to be as 3.7 eV.

1. Introduction

The semiconducting nanoparticles show a significant title part in photocatalytic [1] hyperthermia [2] biomedical [3] and in LED applications [4]. The semiconducting nanoparticles have an outstanding structural, electrical and magnetic properties [5]. In recent years, the synthesis of II-VI semiconducting nanomaterials is the field of interest due to their wide applications in optoelectronics and spintronic devices [6, 7]. Among the II-VI semiconductor group, ZnS has significant wide bandgap and luminescence properties, which have a vast range of applications [8]. Pristine ZnS nanomaterials are noble in nature in which doping enhances their optical properties by enlarging band gap energy. Pristine and doped ZnS nanomaterials are having structures, cubic Zinc blende and wurtzite structures, respectively. The blende structured ZnS were highly applied in the preparation of luminescence materials [8]. The literature reports showed that the transition metal ion doped ZnS has potential applications in luminescent materials [9–13]. In this paper, we have reported the synthesis of pristine ZnS by the chemical co-precipitation method. [11, 14–18]. Furthermore, the physical, morphological and luminescence properties of ZnS nanoparticles were studied. The prepared ZnS semiconducting nanoparticles opens the new avenues in the research on an optoelectronic application.

RESEARCH ARTICLE

Combinational Antidiabetic effects of *Curcuma longa* L. and *Trigonella foenum-graecum* L. extracts in alloxan induced type-1 diabetic rats

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ABSTRACT:
Diabetes mellitus is a metabolic disorder that is one of the leading causes of death globally. The current study aimed to determine the combined protective effect of *Curcuma longa* (CL) and *Trigonella foenum-graecum* (TFG) on alloxan-induced oxidative stress in liver tissue of albino Wister rats. Rats were divided into 8 groups with 6 individuals each. Group I served as control, group II, III and IV were treated with CL, TFG and CL+TFG respectively. Group V, VI, VII and VIII were alloxan-induced diabetic rats, whereas group V served as negative control and group VI, VII and VIII were treated with CL, TFG and CL+TFG respectively. Blood glucose, body weight, oxidative enzymes and histopathological changes were evaluated. Group V showed significant increase in blood glucose levels after induction of alloxan, whereas, group VI, VII and VIII showed significantly decreased levels. However, the best hypoglycaemic activity was found in group VIII. The body weights were slightly increased in groups II, III and IV after the treatment of plant extracts, whereas, decreased body weights were noticed in group V. though no significant weight changes were observed in groups VI, VII and VIII. A significant decrease in oxidative enzyme levels as compared to group V were recorded. The histopathological investigation of liver tissue showed morphological alteration in group V and ameliorative effects in group VI, VII and VIII due to administration of CL, TFG and CL+TFG. Therefore, the combined administration of CL+ TFG exhibits the highest hypoglycemic activity by reducing the oxidative enzyme levels and regeneration of liver tissue.

KEYWORDS: *Curcuma longa, Trigonella foenum-graecum*, antidiabetic activity, oxidative enzymes, liver histology.

INTRODUCTION:
Diabetes mellitus, the disease which was least considered a few decades ago has now become the global problem of concern by being one of the leading

ARTICLE

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Chemically Radiative MHD Flow of a Micropolar Nanofluid over a Stretching/Shrinking Sheet with a Heat Source or Sink

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ABSTRACT

This study examines the behavior of a micropolar nanofluid flowing over a sheet in the presence of a transverse magnetic field and thermal effects. In addition, chemical (first-order homogeneous) reactions are taken into account. A similarity transformation is used to reduce the system of governing coupled non-linear partial differential equations (PDEs), which account for the transport of mass, momentum, angular momentum, energy and species, to a set of non-linear ordinary differential equations (ODEs). The Runge-Kutta method along with shooting method is used to solve them. The impact of several parameters is evaluated. It is shown that the micro-rotational velocity of the fluid rises with the micropolar factor. Moreover, the radiation parameter can have a remarkable influence on the flow and temperature profiles and on the angular momentum distribution.

Nomenclature

B_0	Magnetic's field strength
C	Volume friction of nanoparticle
C_w	Volume friction of nanoparticles at sheet
C_f	Coefficient of friction skin factor
C_P	Specific heat at constant pressure
(ρC_p)	Fluid's heat capacitance ($JK^{-1}m^{-3}$)
D_T	Coefficient of thermophoretic diffusion
D_B	Diffusion of Brownian motion
φ	Volume fraction of nanoparticle
$f(\eta)$	Dimensionless flow function
g	Acceleration due to gravity (m/s^2)

MANAGEMENT STUDENTS PERCEPTION ON HIGHER EDUCATION SERVICE QUALITY IN SOUTH INDIA: AN EMPIRICAL STUDY

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Abstract

The present paper examines the management student's perception about higher education service quality. The main purpose of this paper is to study the Management Students perception towards higher education service quality in South India. Not only to analyze the higher education services but also to suggest better way to improve the higher education system in India. This paper using the three components models of service quality proposed by (Rust and Oliver 1994).It also attempted to analyze the service quality from corner to corner various factors placements, Information technology labs, library, Teaching methodology, College Principles, sports and health facilities, hostels of an institution. The population of the study is south India. The present study nature is descriptive in nature. Targeted audience are chosen using randomly sampling method and data was collected through a 24 item structured question is from 300 students from different institutions. The five point likert scales is used to administer the questionnaire. Data was analyzed using SPSS and hypothesis tested using T-test, F-test and Chi-square. The results showed that there is significant difference among between different demographical variables about higher education service quality and also student perceptions on higher education factors have the supreme influence on satisfaction. The Teaching methodology, Computer lab facilities and placement activities majorly influencing on higher education service quality in south India.

Keywords: higher education services student demographics quality

INTRODUCTION

On account of economic and demographic changes, the Indian higher education system is facing an unmatched transformation in the coming decade. By 2024 India will be the world's largest economy. India will outpace China as a country with the largest territory- age population. The Indian education system has made a significant progression from fast decades. At the state and Central levels the government with various regulatory and activation bodies monitors the higher education institution with vision to ensure quality in education services despite their best of efforts quality of higher education is struggling to attend the global level of excellence in India (Guru born 2012) in the last decades more than 800 management institutions have been added and every year new institution receive role of all India council of technical education (AICTE) body to regulate technical education in the country. As of 2020, India has over 1000 universities, with a break up of 54 central universities, 416 state universities, 125 deemed universities, 361 private universities and 159 Institutes of National Importance which include AIIMS, IIMs, IIITs, IISERs, IITs and NITs among others.

Service Quality in Higher Education: Quality in higher education is a key concern for all institutions across the world. Educational service quality dimension is the fundamental characteristic of educational excellence. The student's perceived value is estimated by focusing on students learning and education experience and students being co-creators of value. So

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A Feasibility Study of a System for Generating Dynamically Electoral Rolls

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Authors' affiliations

Abstract

Dynamically Electoral Rolls

Abstract

Clean electoral rolls plays vital role in free and fair elections from the bedrock of an Indian democracy. An electoral roll is an official list of inhabitants who are eligible to cast their vote in an election in their residential area. An Inhabitant (citizen) can be registered as a voter in a place where they are ordinarily resident. However, the seasonal migration and relentless urbanization can end up being on more than one electoral roll. A variety of reasons relentless urbanization and inter-and intra-city movements pose a challenge to having an updated and accurate electoral roll in urban areas. Bogus voting is another seriously considerable issue which is duplication owing to their enrolment in electoral rolls in several places made by hyperactive political parties. The use of proposed System for Generating Dynamically Electoral Rolls (SGDER) is to identify eligible voters and not to just make the enrolment process simpler; it will also help to avoid the duplication of voter names across constituencies. This system is to exploit for meeting effectively and efficiently the electoral roll registration, update requirements of ever increasing inhabitants and it maximizes accuracy and minimizes the process time, discrepancy and maintains uniqueness. The proposed system proves to be better than existing door-to-door campaign in India.

Keywords

Inhabitant; Citizen; Democracy; Panchayath; Mandal Parishad Territorial Constituency (MPTC); Zilla Parishad Territorial Constituency (ZPTC); Assembly and Parliament Constituency

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Detection and classification of COVID-19 using supervised deep learning on MRI images

J. Chinna Babu, Mudassir Khan, Mallikharjuna Rao Nuka and C.H. Nagaraju

Published Online: 6 Dec 2023

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Keywords

COVID-19   deep learning   DL
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machine learning

Authors and Affiliations

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Abstract

Healthcare services in many parts of the world, but especially in emerging countries, have been made aware of the risks presented by the COVID-19 pandemic. In areas where bulk traditional testing is not practical, new computer-assisted diagnosis methods are clearly needed to provide speedy and cost-effective screening. Pulmonary ultrasonography can be used to diagnose lung disease since it is portable, easy to clean, inexpensive, and non-invasive. In recent years, computer-assisted analysis of lung ultrasound images has showed considerable promise for identifying respiratory disorders, including COVID-19 screening and diagnosis. Detecting COVID-19 infections from lung ultrasound images using deep-learning algorithms and comparing their results. It was possible to use a variety of pre-trained deep learning architectures to this problem. There are 3,326 lung ultrasound images in the POCUS dataset, which we used to train and fine-tune our algorithm. Computed tomography (CT) proved useful in the diagnosis of corona virus infection particularly in the pandemic of new corona virus (COVID-19). Radiation from patients who underwent CT scans experienced alterations that were comparable to those seen in MRI scans. A chest MRI should be performed if a CT scan is unavailable, according to the study's findings.

Keywords

Information

Keywords

COVID-19   deep learning   DL
supervised learning
machine learning

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HCP miner: an efficient heuristic-based clustering method for discovering colossal frequent patterns from high dimensional databases

T. Sreenivasula Reddy, R. Sathya and Mallikhanjuna Rao Nuka

Keywords

data mining | big data | frequent pattern mining | FPM | high dimensional database | FIMI dataset | backtracking search

Authors and Affiliations

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Abstract

This paper presents an efficient heuristic-based clustering method for colossal frequent patterns discovery from the high dimensional databases (HCP miner). The HCP miner avoids exhaustive level-wise pattern tree traversal and quickly mines colossal patterns from the high dimensional databases. To achieve this, our approach constructs the sub-patterns using a lattice array and applies the binary clustering over the sub-patterns initially. While constructing the sub-patterns using a lattice array, it uses the support values. These sub-patterns are explored as conditional patterns by estimating core patterns using heuristic measures to minimise the searching time during the database scan. Finally, colossal cluster is constructed from which colossal patterns are discovered. We perform the experiments on various high dimensional databases using different performance metrics. Our experiments shows that, the proposed HCP miner achieves prominent and efficient results for mining. In addition, these analysis of results reveals that the HCP miner algorithm outperforms with CoreFusion, colossal pattern miner (CPM) in diverse aspects.

Research

Design and implementation of a wireless communication-based sprinkler irrigation system with seed sowing functionality

Bhupalam Venkatesh[1] [iD] · Y. Suresh[2] · J. Chinna Babu[3] [iD] · N. Guru Mohan[1] · C. Madana Kumar Reddy[4] · Manoj Kumar[5,6]

Abstract

This study addresses the critical health risks faced by farmers owing to the use of harmful chemical pesticides in agriculture. The primary objective is to create an effective solution to minimize these risks and reduce the use of pesticides. To achieve this, a smart irrigation system has been implemented by connecting various sensors, such as moisture sensors and thermal imagers through the Internet of Things. These sensors collect vital data on crop moisture levels and thermal images that are securely stored in a cloud-based system. The data collected were subjected to extensive analysis to ensure accurate pesticide use and to identify specific pests affecting crops. In addition, the smart irrigation system includes an Android phone for remote monitoring and pesticide spray detection, thus offering a convenient remote-based operating system for farmers. This innovative system not only proved to be cost-effective but also proved to be significantly more efficient than traditional methods, resulting in reduced labor costs. Importantly, it not only addressed the health risks associated with pesticide use but also led to a significant reduction in overall pesticide use in agriculture. This research provides a comprehensive and effective approach to address the health risks farmers face from harmful pesticides, thereby promoting sustainable and safe farming practices for the future.

Article Highlights

- Agriculture revolution: Agricultural resource utilization and environmental impacts will be minimized using Bluetooth-controlled disinfectant spraying robots and wireless irrigation systems. This innovative approach fundamentally transforms crop management by improving crop health, reducing pesticide use, and conserving waterthis innovative approach fundamentally transforms crop management.

- Cost-Effective and Eco-Friendly: The system is also attractive from a financial standpoint because of its transformative potential and cost savings. By reducing labor costs and pesticide expenses, agricultural operations of all sizes can promote sustainable and eco-friendly agriculture.

- Adaptability in rural and urban areas: A game changer for modern agriculture is that this system can be

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IOT BASED SMART BLOOD BANK SERVICES FOR HEALTHCARE APPLICATIONS

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ABSTRACT:

In order to guarantee reliable and safe blood transfusions, blood banks need to be properly managed. Blood bank management traditionally relies on manual techniques, which can result in errors and inefficiencies. An innovative system incorporating temperature and IR sensors within blood bank racks is proposed to address these challenges. Additionally, an Arduino interface is included to facilitate blood donation requests through GSM. Moreover, a Wi-Fi module allows for real-time data transmission to a central server, and a web-based display shows the status of blood stocks. In order to improve accuracy, reliability, and efficiency in blood bank management, this system automates and streamlines blood bank management. The care of patients will be enhanced as a result.

INTRODUCTION:

A blood bank's management of blood bags received from blood donation events must be systematic and efficient. It is important to handle and treat blood bags carefully, since blood is a vital component of a person's life. Different components of the blood have specific functions, and every component has its own characteristics. India has an average of two blood transfusions every two seconds, according to statistics. Individuals experiencing trauma, including victims of accidents or burns, patients undergoing cardiac surgery, recipients of organ transplants, and premature new borns, as well as those undergoing therapeutic interventions for conditions such as cancer, leukaemia, sickle cell disease, and thalassemia. In relation to its blood needs, India is currently experiencing a 10% shortage of blood. This means that we must cover more than 12 lakh blood shortages. A lack of donors in India is surprising since the country's eligible donor population exceeds 512 million.

Every minute, a vehicle collision happens in India, resulting in terrifying trauma situations. Every year, around 60 million operations are conducted in the country as a consequence of trauma. In addition, 230 million major surgeries are performed, and 331 million cancer-related procedures are performed. Blood units for various medical procedures are in short supply in India due to the waste of more than 10 million litres of blood every day. In order to address this critical issue, it is imperative that advanced technologies are deployed for efficient management of blood banks. It is crucial to have a blood bank management system in place in times of emergency so that the blood search process can be simplified and automated. Also, accurate blood stock records can be maintained with it. By reducing wastage, optimizing blood utilization, and providing better access to blood units for patients in need, such systems can reduce the need for blood units. In order to ensure safe and timely access to blood transfusions in India, it is essential to develop efficient and innovative management systems for blood banks.

EXISTING SYSTEM:

Blood supply status and refrigerator temperature are closely monitored by an embedded system inside the blood bank. Service and administration domains are included in the proposed system. An Arduino Mega with a Wi-Fi module serves as a gateway for the blood bank's service domain along with IR sensors and temperature sensors. Information about the blood bank is processed and analyzed

INGRAINED DARK-VISION STRUCTURE FOR IDENTIFYING OBJECTS AND PEOPLE

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ABSTRACT
Object & People identification is difficult part in contemporary Surveillance system in dark, dark-time Surveillance is important for safety and security purpose Surveillance has become an important task in recent time mainly due to the increasing of crime rates several studies have attempted to automatically identified people and object, introducing into restricted areas by using Infrared Cameras. In this paper we used CNN (convolution neural network) based pixel-wise classified for fine-grained Person identification was implemented object identification model using YOLO (you only look once) for vision of Thermal and Visible images by improving the Performance, Person & object identification from Infrared images and Performance better when images are trained carefully with various features.

Keywords: Person identification, CNN, Object identification, Infrared image, Thermal images, deep learning and YOLO.

Introduction:
In the recent time of object identification more strong and advanced Surveillance system are requseted, a Security surveillane system is incomplete without automatic classification of objects that are in the streets the development and locating image processing have been great help in observing objects however detecting objects people in dark still remains a dare having automated warning system to detect interloper is crucial for both safety and general public and the safety security of restricted areas, one of the most important applications for dark-time intrusion warning is drowning prevention. According to the world Health organisation (who) 3,72,000 people die due to drowning accidents every year [1] Finding some pedestrians in during travelling in dark in present road traffic one of the main problems is road capacity. There are four major causes of that happening [2] Poor planning of transport routes existence of gridlock [3] on a human being humans have been identified as responsible for about 92% 0f accidents it shows that it is most dependant on a human being in a study conducted by the Virginia technology institute of transport[4] it was shown the driver fatigue was the cause of 20% of accidents .To prevent accidents vehicle constructions are finding new Solutions are introduced however it is the driver who becomes the weakest link in the security bond on the road underrated the increasing development faith to car safety.
To address this problem deep learning approaches based on convolution neural networks (CNN) have recently been Presented for person identification in Infrared images obtained by some researches [5] [6] [7] [8] these deep learning approaches can enhance the object identification performance in Infrared images since the increased model complexity leads to better learning capacity. Several studies have developed Infrared image datasets such KAIST [8], CVC-14 [9], and LSI [10] the ability of human vision to see in the dark to help the human while driving many manfactures equip their vehicles special structures like crumple zones that are designed to structural safety feature for vehicles with on-board driver assistant systems known as (ADAS) it stands for Automated Advanced Driver Assistance System that observed for authors used the DAS acronym.
The inability of human vision to see in dark has not only little for our work organization it also had increased crime and offense in dark time there are several system that used to identified the objects and their movement in the dark time but they suffer from wrong Predection when planning and

ENHANCED CRASH TESTING WITH SENSOR-EMBEDDED BUMPERS: TOWARDS MORE RELIABLE SIMULATION MODELS

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Abstract

Crash testing plays a crucial role in ensuring the safety and reliability of automotive vehicles. Traditional crash test methods rely heavily on physical experiments, which can be time-consuming, expensive, and often limited in their ability to provide detailed information about the dynamic behavior of a vehicle during a crash. In recent years, there has been a growing interest in the development of simulation models that can accurately predict the behavior of vehicles during a crash, thereby reducing the need for extensive physical testing. This research aims to enhance crash testing methodologies by incorporating sensor-embedded bumpers into the simulation process, with a focus on utilizing the LS-DYNA software package. The integration of advanced sensor technology into the bumper design allows for the collection of real-time data during a crash, enabling more accurate and reliable simulation models. The first phase of the research involves the development of a sensor-embedded bumper prototype capable of measuring key parameters such as impact force, acceleration, and deformation. The bumper design incorporates high-precision sensors strategically placed to capture critical data points during a crash event. These sensors are carefully calibrated and synchronized with the LS-DYNA simulation environment to ensure accurate representation of the crash dynamics. The second phase focuses on the implementation of the sensor-embedded bumpers within the LS-DYNA simulation framework. Advanced algorithms are employed to seamlessly integrate the real-time sensor data into the simulation models, enhancing the accuracy and reliability of the crash simulations. Furthermore, the collected data from the sensor-embedded bumpers are utilized to validate and calibrate the simulation models, thereby improving their predictive capabilities. To evaluate the effectiveness of the enhanced crash testing methodology, a comprehensive series of simulations and physical crash tests are conducted. A range of crash scenarios, including frontal, side, and rear impacts, are considered to assess the performance and reliability of the sensor-embedded bumper approach. The results are compared with traditional crash testing methods, and the advantages and limitations of the proposed methodology are discussed. The outcomes of this research are expected to contribute to the development of more reliable simulation models for crash testing. The integration of sensor-embedded bumpers enhances the accuracy of crash simulations, enabling automotive manufacturers to optimize vehicle safety designs and reduce the need for extensive physical testing. Ultimately, this research aims to improve overall vehicle safety and support the ongoing efforts to enhance occupant protection in automotive crashes.

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