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Assessment and Design of Steel frame Structure, consists Performance of Connection Joints with Tekla & Staad Pro

L.Vimala, T.Naresh Kumar, S.M.V.Narayana, J.Chinna Babu

Abstract: *Steel offer the range of advantages to the structure Industry. The erudition of steel gives architects, and the freedom was to achieve the most ambitious visions. Steel is also one of the most sustainable construction materials, building owners naturally value the flexibility of steel buildings in addition the value of benefits they provide. Steel is ideal for modernization, reconfiguring, extending or adapting with minimal disruption. The conception of design analysis as well as modelling of steel structures is the most up-to-date edition in the civil engineering field. It is necessary to model a steel structure but if it is also analysed during its modelling then there will not be any chances of failure. Tekla structures are powerful and flexible software for all structural projects. Flurry up our construction work with an enormous of standard connections for all structural projects. In construction field, we create a evident, constructible 3D model of any steel structure from everyday industrial and commercial buildings to stadiums and high rise buildings. This project dealing with manual connection designing by using of Standards (ISO, AISC, AWS etc..). As well as considering of OSHA rules. Implemented manual designing and modelling by using of Tekla software. And the connections are an important part of steel structure like beam to column connections, moment connections. And are designed more conventionally than any individual members. The aim of this project work is to analyse a 7-storeyed commercial building for different load combinations using STAAD Pro software. And behaviour of connection of bolts.*

Key words: Behaviour of connections, Modelling in Tekla Structures, Standard Code books (IS:800-2007,IS:875 part 1,2,3), Steel manual design

I. INTRODUCTION

The speedy enhancement in people, poverty and high cost of land has more effect the construction industry. This has commanded to the construction of buildings higher. Better development in erection technology, constituents, and mechanical systems, besides assessment and design software expedited the development of tall buildings. As the elevation of structures more, seismic load resisting system becomes huge important than the structures, cut off partition, wall-frame, braced pipe arrangement, Beam arrangement and tube-shaped arrangement. Mechanical system that tolerate gravity loads. The earthquake load resisting arrangements that remain broadly recycled be situated unbending frame Steel is a material which is used for present trending structures, which is formed with a specific shape following Indian standards of chemical composition and strength. They can also be find as hot rolled steel products, with a cross section of special form like angles, channels and beams/joints. There has been any more insist for steel for construction purposes in the India. Dimension are been taken by the structural steel authority for instant possible available of structural steel on time for the different structural steel projects. The planning platform is the ultimate time to regard appearance such as accuracy and safety precautions as well as cost and appearance. The selection of materials chosen for beside the walls, at the roof space and foundations are basic information about steel structures. Steel-framing is day by day becoming increasingly more popular, with suggestions in the home building industry that these systems will protect a significant share of the domestic market sometime after the turn of the century. As well as suiting traditional choices in Layout and exterior finishes, steel framing can widen the options available. The unique behaviour of steel, such while its strength as well as light weight, lend themselves to innovative design ideas.

The people at every stage are working with great effort to substantiate the goal of producing steel on time, like, service centres, fabricators and erectors along with the general contractors, structural engineers and architects are all working hand in hand.

Steel has perpetually more leaned to concrete because steel offers extreme tension and compression thus resulting in lighter construction. Commonly structural steel uses three dimensional trusses hence preparing it huge property than its concrete correlative. There are contrasting inventive techniques which entitle the generation of a huge range of structures and shapes, the procedures following:

- High-precision analysis of stress
- Computerized analysis of stress
- Creative joint connections

Various types of steel sections and their specialized specifications according to standards as follows:

- Beams
- Channels
- Angles
- Flats

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Strength and Durability Properties by Replacement of Natural Zeolite and Fly ash in Ordinary Portland Cement

Chalapati Harish, T.Naresh Kumar, V.Vishnuvardhan

Abstract: ***Natural zeolite and Flyashresidue, a sort of hydrated Alumino-Silicate is used amply as ordinary pozzolanic material in particular areas of the world. In this calculation, the suitability of a secretly quarried zeolite and mineral admixture called fly ash is used for getting better mechanical and durability property of bond. The presentation of strong quality was better with a dissimilar degree of zeolite and fly ash was examined. The substitution on zeolite and fly ash with other proportions like 10% zeolite with ordinary Portland cement (OPC), 10% zeolite and 10% fly ash, 10% zeolite and 20% fly ash, 10% zeolite and 30% fly ash for M25 grade of concrete and done valuations with mechanical properties such as compressive strength, split tensile test, water permeability test, rapid chloride permeability test. By differentiating these effects between a run of the mill concrete and dissimilar degrees of Zeolite and Flyash.By comparing these results between normal concrete with different proportions of Zeolite and Flyash.***

Keywords: Cement, fly ash, zeolite

I. INTRODUCTION

Concrete, typically Ordinary Portland cement concrete possibly will be a compound substance collected of a fine and coarse aggregate bond by the side of through a flowing cement (cement paste) to harden time mainly commonly a lime-based strengthen binder, like Portland cement, though naturally with another hydraulic cement, like a calcium-aluminate. It is well-known from different; non-cementitious types of concrete all required some type of aggregate along, as well as asphalt concrete through a hydrocarbon binder, to aid is normally used for the road surface. Fly ash or flue residue, also called pulverized fuel residue in the UK may be energy-burning produce that's together of the particulates (fine element of burn fuel) to are determined out of coal-fired ignition chamber by the side of by resources of the channel gas. In the example to fly ash was produced since coal, as an instance, previously solid waste is incinerated in a specifically waste-to-energy ability in the way of providing electrical energy, the residue strength have a high level of pollutants than energy ash.

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In that container the powder formed is typically off the record as harmful waste. Most in abundance used the structure of natural pozzolanic material in a few regions of the sphere is natural zeolite, it's a form of hydrated alumina-silicate mineral then might be used as a more cementetious material. Zeolite tuff–the lime mixture is widespread utilize in constructions while former period. Natural zeolite by the method of volcanic or volcano-sediment essential have a 3-dimensional outline structure and is portion as a hydrated alumina-silicate of alkali before alkaline earth cations. Crystals are considered as a honeycomb-like creation with mainly slight pore then channel, changeable in dimension from $3\times10^4$to 4×10^4micro meters. It's a similar entire specific surface interior and exterior area of 35 to 45 m^2/gram is referred from Mumpton FA, editor, mineralogy and geology of natural zeolites. Newyork: Reprint of the mineralogical society of America's reviews in mineralogy; 1993. Zeolite is also known for its ability to lose stream by more than 30th of its dry weight.; moreover, component cations will be altered with no major conversion within the formation of crystals.

II. LITERATURE REVIEW

Miguel A.Climent et.al.(1999) this paper discusses regarding the potentiometric volumetric analysis process to produce usage of Gran's technique for end-point finding have been industrial to examine acid-soluble chloride in cement, mortar, and concrete, eliminate the filtration stepladder perform in normal laboratory situation ways. through this, the accurateness and accountability of the intended logical method has been check beside a normal method, like Volharda, by examining replacement sample of cement, mortars, and concretes by varied chloride contents and as well the result complete that the accurateness and task of the future technique is similar to that of a laboratory situation process like Volharda technique, for a Cl_2 attention vary as wide as 0.01 to 1.5% by some weight.

Nai-QianFeng et.al. (2005) exposed that readily available remain extra than one hundred zeolite mineral deposit create in a huge range of 21 provinces now an existence the practice of zeolite greater than earlier mainly in the industry of china. Natural zeolite is the relations of a frame. Structured alumina silicate hydrates. Zeolite is used in china future for both an ion-exchange efficacythen adsorption function. Natural zeolite is anunique mineral source for the creation and building materials, it acts as anti-bacteria agent, mineral admixture aimed at inhibition extension of material produced by alkali-aggregate reaction, blended material for cement developed.

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Measurement of Temperature of the Core of Concrete during Progressive Compressive Loading using Temperature Sensors

T. Sai Bindhusha, S.M.V. Narayana, T. Naresh Kumar

Abstract: ***Structural health monitoring and health diagnosis have become the integral parts of 21st century structural engineering practice. Many non-destructive tests are being used to assess the condition of the concrete in existing RCC structures. In addition to these Non-destructive tests sensing systems are also used to monitor the structural health of RCC structures. If a structure fails pre maturely; the consequences are not only the in effective usage of materials and reduction in life span of structures but also loss of money and sometimes loss of lives. When the load is applied on a structural element, it undergoes some deformation or volume change. Deterioration of concrete may be due to many reasons. But the serviceability is very important for the structures. During the application of external loading, concrete structures, and offer resistance and during this process, energy is utilized by the structure to resist the external load. The concrete is solid like a stone and some heat is developed in concrete during the process of loading. By embedding the temperature sensors in the concrete, it is possible to read the temperature developed inside the concrete. In the present investigation an attempt is made to find the change in temperature of concrete at different ages at regular intervals of progressive compressive loading starting from no load to failure of concrete. This will be useful for estimating the health of concrete structures as it is possible to find the temperature changes and the condition of concrete at different percentages of ultimate load.***

Keywords: ***core of concrete, progressive compressive loading, temperature sensors.***

I. INTRODUCTION

Upon loading matured concrete resists the external force and during this process heat is generated. Internal energy of material changes with the creation of internal defects such as vacancies, interstitials and dislocations. The stored internal energy depends on the amount of defects and also their arrangement within the material [1]. Structural health monitoring is the process of identifying or detecting the damages. The damage refers to impairing the use or function of concrete or concrete structures. In case of structural health monitoring of concrete, the sensors can be used to measure and predict the damage.

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Digital thermometer sensors are used to measure the temperature of the concrete when load is applied on the concrete. Structural health monitoring is a system that includes the integration of sensing, intelligence and activation devices to record the loading and damage causing conditions of a concrete structure. Based on the knowledge of the condition of the structure, preventive measure can be taken to increase the service life of the structure. The maximum concrete temperature, maximum concrete temperature differences affect the performance of a bridge member [2]. In concrete, heat is generated due to hydration process, weather conditions, pressure conditions etc. The heat generated in the material is either dissipated to the surrounding or is used to increase the temperature of material. For all concrete structures, the thermal effects inside the concrete are strictly related to their structural health [3]. Thermal load is very important in bulk concrete structures. Cement hydration, the sun radiation, the temperature change of water and air may produce tensile stress which can cause cracking of structure [4]. Concrete strength and durability depend mainly on the temperature and the dynamics of moisture transport. Concrete material properties change with time and these properties are significantly influenced by heat of hydration and moisture content in concrete at early ages [5]. Temperature field in concrete has a significant effect on the durability of concrete structures. Carbonation, corrosion of steel bars in concrete, chloride ingress in concrete are closely related to the temperature field in concrete [6]. There are many non-destructive tests available to monitor the health of the concrete structures. When mechanical vibrations are introduced into a friction and consequent deformation are induced and heat will be released which can be read by using infrared camera to detect the defects [7]. Extensive studies have been conducted related to long term temperature monitoring of concrete structures. Most of those studies focused on the surrounding environmental conditions that contributed to the temperature effects in concrete structures, especially the highest and lowest temperatures that could be expected to occur throughout the year [8]. In the present investigation the study was focused on finding out the temperature change in the core of concrete during the loading till the failure of the concrete specimen. The temperature sensors were embedded in concrete during the casting of concrete cubes and the concrete cubes were water cured for 14, 28 and 60 days. The cubes were subjected to compressive force and at every 50KN increment of load; the temperature of the core of concrete was noted.

Groundwater Investigation by Electrical Resistivity Method in Cheyyeru River Basin, District-Kadapa, Andhra Pradesh

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Abstract: The area chosen for the present study is Cheyyeru River Basin, Kadapa District, which belongs to the drought prone area of Andhra Pradesh state, India. Kadapa district suffers from water problem, and therefore, there is no extra water available to supply for the agricultural and industrial growth. To understand the lithological characters in terms of its hydro-geological conditions, it is necessary to understand the geology of the area. It is now established fact that the geophysical method gives a better information of subsurface geology. Geophysical electrical surveys with four electrodes configuration, i.e., Wenner and Schlumberger method, were carried out at the same selected sites to observe the similarity and compared both the applications in terms of its use and handling in the field. A total 4 VES soundings were carried out spread over the Kadapa district and representing different lithological units.

Key Words: Geophysics, Groundwater, Exploration, Vertical electrical sounding, Wenner and Schlumberger

1. INTRODUCTION

Recurring droughts and the continuous occurrence of low rain fall caused enormous depletion of the ground water reserves. Added to the problem exclusive enterprising commercial agricultural activity has severe impact on the fast depletion of groundwater reserves. Hence the conservation and steps to be taken up for artificial recharge has become inevitable and several types of constructing recharge structure are designed. Taking micro watershed as a unit of the basin the runoff is made to recharge groundwater by constructing various types of recharging structures starting from first order stream gully plugs, stone plugs, check dam, contour bunds, contour trenches, percolation tanks and mini storage tanks are some of the structures usually constructed in the watershed treatment. The surplus runoff through the stream and rivers were made to be stored in by constructing the reservoirs across the course of flow like Annamayya Project, Pincha Project etc. Despite the efforts laid and the steps taken to rise the groundwater level the situation is still to be improved. The major and potential agricultural activities along the delta alluvial plain has severely suffered due to the reduction in river bed sub surface flows. As a result much of the potential ayacut which hitherto are supportive to the rich agricultural activity production and employment generation has suffered severely. Cheyyeru river is the main lifeline supporting the lively hoods of 3 mandals 33 villages. Spring channels of about 39 numbers are the main supporting water supply system of channels in this area. Most of these spring channels are at present either dead or vanished. Hence we came to realize to study the problem faced by farmers under Annamayya Project which entertains the Cheyyeru river delta-alluvial plains, starting from Paturu to Pothapi covering of 50000 acres. Within the available resources, time and financial positions we thought of as an interested project to carry out.

2. STUDY AREA

The area chosen for the present study is Kadapa district, which belongs to the drought prone area of Andhra Pradesh state, India as shown in Figure. 1. The Cheyyeru river originates in the crystalline rocks such as gneiss, granitic terrain of Chittoor and Kadapa (districts) in the southern side enters into the metamorphic rock belts of Precambrian series of Cuddapah group of rocks. Kadapa district with a geographical area of 15380 Sq Km is situated part of Andhra Pradesh. It is bordered by Chittoor district to its south, Nellore district to the east, Kurnool and Prakasam districts to the north and Anantapur district to the west.

Significant Groundwater Level Decline for Handri River Basin, Andhra Pradesh, India

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Abstract: Analysis of significant groundwater level decline is essential for efficient groundwater resources management, for domestic uses, industrial uses and irrigation purposes in the study area. The present research entails the significant groundwater level decline analysed for Handri river basin, a tributary of Tungabhadra river in Andhra Pradesh, India. The component helps in assessment of groundwater sources. Groundwater Estimation Committee (India) guidelines are followed in this assessment of significant groundwater level decline. Various data is collected from various agencies. The groundwater levels for both pre-monsoon and post-monsoon seasons are collected for time period 1997 to 2015. Present methodology is based on recommendations of Groundwater Estimation Committee which is formed by government of India. Significant groundwater level decline is estimated for various watersheds which are fall under Handri river basin for both commanded and non-commanded areas for both pre-monsoon and post-monsoon seasons. The component significant groundwater level decline is assessed for four command areas and eleven non command areas in the study area.

Key Words: Groundwater, Assessment, Handri, Decline, River

1. INTRODUCTION

Groundwater resources are important to meet the rapidly expanding urban, industrial and agricultural water requirements, particularly in arid and semi-arid zones. Groundwater is one of the most valuable natural resources supporting human health and economic development. Because of its continuous availability and excellent natural quality, it becomes an important source of water supply in both urban and rural areas of any country. It also helps in poverty alleviation and reduction, i.e., can be delivered directly to the poor community far more cheaply and quickly than the canal water. Groundwater management is under pressure on increased water demand, climate change and pollution problems (Kumar and Seethapathi, 2007). The main scientific concern is the correct understanding of the changes in quality and quantity of groundwater caused by human activities and climate change.

In India rainfall is get from monsoons. Present methodology is based on recommendations of Groundwater Estimation Committee which is formed by government of India. For computation of significant groundwater level decline various data is required. Data of groundwater levels for both pre-monsoon and post-monsoon seasons are collected for time period 1997 to 2015. Significant groundwater level decline is estimated for various watersheds which are fall under Handri river basin for both commanded and non-commanded areas for both pre-monsoon and post-monsoon seasons. The component significant groundwater level decline is assessed for four command areas and eleven non-command areas in the study area.

2. STUDY AREA

The study area considered for assessment of groundwater resources is Handri river basin, a tributary of Tungabadra river in Kurnool district, which is in Andhra Pradesh state (India) lies between a latitude of 14° 35' 35" - 16° 09' 36" N and longitude of 75° 58' 42" - 78° 56' 06" of E. Figure 1 shows the details of study area. The origin of sub basin between Pattikonda and Aspari and mingle in river Tungabhadra which is one of the major tributary of river Krishna. The study area receives an average rainfall of 665 mm per annum. The geological formation consists of shales, lime stones, granite gneisses and quartzites (Karanth K. R, 1994).

3. METHODOLOGY

Present work methodology is based on guidelines of Groundwater Estimation Committee (Gouse Peera and Bhavani, 2019; MoWR, 2009). The component significant groundwater level decline is estimated for various water

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Neural network based MPPT control with reconfigured quadratic boost converter for fuel cell application

Suresh Srinivasan [a], Ramji Tiwari [b], Murugaperumal Krishnamoorthy [c], M.Padma Lalitha [a], K.Kalyan Raj [d]

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Highlights

- Proposed a converter for fuel cell with high voltage gain and low switching loss.
- Novel MPPT is proposed to extract maximum power at variable operating conditions.
- Incorporation of Novel RBFN strategy and Quadratic Boost converter for fuel cell.
- Validated the proposed system performance with notable classical methodologies.

ARCHIVES

Tumor Classification and Extraction from Mammogram Images Using Convolutional Neural Network

Dr.K.K. Arun, O. Hemakesavulu, Dr.S.K. Mydhili and Dr.K.M. Senthilkumar

Abstract

Tumor diagnosis and screening plays vital role in treating the patient from life threatening illness. The Mammography is the early diagnosis and screening method of taking low energy level x-ray images of the human breast to detect any masses or microcalcifications present which are the early sign of cancerous tumors. Expert Medical Practitioner is required in classifying these tumors as cancerous or non-cancerous. In this paper we proposed a tumor classification and extraction method from Mammogram images using Convolutional Neural Network (CNN).With the help of this proposed method we are extracting and classifying the tumor as malignant (cancerous) or benign (cancerous). We developed a Computer Aided Diagnosis (CAD) system with CNN for human breast tumor extraction and classification. The Proposed method is performed in different phases namely Preprocessing by an Adaptive filter, Segmentation by the Gaussian mixture model (GMM), Feature extraction by the relationship of the pixels in Spatial Domain with the help of Gray-Level Co-Occurrence Matrix (GLCM). and finally classification by CNN Classifier. The proposed method experimental results shows greater accuracy of 98.46% in classifying human breast tumor as malignant or benign compared to SVM Classifier. Also the interactive visual system by Graphical User Interface (GUI) designed in MATLAB facilitates the proposed system to be operated on several Mammogram images.

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Articles

Optimal Sizing, Selection, and Techno-Economic Analysis of Battery Storage for PV/BG-based Hybrid Rural Electrification System

Murugaperumal Krishnamoorthy, Ajay D. Vimal Raj Periyanayagam, Ch. Santhan Kumar, B. Praveen Kumar, Suresh Srinivasan & P. Kathiravan

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Abstract

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The focus of the paper is on the renewable energy-based rural electrification system. Two concepts have been used in finding solutions to the issues related to this micro-grid system. The first is the best fitted model of hybrid configuration system, which utilizes village-owned resources, such as abundant biomass and solar irradiation. The second is

In this article

Optimal Setting of OUPFC Device for real power loss minimization using symbiotic organisms search algorithm

P.Balachennaiah et. al

Abstract

In this work a meta-heuristic algorithm known as SOS algorithm is employed to optimize real power loss minimization of the transmission network. Real power loss (RPL) minimization is considered as objective problem. The optimization of RPL minimization is carried out by sequentially optimizing the OUPFC location and its variables keeping optimized taps constant. The proposed algorithm has been tested under simulated condition on New England 39 bus test system. The results of the proposed SOS algorithm have been compared with the results of the FA, as available in the literature. The simulation results confirm the efficiency and superiority of the SOS algorithm towards the optimization of RPL.

PDF

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Real time assessment of power quality issues in 11 kV/440 V distribution feeder using distribution static synchronous compensator

Suresh Srinivasan[1], Murugaperumal Krishnamoorthy[2], RK Pongiannan[3] and S Jeyasudha[4]

Abstract

The effects of power quality (PQ) issues in a distribution feeder occur due to abnormal load condition. In this paper, first, the real time PQ issues in an 11 kV/440 V distribution feeder are measured and analyzed by PQ analyzers. The sudden load fluctuations in the distribution system result in different PQ issues such as voltage sag/swell, transient, flicker and harmonics. Then, an improved interactive distribution static synchronous compensator (D-STATCOM) is installed in distribution feeder to mitigate the PQ issues. A novel control algorithm will operate the interactive D-STATCOM in voltage control mode (VCM) or current control mode (CCM). At normal operating conditions, the D-STATCOM operates in CCM, during abnormal condition the D-STATCOM will operates in VCM to mitigates the PQ issues. The D-STATCOM is modeled and simulated in MATLAB-SIMULINK environment. The field programmable gate array (FPGA)-based laboratory prototype D-STATCOM has been developed to validate the function of the controller.

Keywords

Power quality, distribution static synchronous compensator, adjustable speed drive, point of common coupling, voltage control mode, current control mode, total harmonic distortion, short-term flicker

Introduction

The power quality (PQ) issues are induced in distribution system due to the sudden varying load like electric arc furnaces, resistance welding, and induction motor and so on. Also, adjustable speed drive (ASD) alters the load current consisting of harmonics, reactive power component, neutral current, unbalanced currents, direct current (DC) offset. These PQ issues affect the performance of distribution system as well as the protection and control devices. To mitigate these power quality issues in distribution system dynamic voltage restorer (DVR), unified power quality conditioner (UPQC) and D-STATCOM are utilized. Generally, the DSTATCOM can mitigate the PQ issues such as harmonic elimination, load balancing, power factor correction, and voltage regulation based on the load requirement. In the past decade, the D-STATCOM-based PQ mitigation system has been developed by many researchers.

In the distributed generation system, micro grid system, PQ issues exists due to light emitting diode (LED) lamp, underground cables, and waveform distortion within the ranges of 2KHz to 150KHz (Ronnberg and Bollen, 2016). The D-STATCOM is for the mitigation of unbalances in distribution system with microgrid application. A controller design based on the mathematical model helps to find positive and negative sequence component errors (Wang et al., 2018). The PQ issues evaluation schemes, an optimal solution, and case studies are carried out to classify effective custom power devices (CPD) for distribution generation system. Based on the analysis, it is identified that D-STATCOM can be the potential choice (Hossain et al., 2018). The control strategies have been addressed for the operation of D-STATCOM, and mitigation methods only for the limited PQ issue (Khoshooei et al., 2018).

The design of D-STATCOM controller to regulate its DC-side capacitor voltage and feeder reactive power is discussed. A control technique is developed to reduce the inverter switching losses and harmonics. The technique addressed is applicable during normal condition and its dynamic performance

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Reduction of Common Mode Voltage f Inverter Fed DTC of open end Windin Motor Drive

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Abstract:
A scalar based carrier comparison Reduced Commo Modulated (RCMVPWM) schemes is implemented Direct Torque Control (DTC) of Open End Windi drive). In scalar based approach, the modulating sig sequence signal to sinusoidal signal. In this paper, a Width Modulation (SVPWM), RCMVPWM algorith Pulse Width Modulation (AZSPWM) and Near St (NSPWM) algorithms were obtained by scalar a utilizes zero voltage vectors which are responsib Moreover, the CMV injects Common Mode Currents result, the bearings were damaged. Since the RCM utilized zero voltage vectors and therefore CMV analysis of CMV and the Total Harmonic Distortion motor carried out in this paper. The present wo simulation results of the MATLAB.

Keywords: *COMMON MODE VOLTAGE, DTC, NSPWM, THD.*

I. INTRODUCTION

The Direct Torque Control (DTC) scheme offers robust control and good dynamic response [1]. The

When an induction moto balanced sinusoidal supp Voltage (CMV) will be ze speed drives employing P

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RESEARCH ARTICLE

Techno economic performance analysis of hybrid renewable electrification system for remote villages of India

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Summary

This paper mainly deals with the optimum design and performance of the hybrid renewable electrification system for remote villages of southern part of India. Constructed and simulated a hybrid renewable energy (HRE) system, which was consists of fully village owned renewable resources such as solar, wind and biomass energies. Through this case study a typical Indian village load demand wants to meet out by suitable hybrid renewable configuration with optimum performance and least investment. The proposed system's technical performance was ensuring by highest renewable fraction and least annual unmet load percentage. The economical performances of the system were witnessed by the least net present cost and minimum cost of energy. The further sensitivity analysis of the proposed remote village electrification system has been verified by NREL's HOMER software tool. The outcome of the different HRE configuration's competitions were established that the PV/wind/biomass based hybrid renewable power generations at standalone mode was highly commendable electrification system for remote village energy sustainability.

KEYWORDS

feasibility analysis (PV/wind/bio-energy), HRE system modeling, optimal sizing and performance, resource inventory management, rural electrification, sustainable energy configurations

1 | INTRODUCTION

The reported by world energy outlook in the year 2018, the projected global energy demand climb in 2040 have been nearly 30% of current worldwide energy instantiations capacity. Also the report pointed that future energy crisis will be

List of symbols and abbreviations: COE, cost of energy; CRF, capital recovery factor; GHS, greenhouse gas; HOMER, hybrid optimization model for the electric renewable; HRCC, hybrid renewable and conventional energy configuration; HRE, hybrid renewable energy; IRR, internal rate of return; NPC, net present cost; NREL, National Renewable Energy Laboratory; O &M, operation and maintenance; PSO, particle swarm optimization; PV array, photovoltaic array; RF, renewable fraction; SCC, standalone conventional energy configuration; SoC, state of charge; SRC, standalone renewable energy configuration.

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Stock Investment of Agriculture Companies in the Vietnam Stock Exchange Market: An AHP Integrated with GRA-TOPSIS-MOORA Approaches*

Phi-Hung NGUYEN[1], Jung-Fa TSAI[2], Venkata Ajay KUMAR G[3], Yi-Chung HU[4]

Received: May 02, 2020 Revised: May 17, 2020 Accepted: June 07, 2020

Abstract

Multi-criteria stock selection is a critical issue for effective investment since the improper stock investment might cause many problems affecting investors negatively. Investors need a range of financial indicators while they are choosing the optimal set of stocks to invest. This study aims to rank the stock of agriculture companies indexed on the Vietnam Stock Exchange Market. The data of 13 agriculture companies during the 2016-2019 periods was analyzed by analytical hierarchy process (AHP) integrated with grey relational analysis (GRA), multi-objective optimization ratio analysis (MOORA), and technique for order performance by similarity to ideal solution (TOPSIS). The AHP method is employed to determine the weights of the proposed financial ratios, and GRA, TOPSIS, and MOORA approaches are used to obtain final ranking. The results indicated that HSL is the top stock with the highest rank and GRA, MOORA, and TOPSIS rankings have strong correlation values between 0.78-1. The findings suggest that the integrated model could be implemented effectively to specific analysis of industries such as oil and gas, textiles, food, and electronics in future research. Further, other techniques like COPRAS, KEMIRA, and EDAS could be employed to evaluate the financial performance of other companies to solve investment problems.

Keywords: AHP, GRA, TOPSIS, MOORA, Stock Investment, Vietnam.

JEL Classification Code: C02, C61, D53, Q14

1. Introduction

In today's competitive world economy, the agriculture sector is one of the key players in almost all developed and developing countries. The stock market leads financial resources for achieving the goals of the economy. It contributes to national food security, economic growth. Investors are considering the agriculture industry as the best place for investment to increase their portfolio and income. However, numerous variables, such as exchange rate and inflation rate, have a dynamic relationship with stock prices in both long-run and short-run causality (Lee & Brahmasrene, 2018, 2019). The stock selection represents a challenging task in determining the factors influencing the investors' decisions. Evaluating the financial performance of a company has attracted enormous attention, and interest from various parties such as managers, creditors, financial experts, current/potential investors, researchers. The modeling of financial problems is more complicated and is sometimes conflicting, not to mention the subjectivity of the decision-makers in the evaluation process. Multi-criteria decision making (MCDM) methods have been used systematically as a tool to aid in financial decision-making (Zopounidis & Doumpos, 2002).

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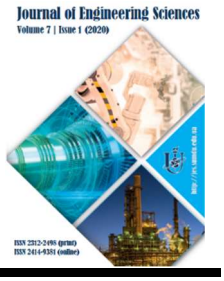

Quantification of Execution and Emission Efficiency of a Fueled Diesel Engine

Nagendra S.[1*], Santosh Kumar B.[1], Kiran A. V. N. S.[2], Ramanjaneyalu C.[1], Nagamani K.[1]

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Abstract. A significant portion of the automobile and industrial sector is mostly dependent on the running of diesel engines as it is efficient and shifts a large of the goods around the globe and power various equipment. Also, as the use of energy as diesel fuel is increasing enormously with the expansion of industrial growth, diversification, this led to the accelerating global emissions, global climatic change, health issues, and exhaustion of fuels. To succumb this, alternative fuel is needed to fight against the ill effects and as a replacement to diesel fuel. Thus, vegetable oils as alternative fuels are drawing more attention as they are renewable and do not address the problem of greenhouse gas. In the present work, the cottonseed oil was chosen as the favorite among the vegetable oils due to its advantages like less pollutant level, excessive availability, etc. The transesterification process was used to produce the cottonseed oil biodiesel. This research aims to investigate efficiency, emission characteristics by using smooth diesel, cottonseed oil, and mixtures with varying composition from 20 % to 80 % in 20 % steps to identify sustainable fuel as a substitute for existing fuel and to overcome fuel demand and enviro effects. This test was conducted on single-cylinder four-stroke water-cooled diesel engines. From the results, it was revealed that cottonseed oil and its blends have a significant influence on performance and emission characters.

Keywords: water-cooled diesel engine, emission character, cottonseed oil, sustainable fuel.

1 Introduction

Biodiesels are separated from plants or creatures and comprising of long-chain unsaturated fat esters. It is typically arranged by substance respond lipids like creature fat, soybean oil, or some other vegetable oil with a liquor, delivering a methyl, ethyl, or propyl ester. Late logical, cultural, and biological changes are compelling the new quest for potential powers for both eatable and non-consumable oil. As of now, the first-creation bio fills, for example, biodiesel and bioethanol, impact the biofuel area. This bio fills can be utilized in low-rate mixes with basic powers and can be administered through the enduring framework.

S. Nagendra et al. accomplished their test work by utilizing coconut oil and cottonseed oil mixed with diesel and Combustion Products Analysis to discover the diesel motor yield. The mixes of these elective powers and diesel differing extents are utilized to control the motor, and significant changes in motor effectiveness and discharge attributes are watched. Thinking about the warm effectiveness, the cottonseed oil blend (B50) is best as it gives it great bend qualities. [1]. S. Nagendra et.al. Talked about on the Four Stroke CI Engine execution breaks down utilizing Bio-Diesel. The motor was tried utilizing two distinctive cottonseed oil oils and methyl esters dependent on coconut, mixed independently with diesel. The motor's warm effectiveness is nearly higher when joined with coconut oil and expanded by 5.3 % contrasted with cottonseed oil and joined with coconut and cottonseed oils by 26.3 %. It is seen that the motor effectiveness of the coconut oil mix B10 was better contrasted with different mixes of cottonseed oil and coconut and cottonseed oils [2].

2 Literature Review

Basavaraj M. Shrigiri et al. investigated the cotton seed methyl esters and neem kernel methyl esters as option biodiesels utilized in low warmth dismissal motors (LHR) to build the warmth in the burning chamber by the warm obstruction coatings. By the trial examinations creator see that at greatest burden the brake warm proficiency is lower

– Solid State Technology

Multi Stage Reliability Optimization Usingstochastic Dynamic Programming

Dr K.SATHISHBABU , S.VENKATESWARLU , Dr. N.VENKATACHALAPATHI

Abstract

A new approach to Reliability is discussed in this paperand it is not the same in each and every product of the same variety of stochastic dynamic programming. Productreliability has tolerance limits of numerical value with certain randomness or with probability. Algorithms used inproblems pertaining to reliability are mainly stochastic or random in nature. To obtain the maximum system reliability different types of components for which reliability follows a random nature, a technique to solve such problem is required. The applicability of the proposed methodology for problems of stochastic nature has been converted into a problem of deterministic nature and the solution is found to be superior.

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Section

Articles

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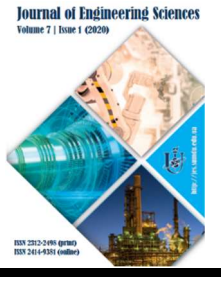

Quantification of Execution and Emission Efficiency of a Fueled Diesel Engine

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Abstract. A significant portion of the automobile and industrial sector is mostly dependent on the running of diesel engines as it is efficient and shifts a large of the goods around the globe and power various equipment. Also, as the use of energy as diesel fuel is increasing enormously with the expansion of industrial growth, diversification, this led to the accelerating global emissions, global climatic change, health issues, and exhaustion of fuels. To succumb this, alternative fuel is needed to fight against the ill effects and as a replacement to diesel fuel. Thus, vegetable oils as alternative fuels are drawing more attention as they are renewable and do not address the problem of greenhouse gas. In the present work, the cottonseed oil was chosen as the favorite among the vegetable oils due to its advantages like less pollutant level, excessive availability, etc. The transesterification process was used to produce the cottonseed oil biodiesel. This research aims to investigate efficiency, emission characteristics by using smooth diesel, cottonseed oil, and mixtures with varying composition from 20 % to 80 % in 20 % steps to identify sustainable fuel as a substitute for existing fuel and to overcome fuel demand and enviro effects. This test was conducted on single-cylinder four-stroke water-cooled diesel engines. From the results, it was revealed that cottonseed oil and its blends have a significant influence on performance and emission characters.

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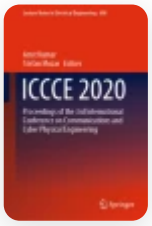

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N. Jaya Krishna, Fahimuddin Shaik, G. C. V. Harish Kumar, D. Naveen Kumar Reddy & M. Bala Obulesu

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Abstract

Retinopathy is one the cause of impairment of eye vision which leads to damage to the retina. Irregular sugar levels in the blood flow, abnormal blood flow in the retina and hypertension causes retinopathy. with the help of computer application tracking and

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PERFORMANCE OF DIESEL ENGINE BY ADDING SECONDARY FUEL AS HHO

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Abstract

From an environmental point of view, emission from the engine exhaust system is a serious problem. Alternative fuels are encouraged for this search. Hydroxy gas (HHO) is Considered to be one of the secondary sustainable energy to meet the strict emission standards and maintain the greenhouse effect. Therefore, this paper experiment is carried out by adding a secondary fuel hydrogen gas with diesel fuel in the CI engine. HHO is one of the best Choices that pertains to the fuel's complete combustion and thus also helps to reduce harmful gas emissions. The experiment is carried out on the 4-stroke, Single cylinder engine, using HHO for a diesel engine. At the engine inlet manifold, the HHO gas is supplied by the HHO kit. The HHO gas mixes with fuel, and enhances the process of combustion. The experimental investigation was performed for different HHO gas pressures, and the efficiency was evaluated and compared to pure diesel. The results show that HHO Performance at inlet pressure 3 kg/cm^2,Mechanical efficiency is increased by 5%,Brake thermal efficiency is increased by 7%,Specific fuel consumption is decreased by 0.0262 Kg/KWH, Volumetric efficiency is increased by 5.3% compared to pure diesel.

Keywords : Hydrogen, Alternate Fuel, Electrolysis, Electrodes, Fuel Consumption, Emission.

I. Introduction

Energy demands increased in modern days despite the growing world population. Energy demands from fossil fuels like natural gas and petroleum oils but fossil fuels have released poisonous gases during combustion and have negative environmental implications. Many research scientists are working on sustainable energy to control emissions and enhance vehicle performance [X]. From the many alternative fuels available the hydrogen gas, most research is under study. Some portion of Brown gas produced by the Electrolysis of water can be used to improve

Polymer Laminated Composites Reinforced With Bi-Woven Glass Fibers: Subjected To Tensile And Compression Loading

Dr. P.V. Sanjeeva Kumar, Dr. A.Hemantha Kumar, Dr. G.Venkata Subbaiah

Abstract: The present engineering applications require new and better materials for the replacement of existing ones. In view of this demand, at present we focused on latest upcoming materials such as composite materials especially laminated composites. The composites are having the greatest strength to weight ratio compared to conventional materials. Fiber reinforced polymer composites have been used in a variety of application because of their many advantages such as relatively low cost of production, easy to fabricate and superior strength compare to neat polymer resins. Reinforcement in polymer is either synthetic or natural. Synthetic fibers such as glass, carbon etc. have high specific strength but their fields of application are limited due to higher cost of production. The present research focus on characterization and testing of Bi- woven Glass Fiber/Epoxy composite material. The different mechanical tests are performed on Bi-wove Glass Fiber/Epoxy composite and the mechanical properties such as, tensile strength, tensile modulus, compressive strength is determined as per ASTM standards. The mechanical properties were improved as the number of layers of Bi-woven glass fibers reinforcement content increased in the epoxy matrix material

Key words: Laminated Composites, Bi-woven Glass Fibers, Epoxy, Hand layup Technique, Tensile strength, Number of layers, Compressive strength.

1. INTRODUCTION

Fibre reinforced polymer composites has been used in a variety of application because of their many advantages such as relatively low cost of production, easy to fabricate and superior strength compare to neat polymer resins. Reinforcement in polymer is either synthetic or natural. Synthetic fibre such as glass, carbon etc. has high specific strength but their fields of application are limited due to higher cost of production. Glass fibers reinforced polymer composites have been prepared by various manufacturing technology and are widely used for various applications. Initially, ancient Egyptians made containers by glass fibers drawn from heat softened glass. Continues glass fibers were first manufactured in the 1930s for high-temperature electrical application. Nowadays, it has been used in electronics, aviation and automobile application etc. Glass fibers are having excellent properties like high strength, flexibility, stiffness and resistance to chemical harm. It may be in the form of roving's, chopped strand, yarns, fabrics and mats. Each type of glass fibers have unique properties and are used for various applications in the form of polymer composites. Hassan Abdolpour et.al, [1] have given in their paper the how to improve the flexural strength of hybrid sandwich plates with glass fiber reinforced polymer by using the strain hardening method. Francis L King [2] are performed the mechanical testing on the poly lactic acid reinforced hybrid fiber composite and proved that the mechanical properties are improved. M.K. Gupta and Rohit Singh [3] are investigated the static and dynamic mechanical properties for PLA coated sisal fibers reinforced with polyester and obtained the fair results.

P.V.Sanjeeva Kumar and Dr.B.Chandramohana Reddy [4] are fabricated and tested the laminated carbon bi-woven fibers Reinforced with vinyl ester composites and evaluate its tensile and flexural strength for different number of layers. In this the vinyl ester was used as a matrix to prepare composites by in situ polymerization technique. The various investigations [5-10] are given the best results on the improvement of mechanical properties such as tensile strength, compressive strength, flexural and impact strength of polymer based composites. Sanjeev R nandaragi et.al [11] is fabricated and tested the woven glass fiber composite materials and determined its mechanical properties. The obtained results are shown in enrichment of mechanical properties. Enrique .J et.al are fabricated the hybrid laminates reinforced with aligned carbon nanotubes with situ technique_and evaluated its mechanical properties. The obtained results are having the good agreement. Many investigators [12-15] are used natural fibers or bi-woven fibers as the reinforcement in polymer matrix and successfully evaluated their mechanical properties.

2. MATERIALS

2.1 Bi-woven Glass Fiber

In this project glass fibers are used for fabricating the composite specimen. The glass fibers were obtained from Dharmapuri District, Tamil Nadu, India. Polyester resin and the catalyst Methyl Ethyl Ketone Peroxide (MEKP) were purchased from M/s. Sakthi fiber glass Ltd., Chennai, India. 10% of catalyst is added with the resin for the quantity taken. The bi-woven glass fiber used for present work is shown in Fig2.1 and its closed view is shown in Fig2.2.

Fig 2.*1: Bi-woven glass fiber*

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Design Analysis and Effect of Process Parameters on 'Fsbw' of Al (2618a)-SIC Alloy

K. Nagamani, P.V. Sanjeeva kumar, S. M. Saleemuddin, N. Jayakrishna

Abstract: ***The research in fabrication engineering is much focused on the new or betterment in the existing metal joining techniques. In the view of the demand in improvement of the quality , strength and efficiency of welded joins , the present research is focused on design for tensile strength and optimization of friction stir butt welding(FSBW)of aluminum(2618A) and silicon carbide alloy. The design analysis is carried out for tensile strength and hardness. . The functioning parameters such as tool rotational speed, transverse speed, plunge depth and tilting angle are considered. The Taguichi technique and ANOVA are used in optimization of process parameters. The high S/N ratios are mainly considered to analyze the results for tensile strength and hardness.***

Keywords: FSBW, Taguchi Technique, S/N ratios, ANOVA

I. INTRODUCTION

The joining of materials is an unavoidable operation in fabrication of a product. The joints are either permanent or flexible based on the design functionality of a product. The friction stir welding (FSW) is one of the emerging joining techniques in the welding technology. The soft materials like aluminium, copper and their alloys are widely welded by FSW. In the present work an attempt is made on to join the butt parts of the aluminium and silicon carbide alloy by using the FSW. The aluminium and silicon carbide alloys are widely found in the fabrication of aircraft and naval structures because of their high strength to weight ratio and anti corrosion properties. Hongjun Li et.al [1]are investigated the effect of friction stir welding on the thermal efficiency of the joints. Naseer sadeghian et.al[2] are done an experimental investigations in order to optimization of FSW parameters. W.Yuwan and R.s. Mishra [3] are pursued the investigation on the friction stir spot welds to study the effect on tool design and process parameters. Yuri Hovanski et.al[4] are given a good novelistic information on friction stir welding .

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R.Nandan ,T.Debroy[5] are quoted the recent advances in the friction stir welding on the weldment structure and its properties. P.Xue et.al [6] are investigated the dissimilar Al-Cu joints in order to study the effect of process parameters of FSW. The various studies [6-10] are on friction stir welding in order to determine its tensile strength, hardness and effect of process parameters will help to investigate the present work. The present study deals with identification of friction welding parameters and its influence on joint strength. Analysis of Variance carried out to analyze the friction stir welding parameter's influence on the responses.

II. MATERIALS

A. Base material details

Aluminium Alloy (2618A) is an engineering material having high strength to weight ratio .It is made by the combination of copper and magnesium. The resultant combination possesses the rich machinability and corrosion resistance. It is majorly found in applications such as aerospace and naval structures. The Physical Properties of aluminium 2618A is shown in table 2.1.

Table 2.1: Physical properties of 2618A

Copper	Magnesium	Iron	Nickel	Silicon	Titanium	Aluminium
2.30 %	1.60%	1.1 %	1.0%	0.18%	0.07%	93.7%

B. Silicon carbide (SiC)

Silicon carbide is the unique combination of carbon and silicon. It is obtained by the chemical reaction of both sand and carbon at elevated temperatures. Due to its high abrasive property, it is used in manufacturing of grinding wheels.

III. METHODOLOGY

The two main process parameters seriously affect the weld quality of FSW are:

1. Tool design
2. Welding parameters

A. Tool design

The tool selection and its design are very important in the FSW. The quality of the weld and efficiency of the joint is mostly depends up on the tool design. The welding speed also depends on the tool design. The material selections in the tool design are influencing the tool strength, its toughness and wear resistance. The important tool geometrical parameters are selected as per the literature standard and are shown in the table 3.1

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A Review on Smart Materials: Classifications, Applications

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Abstract : Smart materials are common name for a wide group of different materials. The general feature of all of them is the fact that one or more properties might be significantly altered under controlled condition. The present trend is considered to be the smart materials era. Earlier, smart material was defined as the material, which responds to its environments in a timely manner. Smart materials are multi-functional, transitional materials that can undergo changes in properties in response to an external stimulus. Another important criterion for a material to be considered smart is that the action of receiving and responding to stimuli to produce a useful effect must be reversible.This review focuses on the introduction of smart materials and their classifications and applications. Different applications of smart materials in various fields are also being discussed starting from engineering to the present environmentapplications.

Keywords : Smart materials, Piezoelectric Materials, Electrostrictive Materials, Magnetostrictive Materials

I. INTRODUCTION

The world has undergone two materials ages, the plastics age and the composite age, during the past centuries. In the midst of these two ages a new era has developed. This is the smart materials era. According to early definitions, smart materials are materials that respond to their environments in a timely manner. Technology is becoming increasingly prominent in present daily lives, in many ways alleviating and in other ways fueling the demands of modern living. The effect can be caused by absorption of a proton, a chemical reaction, integration of a series of events, translation or rotation of segments within the molecular structure, creation and motion of crystallographic defects or other localized conformations, alteration of localized stress and strain fields, and others. The effects produced can be a color change, a change in index of refraction, a change in the distribution of stresses and strains, or a volume change. Also, it should be pointed out that the word ''intelligent'' is used to describe smart materials. The notation ''smart'' has been overused as a means to market materials and products. From the purist point of view, materials are smart if at some point within their performance history their reaction to a stimulus is reversible. Materials that formally have the label of being smart include piezoelectric materials, electrostrictive materials, electrorheological materials, magnetorheological materials, thermoresponsive materials, pH-sensitive materials, UV-sensitive materials, smart polymers, smart gels (hydrogels), smart catalysts, and shape memory alloys. In this treatment of the subject we will be using some of these classifications; in some cases, however, the classification of a particular material may appear to be in error. This will be done to illustrate the rapid growth of the field of smart materials and the rediscovery of the smart behavior of materials known for centuries. As we continue to better understand smart materials, our definitions will change. In each material section there will be discussions pertaining to the material definition, types of materials that belong to that class, properties of the members, and applications of the materials. In some cases a more detailed discussion of application will be given to both illustrate the benefit of these materials and simulate the use of these materials in new applications. Smart materials are new generation materials surpassing the conventional structural and functional materials. These materials possess adaptive capabilities to external stimuli, such as loads or environment, with inherent intelligence. (Rogers, 1988; Rogers et al., 1988) defined smart materials as materials, which possess the ability to change their physical properties in a specific manner in response to specific stimulus input. The stimuli could be pressure, temperature, electric and magnetic fields, chemicals, hydrostatic pressure or nuclear radiation. The associated changeable physical properties could be shape, stiffness, viscosity or damping. Takagi (1990) explained it as intelligent materials that respond to environmental changes at the most optimum conditions and reveal their own functions according to the environment.

II. TYPES OF SMART MATERIALS

Thus this material has built-in or intrinsic sensor, actuator and control mechanism by which it is capable of sensing a stimulus, responding to it in a predetermined manner and extent, in a short or appropriate time and reverting to its original state as soon as the stimulus is removed. The following are the different types of smart materials.

- Piezoelectric Materials
- Electrostrictive Materials
- Magnetostrictive Materials
- Electrorheological Materials
- Magnetorheological Materials
- Thermoresponsive Materials
- Ph-Sensitive Materials
- Light-Sensitive Materials
- Smart Polymers
- Smart (Intelligent) Gels (Hydrogels)
- Smart Catalysts
- Shape Memory Alloys

Piezoelectric materials are very common example of such materials where they produce a voltage when stress is applied. Since this effect also applies in the reverse manner, a voltage across the sample will produce stress within the sample. Suitably designed structures made from these materials can therefore be made that bend, expand or contract when a voltage is applied. They can also be used in optical-tracking devices, magnetic heads, dot-matrix printers, computer keyboards, high-frequency stereo speakers, accelerometers, micro-phones, pressure sensors, transducers and igniters for gas grills.

Piezoelectric materials are materials that exhibit a linear relationship between electric and mechanical variables. Piezoelectricity is a third-rank tensor. Electrostrictive materials

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Parametric Optimization of Wire Cut EDM Process on 'AISID3 Steel' using Genetic Algorithm and Grey Relation Analysis

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***Abstract*:- The manufacturing industries are continuously seeking for new and better machining operations in order to achieve the desired profile or contour of their machining parts. In view of this requirement, at present we focused on Wire Electrical Discharge Machining process. The Wire Electric Discharge Machining (WEDM) is a non-traditional process of material from conductive material to produce parts with intricate shape and profiles. Machine trade has created exponential growth in its producing capabilities in last decade however still machine tools don't seem to be used at their full potential. within the gift work, a trial has been created to optimize the machining conditions for surface roughness supported (L9 Orthogonal Array) Taguchi methodology. Experiments were carried out under varying pulse-on-time, pulse-off-time, servo control, and wire feed. An orthogonal array, the genetic algorithm (GA) and grey relational analysis (GRA) were employed to the study the surface roughness in the WEDM of AISI D3 Steel. It was determined that the discharge current was the foremost prestigious factors on the surface roughness. To validate the study, confirmation experiment has been dispensed at optimum set of parameters and expected results are found to be in sensible agreement with experimental findings.**

Key words: WEDM, Surface roughness, Discharge current, Genetic Algorithm, Grey Relation Analysis

I. INTRODUCTION

Need for Unconventional Machining Processes was extremely hard and brittle materials or Difficult to machine material are difficult to Machine by traditional machining processes. once the work piece is simply too versatile or slender to support the cutting or grinding forces once the form of the half is simply too complicated. many sorts of non-traditional machining processes are developed to fulfill additional needed machining conditions. once these processes square measure used properly, they provide several blessings over non-traditional machining processes. The wire EDM is one of the vital non-conventional machining techniques. The effect of process parameters on the quality of machining especially surface roughness is much more crucial. Brajesh Kumar Lodhi et.al.[1] studied on optimization of the machining conditions for surface roughness based on (L9 Orthogonal Array) Taguchi methodology. Experiments were distributed below variable pulse-on-time, pulse-off-time, peak current, and wire feed. Jyosha Joshi et.al.[2] Investigated on optimizing the machining parameter of wire electrical discharge machining (WEDM) for multiple performance characteristics on D3 tool steel using principal component analysis (PCA). Shivade et.al.[3] performed wire discharge machining of D3 alloy steel and Influence of pulse-on time, pulse-off time, peak current and wire speed square measure investigated for MRR, dimensional deviation, gap current and machining time, throughout convoluted machining of D3 alloy steel. Pankaj et.al.[4] are studied the effect of various process parameters such as pulse on time, pulse off time and current for high carbon high chromium cold work tool steel (D2). The experiment has been completed with the help of Design of experiment by Taguchi method is applied to create an orthogonal array of input variables using the ANOVA. M. Siva Kumar et.al.[5] Optimum machining parameter for the wire electrical discharge machining of AISI D3 steel of two different thickness (50mm & 75mm). Omkar Kulkarni et.al.[6] The experimentation has been completed with the help of Taguchi's L25 Orthogonal Array. Grey Wolf Optimizer (GWO) algorithm is stimulated by grey wolves. Mangesh et.al.[7] Performed CNC wire electrical discharge machining (WEDM) of Al 2124 SiCp Metal Matrix Composite (MMC) is analyzed by using dimensional analysis approach (DA) and artificial neural network (ANN). The various investigations [8-12] are carried out on the optimizations of process parameters by using grey analysis and genetic algorithms. Pratik A. Patil et.al.[13] investigated effect of parameter on machining of AISI D2 cold work steel through wire cut EDM. This research deals with Response Surface Methodology approach for maximizing the material removal rate in wire electrical discharge machining. M. Durairaj et.al.[14] investigated effect of parameter on machining of SS304 through wire cut EDM. Amitesh Goswami et.al.[15] Analysis trim cut machining and surface integrity of Nimonic 80A alloy using wire cut EDM with three levels of input parameters. Somvir Singh Nain et.al.[16] Modeling and optimization of process variables of wire-cut electric discharge machining of super alloy Udimet-L605. In this paper, an attempt is made to investigate the influence of WEDM process parameters on the performance measures of surface finish and cutting speed while machining of AISID3 STEEL with three levels of process parameters Pulse-on time, Pulse-off time, Wire feed & servo control.

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Melt rheology properties of PLA/ABS/TCS polymer blends

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ABSTRACT

Melt mixing methods have been used to prepare binary and ternary combinations of poly lactic acid (PLA), acrylonitrile–butadiene–styrene (ABS) and tapioca cassava starch (TCS). The impact on the mechanical and rheological characteristics of a composition has been studied using a rheometer (RG25), shear rate, shear stress, the non-Newtonian index and the mechanical characters on the Universal Test Machine (INSTRON-3369) for stress, stress at break and Young's modulus. The ternary blend results show shear-thinning behaviour, where the true shear rate of the blend improves, while the true viscosity of the blends decreases, while the actual viscosity decreases with increased ABS content. In most cases, the technical implications were that the stress at break and Young's modulus were impoved through the addition of ABS.

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KEYWORDS
Melt rheology of polymer blends; PLA and its hybrid polymers; binary and ternary blends; viscosity of PLA blends

1. Introduction

Rheology is a part of physical science that manages the deformation and flow of matter under pressure, the properties of matter are especially concerned when a mechanical force is applied to it, which determines its behaviour. Rheological properties have significant implications in various and diverse applications. Considering the structure formation, controlled assembly and joint simulations of various experiments (Nevesa et al. 2009), in the recently investigated viscosity for different polymers of TPU and EE TPEs and PLA (Bernardes et al. 2019), PLA had lower melt elasticity and viscosity than PCL (Suman, Kesava Rao, and Bhanukiran 2011). Dynamic properties of PA6/ABS were studied (Arsad et al. 2011). Significant work on polymer blends (ternary) has been carried out over the past 20 years, consisting of two immiscible homopolymers and a very small fraction (small percentage) of solid particles adsorbing the interface between homopolymers. Much of this work has been investigated in recent years (Fenouillot, Cassagnau, and Majeste 2009). Biopolymers or polymers studied from inexhaustible resources in recent and past decades have attracted significant attention for their potential to reduce reliance on oil-based materials and their potential applications in the agricultural, packaging and medical fields (Kassi, Constantinou, and Patrickios 2013; Dong, Cao, and Li 2013; Imre and Pukánszky 2013). Polylactic acid (PLA) has proved to be the most desirable and friendly product among these economical polymers because it has a good cost structure and excellent transparency (Garlotta 2002) and immiscible polymer interface. For example, the inclusion of particles in droplet matrix blends every drop size. Accordingly, these particles can be known as particulate compatibilisers (Sundararaj and Macosko, 1995; Van Puyvelde, Velankar, and Moldenaers 2001). Similarly, particles were also found to prevent coalescence, e.g. smouldered silica particles had the option of stopping the combination of incited flow at 1% loads (Vermant et al. 2004; Vandebril, Vermant, and Moldenaers 2010). In this research work, mixing blends were prepared using TSW and described by mechanical and rheological characteristics. Such works are necessary to strengthen biodegradable composites and polymers blends. Characterisation of PLA/TCS/ABS was not previously addressed.

2. Experimental

The Indian Pvt Industries supplied PLA [(21.5 C) = 1.25 g/cm^3] and Aadilakshmi Plastic Traders (Hyderabad, India) supplied Acrylonitrile–butadiene styrene (ABS)[= 1.05 g/cm^3, (200C/5 kg)]. And Starch and food Pvt supplied tapioca cassava Starch (ABS 750SW). Chennai Pvt. Ltd. (India).

2.1. Preparation of biodegradable polymers

Prepare the binary and ternary blends of PLA, TCP and ABS with different ratios depending on the weight ratio (wt. %) using TSE [L/D = 40] (ZV20 CIPET, Kochi, India) (Ramanjaneyulu, Venkatachalapathi, and Prasanthi 2019c). Binary and ternary mixture compositions are shown in Table 1.

2.2. Rheology

Rheological tests were conducted on a capillary rheometer (RG25, Gottfert, Germany). The rheological studies were performed at 165 C and the capillary L/R = 60 (Bagley 1957). It was carried out with the capillary dying details. The apparent shear rate (γ_a) is determined by

$$\gamma_a = \frac{4Q}{\pi R^3} \quad (1)$$

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Free Convection Flow through a Porous Medium in the Third Grade Vertical Channel

L. Hari Krishna and A. Hemantha Kumar

Abstract

We analyzed the fully developed unfixed convection through the flow of a third degree liquid by a porous medium on a vertical channel. Non-linear equations are resolved by means of the disturbance system for the speed and temperature field. Component graphs are used for the effects of different growth parameters on speed and temperature fields.

PDF

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Issue

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A Mixed Stream of Viscoelastic Liquid Through a Porous Medium is Situated in a Vertical Channel with Permeable Walls

L. Hari Krishna, A. Hemantha Kumar

Abstract: ***We examined the completely developed mixed convection flow of a visco-elastic fluid via a porous medium in a vertical channel with a permeable wall. The non-linear control equations have been resolved using the conventional disturbing method for the speed and temperature domain. Graphs will be used to detail the effects on speed and temperature of the viscoelastic Reynold number, the cross flow parameter, the number of Grashof , and Prandtl temperature.***

Keywords: ***Viscoelastic fluid, porous medium, flow, vertical channel, mixed convection.***

I. INTRODUCTION

Many recent papers have been published on the issue of convective fluid flow in saturated porous media. The interest in understanding pores material transport processes is growing thanks to the growth of geothermal technologies, high-quality insulating buildings and cold stores, increased interest in energy efficient drying methods. The nuclear industry also has an interest in the assessment of heat dissipation in hypothetical accidents and in the effective insulation of a nuclear reactor. None of us have examined the convective flux of the mixed viscoelastic fluid, fully developed in a permeable vertical flux through a porous fluid. In the vicinity of the porous medium, the flow of non-Newtonian liquids finds essential applications in improved oil extraction, filtration, insulation systems and development of composites, etc. Some of the studies [1] can be mentioned here. The combined effects of viscosity changes and convective cooling in an unstable nano-fluid circulation via a permeable tube were studied by Kamiset et al. [2] later, according to a Buongiorno method. In a vertical porous tube, Singh [3] investigated thermal radiation with a viscous-elastic sliding mixed MHD mixture. Idowu et al [4] studied the dynamic stream of MHD in an oblique magnetic field between the two infinite parallel flat surfaces. In a porously saturated porous channel, Falade et al. [5] analyzed the MHD oscillating present. Recently studied heat and mass transfers in the non-Newtonian MHD fluid on the infinitely vertical porous plate were made by Raghunat and Siva Prasad [6]. Saleh et al. [7], which focused on observations of reversal of convective flows.

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II. MATHEMATICAL FORMULATION

As shown in figure 1, we use the laminar convection stream of viscoelastic fluids in a permeable vertical flow through the porous matrix. The rate of injection on one wall shall equal the level of suction on the other wall. The x-axis has to be paralleled by a rectangular (x and y) coordination unit, but it crosses the walls of the channel opposite the x-axis. At a constant temperature of T_1 the left side (i.e. Y = 0), the right side of the wall (i.e. at y = h) is retained every time $T_1 > T_2$ is possible.

The stream is theoretically stable and fully developed, i.e. zero cruising speed. The continuity formula then comes down to $\partial u / \partial x = 0$.

Rivlin-Ericksen constitutive equation can be modeled on viscoelastic fluids

$$S = -pI + \mu A_1 + \alpha_1 A_2 + \alpha_2 A_1^2 \quad (1)$$

Scalar pressure p, μ, α_1 and α_2 surface constants, commonly referred to as viscosity, elasticity and cross-viscosity coefficients, are the places where the Cauchy stress sensor is found. The product constants of a particular liquid can be calculated by viscometric fluxes.

A_1 and A_2 are tensors from Rivlin-Ericksen, showing the degree of distortion and acceleration respectively. A_1 and A_2 are set by

$$A_1 = \nabla V + (\nabla V)^T \quad (2)$$

$$A_2 = \frac{dA_1}{dt} + A_1(\nabla V) + (\nabla V)^T A_1 \quad (3)$$

$$\mu \geq 0, \quad \alpha_1 > 0, \quad \alpha_1 + \alpha_2 = 0 \quad (4)$$

Visco-elastic liquids are called second-degree liquids when they are modeled by Rivlin-Ericksen. Dunn and Rajagopal are known for their detailed description of the properties of second-degree fluids. In the context of dissipative inequality (Clausius-Duhem), Rajagopal and Gupta [8]

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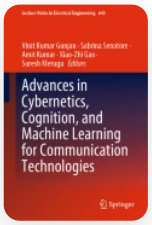
Heat and Mass Characteristics of Magneto-Newtonian Fluid Through Upright Porous Plate

| Chapter | First Online: 29 April 2020

| pp 387–399 | Cite this chapter



Advances in Cybernetics, Cognition, and Machine Learning for Communication Technologies

P. Chandra Reddy, P. V. Sanjeeva Kumar, L. Rama Mohan Reddy & M. C. Raju

Part of the book series: Lecture Notes in Electrical Engineering ((LNEE,volume 643))

566 Accesses 1 Citations

Abstract

An examination has performed to explain the flow characteristics of an unsteady MHD Newtonian fluid past over a vertical porous plate with rotation under the existence of heat and mass transfer. The governed expressions of the flow pattern are solved by using finite

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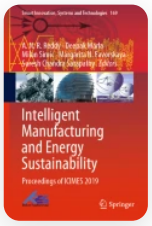

Intelligent Manufacturing and Energy Sustainability

M. Ashok Kumar, K. Mallikarjuna, P. V. Sanjeev Kumar & P. Hari Sankar

Part of the book series: Smart Innovation, Systems and Technologies ((SIST,volume 169))

1386 Accesses

Abstract

The present research focused on the polymer hybrid composite fabrication and its characterization. Kevlar fibers (also called Aramid fibers, KF) are mixed with Sansevieria

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A nanofluids and nanocoatings used for solar energy harvesting and heat transfer applications: A retrospective review analysis

K. Mallikarjuna [a], Y. Santhoshkumar Reddy [b], K. Hemachandra Reddy [c], P.V. Sanjeeva Kumar [d]

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Abstract

It is known that harvesting the solar power is key issue in current scenario because of scarcity of non-renewable energy in future days to come. Hence the solar harvesting systems takes an important stand globally. Grabbing the solar energy is difficult task due to low thermal conductivity of fluids which are carrying heat and poor optical coatings of solar power devices. In order to enhance the heat transfer rate of fluids there should be an alternative, such alternative is nanofluid. Nanofluids are having nanoparticles suspended in base fluids stably. This paper critically reviewed and conveyed the up to date literature of usage of nanofluids and nanocoating's in solar energy harvesting operating in low, medium and high temperature ranges for effectiveness in performance. Further solar energy conversion systems efficiencies can be raised by using the additives in base fluids termed as nanofluids and nano selective coatings for solar concentrators to improve optical performance.

Wireless Personal Communications
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A Simple Shape Descriptor Merging Arithmetical Wrap Around Technique with Absolute Localized Pixel Differences

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Abstract

The quest for computationally simple, highly accurate and precise shape descriptors supporting retrieval continues to be an active research area in computer vision. In this paper, a simple feature descriptor is realized by blending Modulo Arithmetic (MA) with Local Absolute Pixel Differences (LAPD) labelled as MA-LAPD. MA initially refines edges of images through modulo normalization and later operated by LAPD to capture local texture patterns. Subsequently, LAPD encodes the local intensity transitions in eight directions with regard to center pixel. The two prominent directional indices are converted into unique decimal codes that represent each pixel position, thus, transforming each image into a collection of LAPD codes. The ensuing LAPD image is then fabricated into histograms for characterizing the distribution of local features, used for matching and retrieval. Quantitative and qualitative investigations on Kimia's 99, MPEG-7 Part-B and Tari-1000 datasets reveal consistent Bull's Eye Retrieval (BER) scores above 91%. Also, relative analysis exposes the superiority of MA-LAPD with its predecessors in majority of the datasets.

Keywords Bull's eye retrieval · Image histogram · Local absolute pixel differences · Modulo arithmetic · Shape retrieval

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Lung Cancer Detection using Bio-Inspired Algorithm in CT Scans and Secure Data Transmission through IoT Cloud

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***Abstract*—Primary recognition of pulmonary cancer nodules eloquently increases the odds of survival, also leads it solider problem to resolve, as it often relies on a tomography scan filmic examination. By increasing the possibility of effective treatment, earlier tumor diagnosis decreases lung cancer mortality. Radiologists usually diagnose lung cancer on medical images by a systematic analysis that consumes more time and is unreliable often, because of the substantial improvement in the transmission of data in the healthcare sector, the protection and integrity of medical data has been a huge problem for healthcare applications. This study utilizes computational intelligence techniques. For detection and data transmission, a novel Hybrid model is therefore proposed in this paper. Two steps are involved in the proposed method where diverse image processing procedures are used to detect cancer in the first step using MATLAB and data transfer to authorized persons via the IoT cloud in the second stage. The simulated steps include pre-processing, segmentation by Otsu thresholding along with swarm intelligence algorithm, extraction of features by local binary pattern and classification using the support vector machine (SVM). This work demonstrates the dominance of swarm-intelligent framework over the conventional algorithms in terms of performance metrics like sensitivity, accuracy and specificity as well as training time. The tests carried out show that the model built can achieve up to 92.96 percent sensitivity, 93.53 percent accuracy and 98.52 percent specificity.**

***Keywords*—Pulmonary; mortality; carcinogenic; swarm intelligence; IoT**

I. Introduction

A malicious tumor characterized by uninhibited cell evolution in lung tissues is lung cancer. Carcinomas are the majority of cancers that originate in the lungs. Most of the patients are diagnosed at an advanced stage due to no apparent early cancer symptoms [1], which typically results in high costs and a worse prognosis. In medical diagnosis and treatment, medical imagery has become important. These images playa extensive part in clinical applications since medical professionals expose attention in exploring the interior structure [2]. Several procedures have been established based on cross-sectional images, such as magnetic resonance imaging (MRI) or computed tomography (CT) or other topographic modes [3,4,5]. The application of medical image processing has played an important role in both technological and clinical aspects in helping to identify and examine anomalies by making it easier for medical practitioners to work with more scientific and sophisticated approaches to solve the problem [6]. A CT Scan obtains images of an organ that cannot be seen on a regular x-ray that results in earlier diagnosis [7]. The biggest issue with lung cancer is that these cases of cancer are later diagnosed, making treatments more complicated and decreasing the probability of survival subsequently [8]. It is therefore important to recognize a modern, robust method for diagnosing lung cancer at an earlier stage [9]. For cancer diagnosis, CT scan images are being used; they are analyzed by radiologists to recognize and identify nodules into malignant and benign nodules [10]. These techniques, require highly trained radiologists who are not in particular, accessible to people in remote regions. In addition, in manual testing, there seems to be a significant chance of human error, and therefore optimization-based systems are required that can assist radiologists in diagnosing and help minimize the incidence of false results [11]. To detect the nodules, their form, scale, and other characteristics from CT scans, digital image processing techniques can be used. In order to design specialist support systems for the diagnosis of various diseases such as lung cancer identification, medical image processing has been widely and rapidly implemented. In addition, the existence of nodules that define a patient's destiny is also very complex, as their shape and size differ from slice to slice. They are often connected, such as arteries or bronchioles, to other pulmonary structures [12]: It can also vary the color in which they appear on CT scans. These variables contribute to the difficulty of defining them.

In this work an efficient framework is proposed to decipher the lung cancer at an early stage and also data transmission to medical practitioners. Detection stage involves pre-processing, separation of nodules with optimization, feature extraction and classification: Transmission stage involves transmission of statistical parameters through IoT as well as MATLAB IoT cloud Thing speak. As direct data transmission is not possible, thingspeak module has been considered for effective transmission. The structure of this paper contains Section II: related work, discusses about the

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An Optimized Novel Technique for Video Synopsis Using Bayesian Object Tracking Algorithm

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This paper presents another analytical video description of the methodology, which is far superior in pressure and depth to previous methodologies. In preparation, the video of the reconnaissance was usually packed by moving the pushing objects alongside the time hub, which undoubtedly resulted in a real crash and ordered issue antiques between the items being pushed. The main idea in this paper is that these antiques can be reduced by using the Bayesian calculation for fragmentation, and the last approach for foundation extraction is used following the products. We offer the best way to integrate these three heterogeneous activities into a single improvement system and achieve excellent outline performance. The Calculation of Metropolis does not like past methodologies that usually use optional improvements to fathom summary improvements to find the answer for our three-variable progress problem. A range of research demonstrates the feasibility of our technology.

Keywords: Video Extraction, Object Segmentation, Tracking, Background Subtraction, Synopsis Video.

RESEARCH ARTICLE

1. INTRODUCTION

The passion for technology is getting ready and assessed as state-of-the-art software moves quickly. There is a need for risk and human effort to detect captivating events at a time when huge video perception data are available. The best way to identify suspicious events and help customers interpret video data is easily converted into a fundamental problem for the video observation industry.

Analysis video, which seeks to provide the conceptual video with relevant details as an integral use of video content analysis. There can be two classes: a static video description and a dynamical video conceptual Video structure separate or show the content of the video from a video feed by moving keyboards. In any case, such a technique does not completely inform the operation and elements of video return articles, which are not acceptable in applications such as video recovery. It is a video, but much easier than the first. It can quickly recognize the object of related events, reduce the primary frame spatial overflow, which effectively contracts the frame length for useful video monitoring, evaluation, and restoration.

The main video development material is evacuated and more substance than a stationary is extracted from the core processes of the packaging plan [1]. Existing video repair procedures usually depend on improving the diagram proposed by Pritch et al. [2] after limited imperative work. However, it is impressive and difficult to measure the cap that affects the smooth implementation of the video overview period. Similarly, the video sometimes does not include all moving items and springs. Similarly, the thickness of items in the video summation is not even reduced, so that a video synopsis is imperfect.

2. VIDEO SYNOPSIS-METHODOLOGY

Right now, propose a novel philosophy for streamlining a molecule-based item revamp strategy [3] to deliver successive abstract video subject. An event is described as an article's spatiotemporal progression. The key idea right now to also iteratively evaluate the bearing relationship, event-closeness between events, and then find each event in the video volume synopsis. We use the common data of frontal region artifacts, obtained by straight figure based after computation, to keep the main momentary solicitation. We use spatial bearing data of items to select the thickness of the once-over video to prevent the effect of wonder. Finally, to retain the integrality of a singular event to settle the single event subsection problem realized by imperfect after, morphological information of articles-based shift is proposed. This paper is shifted as required.

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A Tuberculosis Management Through ADR Study, Feature Extraction and Medical Bio Informatics

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Abstract

Enhanced research into tuberculosis has long been ignored because of the complexity of the risk of infection. The novelty of this project is the approach in which computer vision technology as well as laboratory work for improving mankind are carried out. The techniques of image processing are important for automatic research. In this work, the gap between clinical and technical research has been reduced by the collaboration and successful analysis.

Keywords

Adverse drug reactions Tuberculosis Image processing Clinical

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Notes

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Detection and Analysis of Pulmonary TB Using Bounding Box and K-means Algorithm

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Conference paper
First Online: 12 October 2020

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Part of the Lecture Notes in Electrical Engineering book series (LNEE, volume 698)

Abstract

Improving TB studies has long been a overlooked area, partly because of the complexities involved in getting the infection at risk. The novelty of this job lies in the strategy in which both computer vision methods and laboratory-based work are carried out to improve the human race. In this job, the gap between clinical research and technical studies has been decreased by bringing both the job together. Image processing is a field that does not require contact processes to be detected with patients. Over the previous two centuries, several algorithms have been created to extract the contours of homogeneous areas within the digital image. It is possible to acquire the input for image processing algorithms from scanned Lungs X-ray images. To detect the lung region, the fundamental image processing methods are applied to the CT scan picture. In this project, Image segmentation of the input pictures is carried out using a suggested technique developed from the K Means algorithm and bounding box algorithm along with Morphological Image Processing to acquire the output pictures and outcome comparison.

Keywords

Image Tuberculosis

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Notes

The LTE Indoor and Outdoor Performance Evaluation Using OFDM

K. Riyazuddin, S. Nazeer Hussain, O. Homa Kesav, and S. Javeed Basha

Abstract In the present technology the rapid expand of wireless data digital communications call for wireless structures which can be reliable and feature an excessive spectral performance. Orthogonal Frequency Division Multiplexing (OFDM) has been diagnosed for its proper overall performance to achieve excessive statistics prices. Fast Fourier Transforms (FFT) has been used to provide the orthogonal sub-carriers. Due to the drawbacks of OFDM-FFT primarily based gadget consisting of high height-to-common ratio (PAR) and synchronization and plenty of other works have replaced the Fourier rework part via wavelet transform. In this paper, a suitable method for the OFDM system and the proper usage of FFT is provided. This system shows a superior overall performance with traditional OFDM-FFT systems through an Additive White Gaussian Noise (AWGN) channel. Bit error rate (BER) defines the overall performance of the device as a characteristic of signal to Noise Ratio (SNR). Here in this work OFDM is evaluated using LTE. LTE stands for long term evolution. The LTE performance is evaluated in indoor and outdoor applications. Moreover, the proposed gadget gives nearly an excellent reconstruction for the input signal inside the presence of Gaussian noise. This work concentrates on reduction of errors and improving the SNR by using some of the digital modulation techniques such as Phase Shift Keying, Quadrature Amplitude Modulation and the Fourier transforms.

Keywords OFDM · SNR · FFT · Bit error rate · Sample error rate

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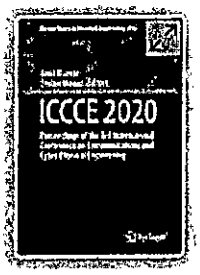

ICCCE 2020 pp 451–460

Development of Hybrid Pre-coding Technique for Mimo Systems Based on Kalman Filter

C. H. Najaraju, G. Chandana, B. Manoj Kumar & C. Kishore Kumar

Conference paper | First Online: 12 October 2020

1158 Accesses

Part of the Lecture Notes in Electrical Engineering book series (LNEE,volume 698)

Abstract

Channel contact with millimeter wave is a crucial enabler to addressing bandwidth shortage of potential 5G networks. In order to overcome the higher route failure, millimeter wave communications throughout the 60 GHz range requires massive antennas clusters at the sender and recipient nodes to obtain signal amplification benefits. Analog approaches could not employ the power of evolutionary income. In addition, band pass filters with maybe vibrating strings processes can be electronically regulated, thereby reducing the likelihood of sophisticated processes and culminating in poor results.

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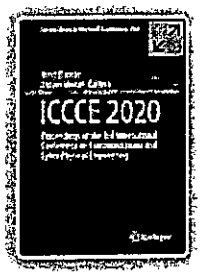

ICCCE 2020 pp 537–545

Automated Speed Braking System Depending on Vehicle Over Speed Using Digital Controller

Ch. Nagaraju, G. Thirumalaiah ✉, N. Rajesh, B. Bala Manikanta, N. Sai Sivaram & T. Prakash Raj

Conference paper | First Online: 12 October 2020

1146 Accesses

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Abstract

The point of this extend is to construct a system for keeping the vehicle secured and protecting it by the intruders' occupation. The project's goal is to set up a programmed velocity control for vehicles and mischance evasion framework utilizing programmable logic controller (PLC) and encoder sensor. The encoder sensor send's out signals persistently to the PLC. When wheels begin turning and once the speed will reach greatest constrain the PLC will off the control supply consequently. After accepting this flag PLC sends a flag to the engine to decrease the car speed consequently which

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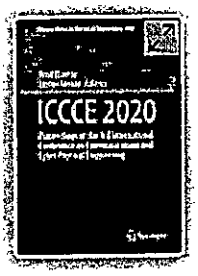

ICCCE 2020 pp 577–585

Performance Analysis of LTE Based Transeiver Design Using Different Modulation Schemes

C. H. Najaraju, P. Veera Prasad Reddy, Nidiginti Suneel & Gona Naveen Kumar

Conference paper | First Online: 12 October 2020

1147 Accesses

Part of the Lecture Notes in Electrical Engineering book series (LNEE,volume 698)

Abstract

Creation of wireless transceiver designs based on Long-Term Evolution (LTE) architecture initiated by the 3GPP consortium. Initially, a performance comparison on Bit error rate (BER) and Signal to noise ratio (SNR) is evaluated for a single transmitter and receiver storage system, both in fading (Rayleigh channel) and non-fading (AWGN) channels. Specific modulation schemes are used including Binary Phase Shift Keying (BPSK), Quadrature Phase Sift Keying (QPSK), and Quadrature Amplitude Modulation (QAM).

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ICCCE 2020 pp 385–391

Color Image Segmentation Using Superpixel-Based Fast FCM

Jala Himabindhu & V. Sai Anusha

Conference paper | First Online: 12 October 2020

1320 Accesses | 1 Citations

Part of the Lecture Notes in Electrical Engineering book series (LNEE,volume 698)

Abstract

A large number of improved variants of the Fuzzy c-means were used to segment the gray scale and color image. Nevertheless, some of them take time to yield the best and optimal results and for two reasons cannot produce adequate segmentation results for color images. This work proposes a simple FCM clustering algorithm based on the Super pixel Algorithm (SFFCM), which is considerably faster and more robust for image segmentation applications which are based purely on the color parameter. In this research work, to attain an accurate contour super pixel image for improved local spatial neighborhoods, an efficient algorithm referred as multi-scale morphological gradient reconstruction (MMGR) operation is originally described. The significance of the proposed method lies in the relationships between the pixels and how they are utilized in the flow of the application. Compared to the conventional adjacent fixed-size and shape frame, the super pixel image provides improved adaptive and exact amount of irregular local spatial communities which help to enhance color image segmentation. Coming to the next step, the original color image is essentially based on the obtained super pixel picture, and the number of pixels in each super pixel region easily decides its histogram. Ultimately, FCM is implemented to obtain final segmentation results that increase the histogram parameter on the super pixel picture. The performance of the proposed method is computed using Matlab computing language and also a statistical measure is carried out based on different parameters and their respective graphical representations.

Keywords

Pixel Clustering Image segmentation FCM Images

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ICCCE 2020 pp 527–535

Low Power Enhanced Leach Protocol to Extend WSN Lifespan

Shaik Karimullah ✉, D. Vishnuvardhan, K. Riyazuddin, K. Prathyusha & K. Sonia

Conference paper | First Online: 12 October 2020

99 Accesses | 2 Citations

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Abstract

WSN (Wireless Sensor Network) is characterized as a wireless sensor nodal network where one of the most challenging issues is the routing technique. Some of the critical issues with Wireless Sensor Networks is that the network sensor nodes have insufficient battery power. The battery power plays an important role in improving node lifespan. In Wireless Sensor Network, energy usage is among the most essential considerations for routing between various routing techniques. The best-known protocols are hierarchical routing protocols to reduce energy consumption. For application-specific type an enhanced protocol architecture for a Wireless Sensor Networks (WSN), a Low-Energy Adaptive Clustering Hierarchy (LEACH) was introduced. The proposed En-Leach protocol (Enhanced Leach) is an enhanced energy-efficient routing protocol that saves a large portion of the power of communication within the network. In do so, the proposed network topology chooses CH (Cluster Head) nodes from the higher residual energy of the sensor nodes, Further and a lesser range from the BS (base station). It then properly manages the SN (sensor nodes) and generates clusters to maximize the lifespan of the WSN and reduce the average energy dissipation per each sensor node.

Keywords

Wireless sensor nodes | Sensor nodes | LEACH | Cluster head | Base station | En-LEACH

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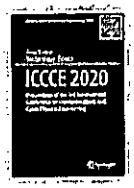

ICCCE 2020 pp 599–610

A Genetic Algorithm with Fixed Open Approach for Placements and Routings

Shaik Karimullah ✉, Syed Javeed Basha, P. Guruvyshnavi, K. Sathish Kumar Reddy & B. Navyatha

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1295 Accesses | 6 Citations

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Abstract

Multiple traveling salesman issues can model and resolve specific real-life applications including multiple scheduling, multiple vehicle routes and multiple track planning issues etc. Though traveling salesman challenges concentrate on finding a minimum travel distances route to reach all communities exactly again by each salesman, the goal of a MTSP is just to find routes for m sellers with a reduced total cost, the amount of the commute times of all sellers through the various metropolises covered. They must start by a designated hub which is the place of departure and delivery of all sellers. As the MTSP is an NP-hard problem, the new effective genetic methodology with regional operators is suggested to solve MTSP and deliver high-quality solutions for real-life simulations in a reasonable period of time. The new regional operators, crossover elimination, are designed for speed up searching process consolidation and increase the consistency of the response. Results show GAL finding a decent set of directions compared with two current MTSP protocols.

Keywords

MTS MTSP NP-hard problem GAL

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Retinal Vessel Tracking Using Gaussian and Radon Methods

N. Jaya Krishna, Fahimuddin Shaik, G. C. V. Harish Kumar, D. Naveen Kumar Reddy, and M. Bala Obulesu

Abstract Retinopathy is one the cause of impairment of eye vision which leads to damage to the retina. Irregular sugar levels in the blood flow, abnormal blood flow in the retina and hypertension causes retinopathy. with the help of computer application tracking and estimating the diameter of a blood vessel is possible. The MATLAB software is used to track and estimate the blood vessel. In this software, the retinal image is given as an input image and the image processing methods are carried out to determine the diameter and track the retinal blood vessel. This technique distinguishes bifurcation focuses which might be valuable for further post - quantitative and compositional investigation.

Keywords Gaussian process · Radon transform · Vessel tracking · Retinal imaging · Image processing · Diameter estimation

1 Introduction

Image is a meaning of light intensity f(x, y) in which x and y are spatial coordinates, f is a grey or brightness scale. Colour image types, binary image, grey image, indexed image [1]. With the development of medical imaging and computer

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375 - 384

Optic Disk Segmentation for Glaucoma Detection in Retinal Images

G. Obulesu, Fahimuddin Shaik, C. Sree Lakshmi, V. Vijay Vardhan Kumar Reddy, M. Nishanth, and L. Siva Shankar Reddy

Abstract Segmentation of optical disk and optical cup from retinal fundus images help to diagnose the abnormalities such as Glaucoma and can help to create awareness among the common man to plan for proper treatment plan in order to avoid complete visual morbidity. The original input image is at first filtered by means of histogram processing and further subjected to morphological image processing in order to classify the positions of optic cup and optic disk. This complete computation procedure is simulated using Matlab technical computing language.

Keywords Recognition of the features · Graphic retinal fundus · Morphological closure · Optical disk and cup · Segmentation

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411 – 420

Speckle Based Anisotropic Diffusion Filter for Ultrasound Images

P. Siva Kalyani, S. Nazeer Hussain, N. Vishnu Teja, S. Younus Hussain, and B. Amarnatha Reddy

Abstract Imaging of Ultrasound (US) presents significant challenges in visual medical inspection and creation of automated speckle-based analytical approaches that adversely influence tissue boundary detection and the efficacy of automatic segmentation techniques. A number of filtering strategies are usually used as a pre-processing phase before automatic review or visual inspection methods to minimize the impact of speckle. Many state of the art filters seek to decrease the speckle effect without recognizing its significance to tissue structure classification. This loss of expertise is further magnified due to the iterative process of some speckle filters, e.g. diffusion filters, which tend to produce over filtering during the diffusion period due to a progressive shortage of critical details for diagnostic reason. In this one we suggest a filter of an anisotropic diffusion that contains probabilistic-driven memory of probabilistic-driven scheme which can solve problem of over filtering by pursuing philosophy of a selective tissue. In general, we can design formula for the function of memory as a diffusion differential equation for the tensor of diffusion whose behavior depends on statistics of the tissue, by speeding up the cycle of diffusion in unnecessary regions and by utilizing the effect of memory in places where valuable knowledge must have to be stored in reliable manner. Tests of two photos which are real ultrasound and synthetic photos confirm the usage of the mechanism of probabilistic memory to maintain scientifically appropriate frameworks that the state-of-the-art filters are removing.

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421 – 429

Investigation of Level Set Segmentation Procedures in Brain MR Images

S. Fayaz Begum and B. Prasanthi

Abstract The task in this research is to evaluate the efficiency of the six level-set algorithms in 2D brain segmentation on a given MRI image. For both algorithms and the comparison contour used for the computation of the dice criteria, the initialization used is the same MATLAB tool-backed application is used to measure the efficiency, particularly in biomedical image processing, of different level-based segmentation algorithms. This work includes a comparative study of clustering algorithms according to their performance. Although some findings indicate that MRI images segmentation of the brain tumor is time-consuming, it is an essential work.

Keywords MR images · Image enhancement · Brain tumor · Level set · Image processing

1 Introduction

An abnormal development of the brain cell is caused by the brain tumour. Brain tumor usually grows from brain cells, blood vessels or brain nerves. Early brain tumor diagnosis is required because the mortality levels in people with brain tumours are higher [1]. According to 2007's figures, in India there are completely 80,271 tumors [4]. Since several decades, vision detection methods have been in use for brain tumor sensing [8]. We aim to utilize the technology developed through this project as a Computer Automated based GUI to provide ease of access to medical professionals, researchers and health care providers. A simple prerequisite of internet knowledge is enough to use this product. Picture segmentation is the separation into several parts of a visual image (sets of pixels, or superpixels) [2].

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431-438

Enhancement of Cerebral and Retinal Vascular Structures Using Hessian Based Filters

Fahimuddin Shaik, J. Chittemma, S. Mohammed Islam, B. Laksminath Reddy, and S. Damodhar Reddy

Abstract A large vascular disorders such as stenosis, aneurysm and malformations, which involve different anatomical locations, are detected and handled through a set of techniques for imaging them. The need to diagnose and manage vascular disorders early has now contributed to the creation of numerous techniques in vascular imaging. Image manipulation plays an significant part of medicine's study of photographs from different methods for the treatment of eyes. The goal of the novel method for enhancing visualization by using hessian-based filters is to highlight the secret vessels, to improve angiographies as well as the possible pathological locations. The pictures found come from the computed tomography and retinal data. The goal of the novel method for enhancing visualization by using hessian-based filters is to highlight the secret vessels, to improve angiographies as well as the possible pathological locations. The pictures found come from the computed tomography and retinal data. The novel upgrading feature suggested has many applications such as retinal vasculatures, neck, lung and fundus, but only retinal and cerebral vasculatures are taken into account.

Index terms Digital image processing

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461 – 474

Throughput Comparison of Majority Logic Decoder/Detector with Other Decoders Used in Communication Systems

J. Chinna Babu and N. Mallikharjuna Rao

Abstract The Low Density Parity Check (LDPC) codes are linear block codes, which are Shannon Limit codes. These codes are attained least error floors of data bits for data transfer applications used in communication systems. However, the proposed LDPC codes are more beneficial than Turbo codes because of reduction in the decoding complexity and detection of the errors in less cycle time. This results the reduction of decoding time, low decoding latency and as well as least error floors in communication, when the transmitted data contains multiple error bits. This paper is proposed to represent the majority logic decoding/detecting of LDPC codes. This paper proposes the Generation of Generator and Parity Check matrices for both Binary and Non-Binary LDPC Codes. Here, the proposed Majority Logic Decoder/Detector (MLDD) is Hard decision decrypting scheme and it uses majority logic decoding based on the data transmission and reception in communication channel. This paper also elaborates the effective implementation of encoding and decoding of LDPC Codes.

Keywords LDPC codes · Turbo codes · Coding theory · Communication · Signal processing

1 Introduction

1.1 Low Density Parity Check (LDPC) Codes

Low density parity check (LDPC) codes are superior type of error detecting and correcting codes, which are famous for their less complexity of the decoding Process and speed of operation. Many techniques have been designed for the

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475 – 491

A Review on OTA with Low Power and Low Noise Techniques for Medical Applications

J. Chinna Babu and A Thrilokanatha Reddy

Abstract Wearable Electrocardiography (ECG) sensors are most commonly used in monitoring a patient heart condition to detect cardiovascular diseases like heart failure and cardiac arrhythmia and many more. The amplifier that records noise, power and linearity performance in an ECG sensor is the crucial part. In the existing systems, different approaches are proposed for optimization in power and noise. However, the OTA is implemented by using various techniques that can mainly either reduce the power consumption or have lower Noise Efficiency Factors (NEF). In the proposed paper, different research works are observed and studied and hence results are compared between the works and discussed here.

Keywords Patient heart rate · Monitoring · Amplifier · Noise efficiency · Optimization

1 Introduction

Analog IC design will always exist because we are living in time where Analog Design plays a prominent role. To interface Analog designs and Digital designs, Analog-to-Digital converters (ADCs) and Digital-to-Analog converters (DACs) are required. CMOS analog design is considered to be an art which mainly depends on knowledge and perception. Meanwhile, more precise device models are too perplexing, and are non-responsive to hand evaluation [1]. In addition to that, there is no such selective systematic procedure that an engineer can be followed for designing an analog block, which can even be a fundamental block such as Operational Transconductance Amplifier (OTA) which shows that a designer should rely on simulation tools, more practice, and perception for any design to

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493 -506

Image Segmentation with Complex Artifacts and Correction of Bias

Fahimuddin Shaik, P. Pavithra, K. Swarupa Rani, and P. Sanjeevulu

Abstract ChanVese (CV) model ultimately solves many image segmentation issues based on area. Nevertheless, this procedure does not succeed when the given images of any particular application are skewed by means of the objects (outliers) and lighting bias which compensate the real contrast values. Within a single operational energy, the following two points are implemented in this research work, firstly a complex artifact class that prohibits strength outliers of skewing the image segmentation, and then within Retinex type of procedure, which disintegrate the concerned image into a piece-constant structural element and a smooth biased part. The parameters of CV-segmentation then function only on the design, and only in regions that are not recognized as objects. The process of Segmentation is considered as parametric process using a phase-field, effectively reducing threshold dynamics. The proposed method on a compilation of representative images from various modalities representing artifacts and/or bias are mentioned in this work. This method is considered useful where image distortion prevents conventional CV segmentation of activity and where artifacts and bias are of particular concern in the application area of medical imaging, for instance the megnetic resonance imaging (MRI) modality, where identification of lesions and correction of bias area is most preferred.

Keywords Image processing · Segmentation · Contour · Artifacts

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519 - 524

Morphological Watershed Approach for the Analysis of Diabetic Nephropathy

P. Siva Kalyani and G. Sasikala

Abstract The main cause of progressive kidney failure and a significant cause of coronary mortality is diabetic nephropathy. The application of Watershed segmentation and Gradient magnitude has produced encouraging results among the image processing methods for detecting anomalies. The suggested algorithms using optimization as pre-processing and as post-processing approaches for segmentation. Clahe histogram equalization is an improvement of the previous approach that operates on specific parts of the image named titles rather than the entire image, and even another tool named dilation-based morphological reconstruction is used for pre-processing. Otsu Thresholding is used as a post-processing tool and is used to do automate image Thresholding. The Median filter is also used to eliminate noise from the signal and often retains the image edges when eliminating noise. The Segmentation of the Morphological Wetlands will accurately distinguish items on the foreground and context. The picture collection for this phase is from CT photographs of patients with diabetic nephropathy, as well as from Diabetic research institutes.

Keywords Diabetic nephropathy · Image processing · Median filter · Gradient magnitude · Morphological watershed algorithm

1 Introduction

Diabetic nephropathy in diabetic patients is referred as leading end-stage renal disease. Proteinuria (excretion of excess protein in the urine) is gradually increased. There is an urgent need to develop a non-invasive image processing algorithm to

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547-554

Robust Algorithm for Segmentation of Left Ventricle in Cardiac MRI

M. Venkata Dasu, P. Tabassum Khan, M. Venkata Swathi, and P. Venkata Krishna Reddy

Abstract The left ventricle is one of four heart chambers. It is situated underneath the left atrium in the bottom left portion of a heart, divided by the mitral valve. The left ventricle was the thickest chamber in the heart and is essential for pumping oxygenated blood through tissues in the entire body. Left ventricular failure occurs where left ventricle dysfunction induces inadequate blood circulation to vital body organs causes breathing problems, which seems to be a threat to people. The non-invasive medical imaging techniques would be more effective in early diagnosis for left ventricle dysfunction. In this real connection different medical imaging techniques, such as image enhancement and image segmentation, were developed based only on the basics of image processing techniques. The objective of this study is to develop a novel and robust algorithm that can enhance the efficiency of automatic LV segmentation on short-axis cardiac resonance imaging (MRI). This project shall be carried out on the basis of different thresholding methods and related qualitative analysis, in order to determine the best algorithm. It can also be implemented with the Matlab R2015b method or above. The outcome of this work is aimed for early detection and also to carry out effective care and measures.

Keywords Image enhancement · Image segmentation · Left ventricular segmentation · Magnetic resonance images

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555-562

An Optimized Clustered Based Video Synopsis by Using Artificial Intelligence

G. Thirumalaiah, S. Immanuel Alex Pandian, D. Teja Sri, M. Karthik Chowdary, and A. Kumarteja

Abstract The proposed paper is about a static video rundown strategy based on the development of Artificial Bee Colony, which refers to the outline of a video by the most indispensable edges present in that particular video. First the video outlines pixel bunches or regions of interest that capture the most important varieties of substances are differentiated. A tale set of highlights estimated as far as the normal tone estimations of every one of these areas is then used to describe the edges. In view of these highlights, the grouping of casings the Artificial Bee Colony Advancement Measurement divides the video into parts. The serving lengths are increased to the point that all the edges of a specific fragment have comparative highlights, while, the center edges of various sections are essentially not the same as one another. These center edges are viewed as the key-edges of the concerned video. Any excess present in the main outlines chosen is dispelled by looking at their histograms of shades. The proposed work is accepted on this freely accessible SumMe dataset and also, on other hazardously selected web video recordings.

Keywords Video summarization · Panorama video synopsis · Clustered based video synopsis

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Unsupervised Segmentation of Image Using Novel Curve Evolution Method

Fahimuddin Shaik, B. Vishwaja Reddy, G. Venkata Pavankumar, and C. Viswanath

Abstract Here, a novel algorithm for unsupervised field-depth (DOF) image segmentation is defined. To detect the object of interest (OOI) in the saliency space, a multi-scale re-blurring technique is used first. Firstly blurring is carried out to remove artifacts, later reblurring procedure. Thereafter, an active contour model based upon hybrid energy system is suggested to evaluate the OOI boundary. A global energy element relevant to the saliency map is implemented in this model to find the globally minimum, and a local energy term about the low DOF picture is used to increase the precision of segmentation. Additionally, this model is equipped with an elastic parameter to offset the weight of global and local resources. In addition, an unsupervised approach for initializing curves is intended to reduce the amount of iterations for evolution. More the iterations, the complexity and computation time to obtain the results may hike up leading to slow up the process of acquiring precise contours. Lastly, we perform experiments on different low DOF pictures, and the resultant demonstrates the high precision and robustness of the proposed method.

Keywords Depth of field · Object of interest · Segmentation · Reconstruction · Enhancement

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AN INTELLIGENT SMART BLACK BOX SYSTEM FOR CRASH RECOVERY

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Abstract: The person who is sitting inside the vehicle faces so many problems due to this accident in an important state of conditions that several vehicles get accident they lost their lives to this heap of person. The project will avoider such type of problems by using different sensor networks. The sensor will work as a providing security to the owner who is inside the vehicle. With these sensor networks some wireless communication technologies are used to alert the person whenever the accident occurs. The person who is the owner of the vehicle he is connecting some mobile communication application to his vehicle with one positioning system for find out the particular location of accident occurrence. The sensor network provides not only provides security to the driver but also used for checking vehicle condition in different situations of the person inside the vehicle. The project is designed to record information such as video recording and live streaming etc. in order to revolutionize the investigation of motor vehicle accidents it can also use to be GPS and GSM technology map vehicles and other vehicles. The raspberry pi 3 module is used to develop this project.

Keywords: video recording, live streaming, raspberry pi3 module, vibratory sensor, USB cams.

1. Introduction:

In today's life it is very hard to detect the person who has stolen or get accident with vehicle. Because there is no smart system to detect the position of the vehicle, so police face many problems in theft detection. Calling police then observing situation and after detection also sometimes there is no result so that there is need of advance system for which get complete information by our project. The designed system is used for the police investigation with the proper information by the live streaming and the data storing in the external stored device.

2. Objective and Scope of the Project:

The objective of the project is live streaming and data storing. Whenvehicle is tracking then intimate the condition of the victim who met with accident. If an accident occurs quick message to emergency care centers and relatives will be sent. For safety, system will record the data when the vibratory sensor activated that is when the vehicle met with an accident within 1-minute vibratory sensor is activated.

3. Implementation of Proposed Idea:

3.1 Raspberry Pi 3Module:

The raspberry pi 3module B is the raspberry pi of the third generation. For many applications, this powerful single board credit card computer can be used and replaced original raspberry pi 2 module B and raspberry module B
While maintaining the popular board format raspberry pi 3 module B gives you a more powerful processor,10 times faster than raspberry pi's first generation. It also adds wireless LAN and Bluetooth connectivity, which makes it the ideal solution for powerful connected waves.

A Novel Low Power, Minimal Dead Zone Digital PFD for Biomedical Applications

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Abstract—**Chronic diseases and rising aging populations are the major reasons towards the usage of low power, low noise, life time performance Biomedical Implantable Devices. Efficient architectural designs will be responsible for the requirements set out above. This paper focuses on the ADPLL DPFD architecture for implantable biomedical devices. For high performance DPFD, the dead zone, lock in time is a seldom limitation to ADPLLs. In the present paper, a new approach to design a dead zone free with fast and high locking time and low phase noise DPFD is considered to be a challenge. This can be accomplished by carefully controlling the reference and feedback clock frequencies of the phase detector with the proposed NIKSTRO/SURAV latch based sense amplifier. The proposed architecture was developed and simulated using 45nm technology and it is observed that it provides a 20ns dead zone with 4.8mW of power consumption at the rate of 1.8GHz, while the lock in time for the proposed method is 340ns with moderate phase noise. It is also noted that the designed one showed better results when compared to the existing ones.**

Keywords—*Biomedical Implantable Device (BIMD); Digital Phase Frequency Detector (DPFD); Digital Controlled Oscillator (DCO); Sense Amplifier Based Flip-flop (SAFF); NIKSTRO or SURAV*

I. Introduction

Archeological research reveals that the Greek civilization used instruments to study the human body in order to understand human anatomy and to treat healthy and pathological conditions. This idea has placed roots for the growth of a biomedical tree. In addition to this, the technical advancements throughout medical sciences have always played an important role by making remarkable advances in health care resulting in emerging a field called biomedical engineering. The new science and technology of biomedical engineering have contributed to the manufacture of cutting-edge biomedical implantable over the last five decades, helping to improve clinician's know-how to improve the human anatomy [1]. A more precise diagnosis, which can be achieved by highly technical biomedical devices / BIMD's, is necessary for medical professionals to prescribe an effective cure. These BIMDs range from sensors, GES and cardiac pacemakers, ICD, to DBS, nerve (PNS, SCS), and bone stimulators.

While a variety of biomedical implants exist for many applications, each IMD consists mainly of an electronic system and battery [2]. Because of the IMD area and size limits, a Chip Specific System (AS-SoC) system is currently covering main portions of the IMDs. The main functionality of these devices is to monitor and analyze body physiological signals, to deliver the drugs needed precisely if necessary, to resurrect the malfunctioning organ or body part, for transmission of the diagnostic data, to receive the external commands, to stimulate the body's organ while it is not functioning properly, thus transceiver is the most important component in BIMDs. Conventional devices have been used for short-range magnetic IMDs that are easily affected by EM way interference resulting in transmission imprecision [3]. In order to provide the safety measures, whole ball of wax the medical applications should be carried out at Medical Implant Communication Services (MICS) ranging from 401 MHz to 406 MHz (intra range is 402 MHz to 405 MHz). The key building block in BIMDs is PLLs, but the conventional analog PLL's need a wider silicon area to accommodate LC oscillators, charge pump and RC LPFs and therefore not easily portable to other technology nodes. To overcome the analog PLL drawbacks, All Digital PLLs (ADPLLs) have been proposed. For detailed information on, How ADPLLs subtle the PLLs & Digital PLLs (DPLLs)? block diagram of PLL, categories of DPLLs, reader has suggested to read [3-8].

II. All Digital Phase Locked Loop

The advancements in CMOS technology scaled down the supply voltages ≤ 1 V, making the traditional analog PLL design for designers in current deep-submicron, CMOS processes very challenging. Nevertheless, short channel CMOS process has preferred digital circuits and is therefore highly focused on digital circuits today. All these distinct factors lead to undergo a change in velocity of the growth of ADPLLs in which all the sub-blocks of the conventional analog PLL were replaced by their comparable/equivalent digital blocks. The general ADPLL block diagram is shown in Fig. 1 consisting of Digital Phase Frequency Detector (DPFD), loop filter and Digital Controlled Oscillator (DCO).

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Research Article

Application of Hybrid Genetic Algorithm in VLSI Physical Design Automation for Placememt of Different Blocks

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Abstract:

With the view of reducing chip area, Optimization of VLSI Physical Design, region minimization and situation of squares is a significant target in actual plan mechanization of exceptionally huge scope mix chips. The target of limiting the region and arrangement of squares would downsize the size of coordinated chips. An Optimal Solution must be found for actual plan segments like apportioning, floor arranging, arrangement, and directing. This work assists with playing out the streamlining of the benchmark circuits with the above said segments of actual plan utilizing progressive methodology of developmental calculations.

1. INTRODUCTION:

In contrast to the previous transformative calculations, which zeroed in on change and could be considered as clear improvements of slope climbing techniques, Holland's GA had an additional fixing—the possibility of recombination. It is intriguing in such manner to think about a portion of the thoughts being advanced during the 1960s in the field of operational examination (OR). On the other hand labourers had at that point started to foster procedures that appeared to be ready to give 'great' arrangements, regardless of whether the quality was not provably ideal (or even near optimal). Such techniques got known as heuristics. A famous procedure, which stays at the core of a large number of the met heuristics portrayed in this handbook, was that of neighbourhood search, which has been utilized to assault an immense scope of combinatorial enhancement issues. Quite possibly the most compelling papers in this setting was that distributed by Lin [8], who discovered fantastic answers for the mobile sales rep issue by researching neighbourhoods framed by breaking any 3 connections of a visit and re-interfacing them

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Scheduling and resources allocation in network traffic using multiobjective, multiuser joint traffic engineering

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Abstract
Reciprocal optimality is a desirable characteristic from the end user perspective, for both Best Effort and Quality of Service (QoS) datagrams delivery within a network. A cohesive solution to such issues is the expected outcome of this work. It is also aimed to formulate and evaluate enhanced scheduling algorithm for packets delivery, focusing on maximal user satisfaction and minimal networking operation costs. Mathematical optimization techniques have been applied to Application, Transport and Network layers of Open System Interconnection model. Novel elucidation of optimal packets switching, traffic engineering, congestion avoidance and QoS improvements are discussed. A simplified routing mechanism is devised, along with the formulation and analysis of nonlinear constrained Multiobjective, multiuser joint traffic engineering case. This approach would be useful for networking and digital communication domains.

Keywords Reciprocal optimality · Congestion avoidance · Quality of service (QoS) · Optimal packets switching

1 Introduction

A typical information quantity (sequence of bits), is usually referred to as packet or datagram. The packets undergo delays while travelling from source to destination due to throughput perturbations (propagation delay), networking devices processing (queueing delay), and wave propagation through network links. Such networks can be easily modeled as a graph. From the end user perspective, the traffic stream must satisfy certain application timing requirements. However, for the network operator there is certain cost of effort to provide a particular throughput (bit rate) to each user on a link, keeping in view the overall capacity of the link. Bandwidth is regarded as the maximum possible bits transfer rate for a particular single path (link), measured as bits/s. However, throughput is the actual bit transfer rate on a particular link, also measured as bits/s. Scheduling can be regarded as the allocation of a particular link to a particular user. Latency/delay is measured in seconds, and packets length is measured in bits. Congestion in a computer network occurs when there is a mismatch between particular links transmission rates. Packet delays and losses are major indicators of congestion, and congestion management is an end to end problem.

The correct allocation of shared resources of network would aid in protecting the network from traffic congestion, which is a common problem of Transport Layer. Congestion control is tightly interrelated with resource allocation and scheduling, that occurs at several layers of OSI model [1]. Congestion control shares a few mechanisms with the flow control, however the former relates to rate balancing on link to link basis, whereas the later relates

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An Energy Optimized Object modeling Technique For Video Synopsis Using Particle Swarm Optimization

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ABSTARCT

Surveillance the area is the important research to provide security and safety to the public .video synopsis is the key- framework in order to find the unwanted elements in the video. Video synopsis will work to provide large content of the video be visualised in less time span. The effective and optimized module is consider to decrease the energy of the output result until now. There is no effective research in object tracking for all existing video synopsis algorithms. In the paper Particle Swarm Optimization Technique is used to find the key frames in the input video, followed by the object tracking using Kalman filter and Gaussian mixture model to extract and track the objects in the key frames .finally the output video synopsis is produced. This proposed algorithm can generate the video synopsis result in less time and effective. Experimental results are shown our proposed method is effective and fast response time.The proposed strategy would create video spots and improve the technique for the (unique) picture of knowledge. Finally, the test results show that the amount of our technology that the proposed technology will reduce enormously while safeguarding all the key decision-making elements. This relaxed approach will also allow viewers to view the video more precisely.

Keywords:Image objects, Video Processing Technology, Summary, object Tracking, Resource Minimization

1. INTRODUCTION

The interest in video preparation and testing is growing as advanced software engineering is growing rapidly. Some effort and human work is needed to find interesting opportunities from a certain period of time with vast knowledge of watching video. In the video recognition industry, the most productive way to identify significant opportunities and help clients easily access video information is becoming a major challenge.

The main source of video analysis with key details in the video object knowledge survey is video reflection. This consists of two classes: static video view and dynamic video overview. A video contour separates or creates a video stream illustrative image that shortens video content by providing a main envelope. The video diagram requires less power and space. Video output exercises and products, such as video recovery, are not capability to fully articulate certain techniques which in applications are alarming.

Evolving camera outline sometimes called a camera thumbnail. It's a video, but shorter than the first. In the first clip, which significantly shortens the length of the clip for beneficial video skimming, review and recovery, it can easily locate the subject of occasions and skillfully reduce the spatiotemporary excess[1]. The first video creation data is omitted and therefore more semant than the static data, compared to the main case management strategies. More often than not, current video description strategies focus on reducing this vitality by enhancing Pritch et al's outline footage[2]. In all cases, the estimation of vitality is complex and repetitive, and this affects the constant output of the retrospective video era. In the same way, any movable article can not be fully enclosed in the video overview and the worldly request can be confused. Furthermore, the video summing of the thickness of objects is not even available and can lead to falls between objects[3], which means that the video description is not appropriate for the pressure proportion.

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Experimental Analysis of Optimization Techniques for Placement and Routing in ASIC Design

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Abstract. The designing size and integration complexity of integrated circuits (IC's) offers a complex challenge for global and combinatorial problems for the idea of optimization. As the fabrication of Integrated circuits reaches in the nm scale, there is increased opportunity for scalable and adaptable algorithms for regulate the space and timing constraints in VLSI physical design. In this paper a review on recent advances in multi-scale algorithms for betterment in partitioning, placement, and routing are studied. Experimentations for algorithms such as Nearest Neighbor, Simulated Annealing and Discrete State Transition Algorithms are carried out to test the performance. This investigation has been carried out by using MATLAB software with optimization tool box using Travelling salesman problem.

Keywords: Discrete state transition algorithm · Placement and routing · Integer optimization · Scalable and adaptable algorithm · Travelling salesman problem.

1 Introduction

Physical Design is considered as a crucial step for evaluating layout of circuit models and various other specifications like temporal and logical circuit design. This step is also useful in evaluation of various non-linear programming problems and helpful in find solutions for continuous and discrete constraints using mathematical models through different stages. Where as these continuous and discrete constraints grows proportionate in relation with number of variables. To evaluate these relations we make use of various algorithms which are helpful in Physical design for the measurement of Speed, Exact model for the representation of Integrated Circuit and to determine various other parameters during the stages of execution with less deviation. Designing an IC using Computer Aided Software Tools gives a pre execution of the model, So the designer get overall idea about the performance of the model. Placement and Routing is a critical step in Physical Design, which gives crucial information related to the area occupied by the Logic elements and their interconnection criteria involves in the model which is a major factor for the evaluation of IC [1].

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Check for updates

Design and Implementation of Novel 4-Bit Alu

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Abstract. The paper's main concern is to reduce the power of the adder and multiplier modules, which are significant ALU functional units, thus reducing the overall power utilization without compromising the processor's speed. The ALU circuit ensures that arithmetic or logical operation is carried out only at the same time so that only one set of circuits is active at the same time. Adders constitute a necessary part of every modern integrated circuit. The requirement of an adder is that in terms of power consumption and chip size, it is primarily fast and secondary efficient. The adder topology used in this work is the ripple carrying adder, the look-ahead adder, the adder carrying skip, the adder carrying selection, the adder carrying increase, the adder carrying save and the adder carrying bypass. The Verilog compares module functionality and presentation problems such as area, power dissipation and propagation delay. Every processor's performance depends on its power and delay. To get an effective processor, the power and delay should be lower. The most commonly used architecture in processors is multiplier. If the multiplier power and delay are reduced, *then the efficient processor can be generated.*

Keywords: ALU · Adder · Verilog · Power · Delay · Processors · Chip size

1 Introduction

Central processing unit (CPU), memory unit and input/output unit are the necessary computer blocks. The computer's CPU is essentially the same as a human's brain. It contains all registers, the control unit and the ALU. ALU is considered to be a digital computer's most important subsystem. An arithmetic logic unit (ALU) is a digital circuit that carries out arithmetic, logic and shift operations on two digital n-bit words. The ALU can be functionally divided into three circuits: the arithmetic circuit, the logical circuit and the shift circuit. A microprocessor's computational heart is an arithmetic logic unit (ALU). This circuit can perform a variety of arithmetical and logical operations, as its name suggests. Some operations (e.g. addition) act on two binary inputs A and B to produce a binary result; others act on a particular input (e.g. increase or decrease).

As a result, an ALU generally has two binary inputs and one binary output for data handling. It also has an input for binary control to select the required operation. By adding a single control line to add and subtract it, you can build a simple ALU from your

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Floorplanning for Placement of Modules in VLSI Physical Design Using Harmony Search Technique

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Abstract. As the technology advances in the field of VLSI physical design at rapid pace, there is a demand to incorporate the maximum number of transistors and modules within the relatively minimum area. Generally reduction of silicon chip area is the goal and objective of the Placement in Physical Design. Before the placement is done, there is a procedure to plan the physical and technical location of the modules which is nothing but Floorplanning. To minimize the Placement area in Physical Design one has to do the Floorplanning effectively as a ground work for the VLSI Placement. This minimization can be done using Optimization algorithms which are the tools in various areas of research and technology. In this paper, Harmony Search (HS) Algorithm which is inspired by the music playing phenomenon of the musicians is implemented to achieve the goal of this work. The objective here is to minimize the floorplan area which will be the fruitful ground work for the VLSI placement in Physical Design automation. The MATLAB code for the Harmony Search Algorithm is simulated and the results are validated through the standard MCNC (Microelectronics Centre of North Carolina) benchmark circuits for better analysis.

Keywords: Optimization · Placement · Floorplanning · Harmony search algorithm

1 Introduction

Floor planning is the next process in designing the layout of the chip. It is related to planning the positions and shapes of modules at the beginning of the VLSI design cycle in order to optimize the layout parameters such as total chip area and wire length. Modules arranged for floor planning should not overlap with each other and should possess minimum area and wire length. Floor planning provides an early feedback on architectural design and provides an estimate of layout parameters. The inputs for the floor planning are the input file (height and width of the modules), net list file for each module (pins for interconnections) and a net list (that illustrate the terminals to be connected).

The output of the floor planning phase is the sized optimal floor plan layout, which provides the position of X and Y co-ordinates of the modules in the layout.

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Iterative Analysis of Optimization Algotithms for Placement and Routing in Asic Design

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Abstract. The idea of Optimizing the complexity and reduction in area of Integrated Circuits plays dominant role in the process of fabrication and it provides significant challenges for researchers and engineers to come-up with different types of optimization techniques in the area of Very Large Scale Integration System Design for the betterment of Area, Time and power. This paper provides Iterative analysis and performance comparison of Optimization algorithms named Descrete State Transition, Nearest Neighbour and Simulated Annealing. This search process has been carried out to estimate the time taken to enable a logic block at least once with different number of iterations for the three optimization algorithms using MATLSB software with TSP tool box.

Keywords: Logic block · Iterative analysis · Search process · Simulated annealing · DST · Nearest neighbor · TSP tool box

1 Introduction

Floorplanning, Placement and Routing are the crucial steps in Physical Design of the very large scale integrated-circuit (VLSI). The accuracy of the resulting IC is totally dependent on previous stages of fabrication with this the resultant quality of the IC is very important for successive design stages. In computational point of view we consider VLSI floorplanning, Placement and Routing is an NP-hard problem. The concept Physical design can be achieved in different states which means to a situation of a material system maintains. The mechanism of a system changing from one state to another is called state transition; and the characteristics of this change is represented by State Transition Matrix (STM). The idea of state transition was not only used in communication theory but also significantly used in modern control theory, where state transition matrix consist of greater importance. For example, in modern control theory, it can be used to complete determination of the stability of a system. All branches of engineering, like tactical planning, system design, system analysis, and model parameter adjustment, process management and control, VLSI System Design, optimization techniques have wide applications. Every area of engineering requires optimal solution to meet their requirements and these requirements can be fulfilled by using various Optimization Techniques.

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VLSI Floorplanning Using Nature-Inspired Hybrid Optimization Algorithm

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Abstract. Today's sophisticated world is demanding the incorporation of Integrated Chips in every crux for more speed, less area and low power. Very Large Scale Integration (VLSI) is the basic idea behind nurturing of rectangular chips in various areas of application specific gadgets. The chips are designed and fabricated in a step by step manner known as VLSI design flow where Physical Design is a vital phase. Physical Design constitutes major stages like Floorplanning, partitioning and allocation, Placement and Routing. Floorplanning is the process which plans the physical location of modules without overlapping each other. In this paper a dual objective Floorplanning is proposed, where the reduction of Floorplan area and minimization of routing wire length is obtained. For this purpose, bio-Inspired optimization algorithms are used which can be either population based or intelligence based. Many researchers have used algorithms like Genetic Algorithm, Particle Swarm Optimization Algorithm and Harmony Search Algorithm individually and they have their own pitfalls based on the requirement and application. Here, a Hybrid Optimization Algorithm is designed with the amalgamation of Genetic Algorithm and Particle Swarm Optimization technique which will produce better results than the individual algorithms. The proposed algorithm is simulated in MATLAB and the results are compared with the standard values of MCNC (Microelectronics Centre of North Carolina) benchmark circuits.

Keywords: Physical design · Floorplanning · Optimization · Particle swarm optimization algorithm · And genetic algorithm

1. Introduction

Silicon chips are playing more predominant role in present rapid paced world with the drastic revolution in science and technology. An average computer desktop will have its own programmed and specific chip which has over one billion transistors. Chip Design involves the incorporation of basic electronic components like transistors, resistors, capacitors onto a piece of silicon semiconductor with the proper and accurate interconnections between them. To do so, specific planning is required to examine the location of a particular component based on the requirement and application which is called Floorplanning in VLSI Physical Design Automation. Floorplanning is defined as the mechanism of deciding the area occupied by number of blocks on the layout with an

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Implementation of Dynamic Decoders for Security Applications Using EG-LDPC Codes

J. Chinna Babu, C. Chinnapu Reddy and M. N. Giri Prasad

Abstract In this paper, the comparison of dynamic algorithms has been proposed and the advancements in low-density parity-check (LDPC) codes resulted in reducing the delay and decoding complexity. The Dynamic algorithms include Belief Propagation and Weighted Soft-Bit-flipping Decoders. This WSBF algorithm uses both the check relationships and the reliability of received message, therefore obtains a better decoding performance when compared with BF algorithm. WSBF offers a good trade-off between performance, complexity and speed. The main advantage of WSBF is the facts that, at the every iteration of the decoding process have weighted sums and the same values are computed using soft decision decoding. Hence these sums can be pre-processed, so that the speed advantages of WSBF are preserved. On the other hand, BP decoder displays the blunder amending frameworks predicated on PG (Protographic) LDPC codes. This paper extends and we develop protograph predicated Protographic less thickness equality scrutinize hubs through combining a progression of Variable Length coupled LDPC codes. Specifically, we demonstrate that equality of peeling interpreting (PD) and idea engendering for LDPC system of words across the parallel eradication channel is examined. Altering and abstracting the variable hubs (VNs) in each cycle with Belief Propagation. The decrementation of cancelled VNs provides the deciphering procedure and it is inferred with diminishing in involution and fast decoder. PG-LDPC codes are using the built up for BP decoder calculation. These LDPC codes are used in Signal Processing, Medial and Cyber security Applications. This proposed algorithm detects and corrects the number of errors that can be occurred in signal transmission and security applications.

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PLANT DISEASE CLASSIFICATION BASED ON IMPROVED KMEANS AND SVM

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Abstract— Plant disease analysis is one of the critical tasks in the field of agriculture. Automatic identification and classification of plant diseases can be supportive to agriculture yield maximization. The image processing algorithms based on computer aided tools like Matlab can help to detect and classify the type of diseases, the plant have been affected with thus in this work image segmentation is carried out by means of k means clustering and pre-processing is done by lab colour space, later the classification process is carried out by SVM based on evaluation of features from the disease affected region, which are derived by means of GLCM.

I. INTRODUCTION

India is the land of agriculture. Farmers have an option to select required crops and then find appropriate pesticides for the plant to decrease the disease and increase the production. The cultivated plants will not always be healthy. In order to increase the production with good quality the plant need to be monitored frequently because the plant disease leads to a reduction of the product. For successful cultivation, one should monitor the health as well as the disease of the plant. Diseases in plant cause heavy loss of the product. Hence the disease needs to be identified at the early stages, recommending farmers to avoid the harm in the production of the crop to increase the yield. Plants suffer from diseases like Alternaria alternata (fungal), Anthracnose, Bacterial Blight (bacteria), and Cercospora Leaf Spot. Plant disease will be basically identified by observing different patterns on the parts of the plant like leaf, fruit, and stem. The indications on the leaf are taken into consideration for detecting the disease. The disease can be categorized as bacterial, viral, fungal etc. The proposed work emphases on identifying and categorizing the disease like Alternaria alternata, Anthracnose, Bacterial Blight, and Cercospora Leaf Spot which are basically found on pomegranate, rice, soya bean, carrot, rose, watermelon, mango etc., using the technique called as image processing. It automatically detects leaf diseases. This system will provide a fast, spontaneous, precise and very economical method in detecting and classifying leaf diseases.

Agriculture is the most important part of Indian economy. In India, agriculture contributes about sixteen percent (16%) of total GDP and ten percent (10%) of total exports. The classical approach for detecting the affected portion of fruits is based on the naked eye observation by the experts. Moreover consulting experts are expensive and time consuming in case of remote areas. Fruits have numerous uses in both fresh and artificial processed forms. The artificial processed form includes jam, pickles, juice, Fruits being a major cultivable product of India is exported overseas which results in increased revenue for the country. In order to get good quality of processed products the quality of fruits should also be good. The quality assessment of fruits in industries is done manually and it is main obstacle as it is time consuming and high labour cost. Therefore it is very important to determine the quality of fruits for the purpose of its usage by an automatic sorting machine for various necessities in industries. To overcome this problem, image processing method may be used in an industry which has become a major source in recent years. Therefore, the main aim is to develop such a system which can detect the diseases in the leafs as soon as they produce their symptoms on the fruits such that proper management treatment can be applied. The MATLAB image processing starts with acquiring the images from the digital high resolution camera or from the samples that is stored in the database. Affected and unaffected images of leafs are captured and stored for experiment. Then the images are applied for pre-processing in order to enhance the contrast of an leaf. Captured leaf images are segmented using k-means clustering method to form clusters. Features are extracted before applying K-means and SVM algorithm for training and classification. Finally diseases are recognized by this system and classified.

II. IMAGE PROCESSING

Image processing covers a vast area of scientific and engineering knowledge. It is built on a foundation of one and two dimensional signal processing theory and overlaps with such disciplines as artificial intelligence, information theory (image coding), statistical pattern recognition (image classification), communication theory (image coding and transmission), and

PERFORMANCE ANALYSIS OF OFDM, FBMC AND UFMC

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Abstract

A main purpose of the project is to show that the FBMC and UFMC modulation techniques are much better than the OFDM (Orthogonal Frequency Division Multiplexing) techniques. Here, we compare some key parameters between three 5 G modulation techniques to show that UFMC and FBMC are better than OFDM. Some parameters for this are considered, such as power spectral density, spectral efficiency, bit error rate, andKeywords: FBMC,UFMC,OFDM,PAPR.

1. Introduction

1.1 What is Contact with Wireless?

Communication networks may be cable or electronic, and the medium used for communication can be controlled or unguided. In Wire Communication, the path is a direct line, such as Non-axial Wires, Multimode fiber Wires and Fiber optic Lines, etc., which guides the signal to propagate from one point to another. This media type is called Guided Press. Wireless Communication, on the other hand, does not involve an external source, but spreads a pulse through air. Since space only really simply allows digital signal transmission system without any direction, The Media Unguided is a medium. Designed for wireless transmission. Wireless Communication is the fastest-growing and most vibrant field in communication technology. Wireless communication is a way of transferring information from one place to another, without the use of any links such as lines, cables or other external medium.

Normally, information is passed from the source to the receiver within a restricted distance in a communications network. Through the aid of Wireless Communications, the processor and recipient can be mounted anywhere from a few meters to a few thousand kilometers.. We live in a world of contact and wireless communication, and this is a vital aspect of our lives in particular. Some of the widely used wireless networking devices in our day-to-day life are: cell phones, Navigation receivers, remotes, Bluetooth audio and Wi- etc.

1.2 Why is it Wireless Communication?

Since wireless communications can do much of the things that wireless communications

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A HYBRID METHOD FOR BRAIN TUMOR CLASSIFICATION

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Abstract— We prefer to suggest a regularized, intense learning machine (RELM) hybrid methodology for developing accurate brain tumor classification approach. The technique starts by pre-processing brain images using a minimum standardization rule to improve the contrast between the edges and regions of the brain. Instead, the characteristics of brain tumors are derived from a feature extraction hybrid technique. The experimental results showed that the method is more realistic than the current progressive methods and thus the classification accuracy performance increased from 91.51% to 94.233% for the random holdout technique experiment. It can also be described as a low-dimensional representation, used to summarize orientations and image scales, providing a rough definition of standardized features without using any type of segmentation. While the PCA is a method of extraction and reduction, used to produce a new compact collection of significant features of the original GIST features, retaining the classification step. The PCA-NGIST method measures the GIST features from the brain images and determines those features own vectors which have the highest Eigenvalues, then projects them into a new feature subspace of equivalent or smaller dimensions.

INDEX TERMS: classification of tumors, identification of tumors, selection of hybrid functions, PCA, RELM, NGIST functionality

I. INTRODUCTION

A tumor is a brain tissue growth which is abnormal. The tumor can be dangerous or carcinogenic. When anomalous cells frame inside the cerebrum, i.e., a tumor occurs Mind, mind. Tumors that begin in the brain are primary malignant brain tumor. In addition, they are very unusual. An automated brain tumor classification system is an important method to assist the doctors in evaluating a choice of treatment. Such thing uses images produced by imaging instruments with magnetic resonance (MRI), which are widely used by radiologists in brain diagnostics. For example, Sompong and Wongthanavasu proposed a model for the segmentation of brain tumors based on an algorithm hybrid of fuzzy c-means and cellular automates. By comparing their segmented images with the ground reality images, the authors validated their methods and obtained an average similarity of 0.729 (i.e., 72.9 per cent). In the authors developed a semi-automatic MR brain image segmentation technique based on human interaction to produce a feature map from MR images and used it to initialize the active contour model for area of interest segmentation (ROI). The overlap index parameter and Jaccard coefficient are used to equate the results with ROI images of ground reality, which are segmented manually from the original images. It is unclear what causes most brain tumors. Exposure to vinyl chloride, Epstein–Barr virus, ionizing radiation and genetic syndromes such as neurofibromatosis, tuberous sclerosis and von Hippel-Lindau Disease are rare risk factors. Studies on access to cell phones did not show a strong risk. Meningiomas (usually benign) and astrocytoma such as glioblastomas, are the most common types of primary tumors in adults. The most common form in children is the malignant medulloblastoma. Diagnosis is typically done by medical examination along with computed tomography (CT) or magnetic resonance imaging (MRI). Then, a biopsy also confirms the outcome. The tumors are classified into varying degrees of magnitude, depending on the results. Treatment may require a combination of surgery, radiation therapy and chemotherapy. If seizures occur, it may be appropriate to use anticonvulsant medication. Dexamethasone and furosemide are drugs that can be used to reduce swelling around the tumor. Many tumors are developing slowly, requiring only monitoring and no further intervention may be required. Treatments which use the immune system of an person are being studied. The outcome differs greatly depending on the type of tumor. Glioblastomas typically have very bad outcomes, while meningiomas generally have decent results. The overall five-year survival rate for all brain cancers in the U.S. is 33%. Secondary, or metastatic, brain tumors are around four times more common than primary brain tumors, with about half of the lung cancer metastasis. Primary brain tumors occur in about 250,000 individuals worldwide per year, representing fewer than 2 percent of cancers. In children under the age of 15, brain tumors are the most common type of cancer second only to acute lymphoblastic leukemia. In Australia, a case of brain cancer has an estimated lifetime economic cost of $1.9 million, the highest of any form of cancer. It is because such tumors interfere with the BBB's normal functioning and contribute to an improvement in its permeability. More recently, progress has been made to increase the utility of MRI in the provision of physiological

WAVELET AND COSINE TRANSFORM BASED INFRARED AND VISUAL IMAGE FUSION

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Abstract

To provide better and good visual effects and also to improve the efficiency and performance of infrared and visual image fusion this paper is useful which proposes a hybrid approach for the infrared image and visual image by combining the discrete stationary wavelet transform (DSWT), discrete cosine transform (DCT) and local spatial frequency (LSF). Firstly, the input images with different gray levels and spatial frequencies are decomposed into a series of sub-images by using DSWT. Next the relevant sub-image details are separated according to their different frequencies of energy by using DCT. Finally the LSF is applied to enhance the regional characteristics of the DCT coefficients which can be used for extracting the features of the image. In order to determine the validity of the proposed method different types of generally used image fusion methods and

Wound Image Segmentation Using Markov Random Field Master

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Abstract

The segmentation of the wound image of the skin region is one of the key steps of automatic diagnosis that can help physicians diagnose. This work is part of a telecare program dedicated to developing a network for the surgical site to identify infections. We introduced a series of image processing phases consisting of algorithms for image processing and a modern complementary segmentation computing method. Since edge-based, colour-based segmentation approaches have proven impractical for the complicated cases, we can use these two methods in a hybrid fashion. We use an auxiliary algorithm to implement edge detection and colour pixel filtering to boost the segmentation performance. This mechanism can derive the colour valve of the wound parts directly from the processed photographs. The system will extract the colour attribute of the wound sections directly from the stored images. Through calculating the variation in colour is darker when infected the computer can access the state of wound. As a result our proposed algorithm judge one hundred six (86.9 percent) of 122 clinical photos taken from patients at Taiwan's university hospital as being fully segmented. The evaluation of full segmented is based on the judgement of experienced doctors. The ability to extract entire wound regions allows for further research, such as pathogens detection and recovery evaluation.

Keywords: *Segmentation of wound images, image processing and edge detection*

1. Introduction:

Image segmentation is an important process in digital image processing which has seen broad implementations in a number of fields. This seeks to identify the homogenous regions for marking items and contexts. In other terms, Image segmentation is the process by which the pixels of a given image are divide into regions in support of certain characteristics and semant information. Various methods of segmentation have been suggested in the research literature. The thresholding is the most popular approach. The other solutions suggested include strategies of clustering, methods of growing regions and separating and techniques of multiple resolution.

BRAIN TUMOR DETECTION FROM MR IMAGES USING ANISOTROPIC DIFFUSION FILTER AND MORPHOLOGY

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Abstract— Brain tumor is a debilitating condition that cannot be diagnosed accurately without an MRI. Of this paper the image must first be filtered using the Anisotropic Diffusion Filter to minimize the contrast between consecutive pixels for order to pave the way for morphological activity on the MRI image. After that the image has to be resized and physically converted to a black and white image using a threshold value. The main filter recognizes possible positions for the existence of a tumor. Morphological operations would be performed in this semi-image, and information was obtained on the solidity and regions of suitable locations. The minimum value of both characters is Determined on a statistical average of various tumor-containing MRI images. The greater purpose of this paper is to identify the tumor from the compilation of 2D tumor image data from MRI images taken from various angles of a single person and by analyzing them to point out the tumor's exact 2D position. To achieve this, 2D detection and segmentation of tumors have been established for greater precision, so that 2D detection can be more accurate. This paper can be implemented with version R2014a or higher in MATLAB method.

Keywords— Brain tumor; MRI images; Anisotropic Diffusion Filter; Morphological operations; MATLAB

I. INTRODUCTION

Brain is one of the most diverse and vast organs in the human body. It is made up of over 100 billion nerves which communicate in trillions of connections called synapses. A tumor has the ability to affect its output. Brain Tumor would be the growth of abnormal cells in neural tissues. As of the 2018 India survey done by cancerindia.org.in, 28,142 new cases due to brain tumor are reported. 24,000 people have died from this. Of all reported tumors it ranked 10th. This has a mortality rate of 3.34 per cent. The following classifications refer to tumors:

A. Benign tumors

Such are Cancer-free. They can either spread, or they might expand, or they do so very slowly. These usually will not appear if a doctor removes them. Others can become premalignant, and malignant afterwards.

B. Premalignant tumors

These are not yet cancerous but they can become malignant.

C. Malignant tumors

They are carcinogenic. The cells will spread and expand to other parts of the body. Tumor forms which are most frequent among adults are typically benign and astrocytoma such as glioblastomas. The most common form in children is a malignant Medulloblastoma. Brain tumor among children under the age of 15 is the second commonly impacted condition. It is unsure what causes much tumors. Known risk factors include vinyl chloride toxicity, tuberous sclerosis, mobile-phone tests, etc. Symptoms common to the symptoms and locations are often found in patients. The personality of an individual can be altered as a result of the tumor. Large tumors can impair a person's cognitive ability in the frontal lobe, whereas smaller tumors can affect brain function.

II. LITERATURE SURVEY

MRI (Magnetic Resonance Imaging), CT (Computer Tomography), PET (Positron Emission Tomography) etc. can be used to detect brain tumour. MRI is preferred for its better performance between all of them. Multiple filtering are used on the paper specified on reference [2] to reduce the noise in an image. We use High Flow, Median, Adaptive, Average, Gaussian Filters etc. for this reason. The segmentation of images is a method used it to separate the image into different regions. Some of the methods for segmenting the image are Thresholding, clustering, level set process etc. Morphological operations are used as post-method for retrieving the tumor into an image. Dilation, oxidation, open filter, close-filters can be used for this task. Such operations are conducted on the binary image, and the tumor is found in the MRI brain input image by incorporating all of the disjointed images. From the paper "Brain Tumor Detection Using Anisotropic Filtering," listed in the reference [1], the limitations are: High-pass filters offer the highest MSE values, Gaussian and Adaptive filters will not give low-noise images and above filters are capable of producing low-noise images Low prices to PSNR. Anisotropic diffusion filter has the ability to reduce noise more than that of mean and median filters from the paper described in reference[3]. Thresholding technique

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SEGMENTATION OF TUMOR FROM MR BRAIN IMAGES VIA SUPERVOXEL TECHNIQUE

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Abstract—Brain tumor is a mass or proliferation of abnormal cells. Brain tumor affects 40,000-50,000 patients every year. Various imaging methods are used for tumor diagnosis and analysis. Among these tools, magnetic resonance imaging (MRI) is commonly used where accurate segmentation is a complex task due to different forms of tumors. A supervoxel based brain tumor segmentation is implied in this paper. Supervoxels are developed using simple linear iterative clustering algorithm. Supervoxels are described as patching form of pixels that reduces computing power and improves the predictability of the segmentation tumor part of the brain is segmented and circled using thresholding and region merger algorithms. This proposed process yielded the intended result and improves the accuracy of the segmentation. This is achieved in the MATLAB programming language

Keywords:supervoxel, MRI, region merging, thresholding

I. INTRODUCTION

A brain tumor is a pool of abnormal brain cells, or masses. The skull is normally very large, and the brain is enclosed with skull. Any construction within a confined space of this nature may cause problems. Tumors of the brain can be (cancerous)malignant or (noncancerous)benign. When these types of tumors develop, the pressure inside of the skull may rise.This may cause brain damage, and may be life-threatening.

Cerebral tumors are either marked as primary or secondary. Numerous major brain tumors are benign. A secondary brain tumor, also called a metastatic brain tumor, develops when it extends into your brain cancer cells from another organ, such as your lung or breast.

For fact, the treatment of a brain tumor starts with magnetic resonance imaging (MRI). The most effective way to determine the type of brain tumor after a biopsy or surgery is to look at the results of a tissue sample when the MRI shows that there is a tumor in the brain.

An MRI uses magnetic fields to generate accurate body images rather thanx-rays. MRI may be used to assess tumor size. A special dye, called a contrast medium, is given before the scan is finished to create a clearer image. This dye may be inserted into a patient's vein, or given as a pill or liquid to drink.MRIs provide more detailed images than CT scans (see below) and are the chosen brain tumor diagnostic process. The MRI may be of the brain, spinal cord or both, depending on the type of tumor identified, and the probability that it will propagate within the CNS.There are different types of MRIs. The findings from the cortical assessment of an internist or neurologist assist with determining what type of MRI to use.

Tumor segmentation in brain magnetic resonance (MRI) volumes is considered a complex task because of the tumor size, location, and texture. Manual segmentation is a time-consuming process which can be unreliable due to an increasing volume of MR scanning. The purpose of this paper is to suggest an automatic system for identifying the entire tumor in images of the MRI brain in each case, and to find out the tumor regions.

Segmentation of tumors with human intervention in MR images is time captivating process and subjective, as it depends on the proficiency and practice of the technician. with advances in technology day by day,many procedures has been evolving and has the potential to analyze large data and deliver results automatically with more accuracy within sensible time. Besides, segmented images through human intervention are still using as ground truth of image and also helpful to evaluate accuracy, sensitivity etc., of images produced through different segmentation techniques and computer aided procedures

II. LITERATURE SURVEY

Due to various structures and complexities in brain, it is quite challenging task to segment and different classify different kinds of tumors.Many strategies for identifying and segmenting tumors in MR images have been recommended in the collected works. Expectation maximization is one of the common unsupervised methods used in the multimodal MRI (C-MRI) data application whereas information required from normal brain and intensities were estimated to proceed further in this method. Fuzzy c-Means is another common unsupervised clustering method and an improved technique has been proposed for the

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DESIGN OF VOICE CONTROLLED AGRI ROBOT BASED ON ARDUINO

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Abstract— Farming is there main occupation, and back bone particularly in India. At present major number of robots as well as electronic kits are invented to remain the plants inactive condition and also in order to get complete biological clock without any synthetic outcome to mankind as well as to nature. In this paper robot is planned and designed as a partly-autonomous to attain an agriculture work with grater as well as well organized and accurate by the usage of existing methods. Our main motivation of this project on agricultural robot is to build medium cost ambulant robotic device to do following activities such as water sprinkle, insect impermeable method and automatic seed spreading mechanism which is obtained by using vision-based structure by the using of camera. Patch for seed spreading is stated by the user using Ultrasonic Sensor. Boundary spotting algorithm is mainly used in order to find out the borders in field to spread a seed. All these activities can be possibly done without any human involvement.

KEYWORDS:
Automatize, Automobile applications, Boundary spotting algorithm, COM Port, Integrated Design Environment, picking, assembly-line production monitoring

I. INTRODUCTION

Farming is the backbone of India. The expert system plays a main role in various streams like manufacturing, medical science, military employment etc., the robotics expert stream is increasing its production capability in agriculture field. There are some of the main troubles in the Indian farming are increasing of input costs, available of expert labors, less amount of water facilities as well as crop monitoring. In order to overcome these issues, the automation techniques were already used in farming. The artificial intelligence in the farming will definitely useful for the farmers in order to reduce their efforts in the work. The robotics expert system is under development for the activities like fruit harvesting, monitoring, spraying, etc., all of these operations are not yet done by using a single robot expert system. In this new era robotics are manufactured majorly in order to concentrate in very effective way and also it also hope to perform the activities by itself without any involvement of the mankind. The proposed and suggested idea will implement the robot to do the operations like planting, spraying, impregnation, monitoring, and picking of an onion batch. These operations can be un segregated into a single robotic system and then implemented. The robotic system is expected to do the operations like planting, spraying, impregnation, monitoring, and picking by itself in the field of onion.

In the present generation mostly the countries will not have required skilled human power particularly in farming field and it causes for the growth of developing nations like India. So this is the time to automatize the field in order to overcome this issue. Particularly in India almost there is 75% people are majorly dependent on farming. So we should start study farming. The numerical distance between the two seeds are taken into control and varied by the use of microcontroller. Most of time it leads to pollution issue. Seeding function can be manually observed by expert system. Some of the operations can be manually done by the human in functions such as planting, seeding and cultivating.

II. EXISTING SYSTEM

- ✓ chances of delay
- ✓ Low consistency
- ✓ Intensity quantity is not there
- ✓ No flexible communication

III. PROPOSED SYSTEM

- ✓ Nodelay in time
- ✓ Intensity and sound quantity
- ✓ flexible communication
- ✓ Low power consumption
- ✓ good accuracy

IV. HARDWARE AND SOFTWAREREQUIREMENTS

Hardware:
- ✓ Micro controller
- ✓ Soil moisture sensor
- ✓ Driver unit
- ✓ Water Pump
- ✓ Bluetooth

Software :

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DESIGN OF REAL TIME ROBOTIC SYSTEM FOR OBJECT DETECTION AND CLASSIFICATION USING RASPBERRY PI

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Abstract—Now-a-days robots have found their way from sealed working stations to vehicles to people's living and working spaces, where they should be able to autonomously perform different services useful to the well being of humans, such as domestic tasks, healthcare services, entertainment, and education in particular, with the purpose of improving people's quality of life, especially for the elderly, the field of assistive robotics is becoming increasingly popular. The autonomous assistive robots must be provided with the ability to process visual data in real time so that they can react adequately by quickly adapting to changes in the environment. Reliable object detection and recognition is usually a necessary early step to achieve this goal. So for this work a autonomous robot is designed to detect and classify the objects.

In this work the detection and recognition are performed using open CV library and all the processing has been performed on Raspberry pi which works on Raspbian OS based on Debian which is Linux OS. The proposed robotic arm identifies the object without any manual control or operation. The total programming model is developed in python. The program includes controlling the robotic arm, capturing the object image processing, identifying the ROD object, using a local page to control motor manually and perform all task automatically using Raspberry Pi.

I. INTRODUCTION

In today's scenario, the robot with high accuracy, high output, and no error is in demand, the precise work or repetitive work is better done with robots, for the robot the sensor or camera is common sense for the machine-like image processing to detect and identify an object and its characteristic which helps to perform a required task. A Robotic arm can decide the object based on color like Red, Green, and Blue using camera and Image processing in raspberry pi. The main aim of the project is to make a robot that has the capability of pick a pre specified object and placing it in separate divisions based on color. Raspberry Pi has found its way in many useful and changeable implementations in robotic systems. Raspberry Pi does not implement any usual motor control peripherals and it is available at low cost. The python code has been formulated for creating a robotic arm with image processing and local web page with ability to adjust servo motor position manually For the industrial purpose, the robotic arm can help to separate and segregate the object based on color with a good frequency. A robot is a computer that works automatically and is normally fitted with weapons, wheels or legs. Most robots are used in sectors such as automotive manufacturing, where they are used to perform tasks that would otherwise be risky, complicated or repetitive to humans. The automotive manufacturing sector has long been one of the earliest and greatest adopters of industrial robotic technology, and that continues until today. In almost every aspect of automotive manufacturing robots are used in one form or another and it is one of the world's most highly automated supply chains. While there are plenty of robotic applications within the industry to choose from, there are 6 that stick out as the most popular and useful applications on the market. Home devices including Google Home and Alexa, have no wheels, and are unable to drive across your home. They can still communicate with you by voice commands and other apps though. On the other side, social home robots such as Pepper, Jemi and Kuri are able to roam the home and move about freely. In some cases, all forms can make your life easier but they can also cause problems.

A robot is a programmable machine particularly by a computer capable of automatically executing a complex series of actions. An external control device can direct the robots, or the power can be inserted within. Robots can be constructed on the lines of human form, but most robots are devices designed to perform a function independent of their aesthetics. Robotics can be autonomous or semi-autonomous and vary from humanoids such as Honda's Advanced Phase in Creative Mobility (ASIMO) and TOSY's TOSY Ping Pong Playing Robot (TOPIO) to industrial robots, medical working robots, robots for patient assistance, dog therapy robots, remotely designed swarm robots, UAV drones such as General Atomics MQ-1 Predator and even microscopic nano robots. By imitating a lifelike image of animating gestures, a robot may convey a sense of intellect or self-conceived mind. Automated things are expected to proliferate in the coming decade, with some of the

DEEP LEARNING BASED LUNG CANCER DETECTION IN CT SCANS AND SECURE DATA TRANSMISSION

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Abstract— At present Lung cancer is one of the most severe cancers with high incidence. It is growing at a frightening rate within the world. It has been predicted to be one of the greatest single causes of mortality among the Indian population in 2019. Accurate pulmonary nodule detection is a crucial step in lung cancer screening. Typically lung cancer is detected by radiologists on medical images through a comprehensive examination of CT images that takes considerably more time and inaccurate. Also, due to the significant advancement of the data transmission in the healthcare sector, the security, and the integrity of the medical data became big challenges for healthcare services applications. So a novel Hybrid model is proposed for detection and data transmission. The proposed method is implemented by image processing techniques because it is a progressive diagnostic tool for medical purposes. The proposed method involves two stages. In first stage the lung cancer is detect by optimization and deep learning technique. In second stage the data obtained from MATLAB is transferred to authorize PC through IOT cloud. Firstly the CT image is pre-processed from the data base and real time for removal of noise by median filter. Later the image is segmented by Otsu-Thresholding technique along with Particle swarm optimization and then the feature extraction is performed where the size and location of the disease is detected. Lastly the segmented image is processed through classification stage by Deep learning method where it classifies the Normal or abnormal. The final obtained parameters are transmitted through MATLAB cloud. In this proposed method also various parameters like PSNR, Correlation, accuracy, specificity, sensitivity, MSE etc are calculated. The proposed method is simulated in MATLAB.

Keywords: Filters, Lung Cancer, Feature Extraction, Neural Network, MATLAB cloud, PSO, SVM classification.

I. INTRODUCTION

Lung cancer is the world's leading cause of death from cancer. At the final stage, the sign of lung cancer come to light. Lung cancer is one of the most terrible diseases in the developing world, with a mortality rate of 19.4 percent. Early detection of lung tumor is performed using image from Computed Tomography (CT)[4]. Medical imaging researchers have been particularly interested in developing methods for the diagnosis of lung cancer based on deep learning techniques. Deep learning technique is an improved version of artificial neural networks, consisting of multiple layers to generate high-order features from their input and then the expected value at the top of the network [6].

Neural network plays a key role in identifying the cancer cells among the normal tissues, which in turn provides an effective tool for building cancer identification based on assistive AI.Convolutionary neural networks (CNNs) were commonly used for computer vision tasks.CNN demonstrates high performance for natural image classification[7]. In this paper we study strategies for the automatic diagnosis of computed tomography images in the sense of lung cancer detection tasks.CNNs tests have shown its robustness in the localization of object recognition in variant images.In order of severity, lung cancer is mainly divided into four stages:stage I cancer is confined to the heart, stage II and stage III cancer is confined within the chest and stage II lung cancer has spread from the chest to other parts of the body.More than 85 percent of this lung carcinoma is believed to be attributed to smoking.This knowledge is drawn from a World Health Organization statistics.The main problem with lung cancer is that most of these cases of cancer are diagnosed later on, making procedures more difficult and substainally reducing the chances of survival.The methodology developed for this system includes preprocessing, segmentation of the lung,optimisation,feature extraction and classification,Statistical parameters and Data transmission[8].

II. LITERATURE SURVEY

1. Using Deep Learning for Classification of Lung Tumors on Compufed Tomography Images: Lung cancer is the most common cancer that cannot be ignored and cause death with late health care. Currently, CT can be used to help doctors detect the lung cancer in the early stages. In many cases, the diagnosis of identifying the lung cancer depends on the experience of doctors, which may ignore some patients and cause some problems. Deep learning has been proved as a

LIQUID RESCALING FOR CONTENT AWARE IMAGE RESIZING

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Abstract—The Seam Carving introduced by Shai Avidan and Ariel Shamir is one of the most effective algorithms in the image resizing domain. The main objective of this capstone project is to study and recommend enhancements for the output of this algorithm and its effectiveness for different image types.In fact, this project will examine energy functions targeted at determining of the content of images and find out the energy functions function well as to what types of images and features and also it displays the histograms to know the differences of the images in the output.Finally, we will discuss the possibility of implementing the algorithm into an application and considering other new variables such as feedback.

I. INTRODUCTION

The diversity and versatility of display devices today imposes new demands on digital media. For instance, designers must create different alternatives for web-content and design different layouts for different devices. Moreover, HTML, as well as other standards, can support dynamic changes of page layout and text. Nevertheless, up to date, images, although being one of the key elements in digital media, typically remain rigid in size and cannot deform to fit different layouts automatically. Other cases in which the size, or aspect ratio of an image must change, are to fit into different displays such as cell phones or PDAs, or to print on a given paper size or resolution. Standard image scaling is not sufficient since it is oblivious to the image content and typically can be applied only uniformly. Cropping is limited since it can only remove pixels from the image periphery. More effective resizing can only be achieved by considering the image content and not only geometric constraints. We propose a simple image operator, we term seam-carving, that can change the size of an image by gracefully carving-out or inserting pixels in different parts of the image. Seam carving uses an energy function defining the importance of pixels. A seam is a connected path of low energy pixels crossing the image from top to bottom, or from left to right. By successively removing or inserting seams we can reduce, as well as enlarge, the size of an image in both directions. For image reduction, seam selection ensures that while preserving the image structure, we remove more of the low energy pixels and fewer of the high energy ones. For image enlarging, the order of seam insertion ensures a balance between the original image content and the artificially inserted pixels. These operators produce, in effect, a content-aware resizing of images. We illustrate the application of seam carving and insertion for aspect ratio change, image retargeting, image content enhancement, and object removal. Furthermore, by storing the order of seam removal and insertion operations, and carefully interleaving seams in both vertical and horizontal directions we define multi-size images. Such images can continuously change their size in a content-aware manner. A designer can author a multi-size image once, and the client application, depending on the size needed, can resize the image in real time to fit the exact layout or the display. Seam carving can support several types of energy functions such as gradient magnitude, entropy, visual saliency, eye-gaze movement, and more. The removal or insertion processes are parameter free; however, to allow interactive control, we also provide a scribblebased user interface for adding weights to the energy of an image and guide the desired results. This tool can also be used for authoring multi-size images. To summarize, our main contributions are as follows: • Define seam carving and present its properties. • Present algorithm for image enlarging using seam insertions. • Use seams for content-aware image size manipulations. • Define multi-size images for continuous image retargeting.Virtual object detection is an important and very significant component in the field of computer vision. Whether used to boost human knowledge of pictorial data or used to improve computer signal processing, picture processing can be used in many other fields such as mathematics, optics, visual physics, etc. Film processing applications are various and span from object recognition to geophysical or optical processing etc. Pictures, which are undoubtedly the key variable in the production of images, come in a variety sizes. Resizing it therefore is a very relevant matter re-dimensioning objects may be useful for physical reality to retain essential details of a certain photo that is intact in different sizes: This can also be used for processing, for example by compression, because this system will only function on exact sizes, using these wavelets and to find differences through the histogram graphs.

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POWER OPTIMIZATION USING LOOK AHEAD CLOCK GATING IN VLSI CIRCUITS

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Abstract— In VLSI design low power design plays a major role. The modern ICs consists of more number of transistors in a single chip due to this the testing becomes more challenging because of it consumes more power. Thus the power consumption problem can be solved by using a technique known as LOOK-AHEAD CLOCK GATING. In this a data driven clock gating technique is first implemented and then output is compared with Look ahead clock gating technique.

I. INTRODUCTION

In recent years, the demand for power-sensitive designs has grown significantly. This tremendous demand has mainly been due to the fast growth of battery-operated portable applications such as notebook and laptop computers, personal digital assistants, cellular phones, and other portable communication devices. Semiconductor devices are aggressively scaled each technology generation to achieve high-performance and high integration density. Due to increased density of transistors in a die and higher frequencies of operation, the power consumption in a die is increasing every technology generation. Supply voltage is scaled to maintain the power consumption within limit. However, scaling of supply voltage is limited by the high-performance requirement. Hence, the scaling of supply voltage only may not be sufficient to maintain the power density within limit, which is required for power-sensitive applications. Circuit technique and system-level techniques are also required along with supply voltage scaling to achieve low-power designs. In the Nano-meter regime, a significant portion of the total power consumption in high performance digital circuits is due to leakage currents. Because high-performance systems are constrained to a predefined power budget, the leakage power reduces the available power, impacting performance. It also contributes to the power consumption during standby operation, reducing battery life. Hence, techniques are necessary to reduce leakage power while maintaining the high performance. Moreover, as different components of leakage are becoming important with technology scaling, each leakage reduction technique needs reevaluation in scaled technologies where sub-threshold conduction is not the only leakage mechanism. New low-power circuit techniques are required to reduce total leakage in high- performance Nano-scale circuits. A spectrum of circuit techniques including transistor sizing, clock gating, multiple and dynamic supply voltage are there to reduce the dynamic power. For low-leakage design, different circuit techniques including, dual V_{th}, forward/reverse bias, dynamically varying the V_{th} during run time, sleep transistor, natural stacking are there.

II. CLOCK GATING

Clock power is a major component of microprocessor power mainly because the clock is fed to most of the circuit blocks in the processor, and the clock switches every cycle. Thus the total clock power is a substantial component of total microprocessor power dissipation. Clock-gating is a well-known technique to reduce clock power. Because individual circuit usage varies within and across applications, not all the circuits are used all the time, giving rise to power reduction opportunity. By ANDing the clock with a gate-control signal, clock- gating essentially disables the clock to a circuit whenever the circuit is not used, avoiding power dissipation due to unnecessary charging and discharging of the unused circuits. Specifically, clock-gating targets the clock power consumed in pipeline latches and dynamic- CMOS-logic circuits (e.g., integer units, floating-point units, and word-line decoders of caches) used for speed and area advantages over static logic. Effective clock-gating, however, requires a methodology that determines which circuits are gated, when, and for how long. Clock-gating schemes that either result in frequent toggling of the clock-gated circuit between enabled and disabled states, or apply clock-gating to such small blocks that the clock-gating control circuitry is almost as large as the blocks themselves, incur large overhead. This overhead may result in power dissipation to be higher than that without clock-gating.

PRINCIPLE OF CLOCK-GATING

The clock network in a microprocessor feeds clock to sequential elements like flip-flops and latches, and to dynamic logic gates, which are used in high-performance execution units and array

DESIGN OF 1X5 ROUTER BY USING RTL DESIGN

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Abstract— A router is a networking device that sends data packets from source to destination. It is connected to two or more data lines from distinct networks. It passes data packets from one computer to another computer and then finally reaches to destination or target. The 1x5 router has one input where the packet enters and five outputs where the packet is driven out. The significance of this paper is to analyze the 1x5 router device, its top level architecture and how different sub-modules i.e. FIFO, FSM, Synchronizer, Register are connected to its top level architecture. Xilinx ISE EDA tool is used for synthesis and modelsim used for simulation.

I. INTRODUCTION

A router is a device that forwards data packets between computer networks. This creates an overlay internetwork, as a router is connected to two or more data lines from different networks. When a data packet comes in one of the lines, the router reads the address information in the packet to determine its ultimate destination. Then, using information in its routing table or routing policy, it directs the packet to the next network on its journey. Routers perform the "traffic directing" functions on the Internet. A data packet is typically forwarded from one router to another through the networks that constitute the internetwork until it reaches its destination node. The most familiar type of routers are home and small office routers that simply pass data, such as web pages, email and videos between the home computers and the Internet. An example of a router would be the owner's cable or DSL router, which connects to the Internet through an ISP [1]. More sophisticated routers, such as enterprise routers, connect large business or ISP networks up to the powerful core routers that forward data at high speed along the optical fiber lines of the Internet backbone. Though routers are typically dedicated hardware devices, use of software-based routers has grown increasingly common. In its most basic form, a router could simply be one of two computers running the Windows 98 (or higher) operating system connected together using ICS (Internet Connection Sharing).

In this scenario, the computer that is connected to the Internet is acting as the router for the second computer to obtain its Internet connection. Going a step up from ICS, we have a category of hardware routers that are used to perform the same basic task as ICS, albeit with more features and functions. The routers allow sharing one Internet connection computers. These are called broadband or Internet connection sharing routers, these routers allow you to share one Internet connection computers. Routing is the process of choosing best paths in a network. In the past, the term routing was also used to mean forwarding network traffic among various networks. However, this latter function is much better described as simply forwarding. Routing is performed for many kinds of networks, including the telephone network (circuit switching), electronic data networks (such as the Internet), and transportation networks. This article is concerned primarily with routing in electronic data networks using packet switching technology. In packet switching networks, routing directs packet forwarding (the transit of logically addressed network packets from their source toward their ultimate destination) through intermediate nodes. Intermediate nodes are typically network hardware devices such as routers, bridges, gateways, firewalls, or switches. In many instances, an ISP will allow you to use a router and connect multiple computers to a single Internet connection and pay a nominal fee for each additional computer sharing the connection. This is when home users will want to look at smaller routers, often called broadband routers that enable two or more computers to share an Internet connection.

Within a business or organization, this may need to connect multiple computers to the Internet, but also want to connect multiple private networks not all routers are created equal since their job will differ slightly from network to network. General-purpose computers can also forward packets and perform routing, though they are not specialized hardware and may suffer from limited performance. The routing process usually directs forwarding on the basis of routing tables which maintain a record of the routes to various network destinations. Thus, constructing routing tables, which are held in the router's memory, is very important for efficient routing. Most routing algorithms use only one network path at a time. Multipath routing techniques enable the use of multiple alternative paths. In case of overlapping or equal routes, the following elements are considered in order to decide which routes get installed into the routing table (sorted by priority). When multiple routers are used in interconnected networks, the routers exchange information about

RFID BASED INTELLIGENT BOOKS SHELVING SYSTEM

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Abstract— Searching and sorting misplaced books is a difficult task often carried out by the library personnel. Quite often, librarians are busy with searching misplaced books which are left in wrong locations by library users. It is quite difficult and almost impractical to place back all books to their assigned locations daily. To overcome this, Radio Frequency Identification (RFID) based intelligent shelving system has been proposed to provide an efficient mechanism of books management monitoring through wireless communication between the RFID reader and the books. It is quite essential for the proposed system to have a smooth motion for the RFID reader during the shelving operation; otherwise acquired data will have no value due to inconsistency in reading the tags. Consequently, in this paper, the performance of RFID reader motion and tags data management such as retrieving information, matching with database, sorting out the order and displaying the status of books locations are discussed. A prototype consisting of monitoring PC with embedded controller, two dc motors with drivers, RFID reader and aluminum frame stick on rack have been developed. The performance of the proposed system has been investigated and found to be satisfactory. And it has a lot of potential applications, especially in its ability to alleviate the intensive labors and efforts in shelving library books.

I. INTRODUCTION

A library houses various collections of educational materials. People are normally relying on those collections to gain more knowledge. Library system is also the gateway through which communities' diverse needs can be met by combining the traditional role of the library with the development opportunities in the world. In order to meet the current diverse communities' needs, Library system should provide the educational, recreational, cultural and intellectual information. In order to maintain all those above-mentioned information, librarians have huge responsibilities to provide very good efficiency while making available to the public for them to get easy search and access. In particular, processing new acquired and returned books, searching all misplaced books and retrieving them are some of the essential works carried out daily by the library personnel. Searching of misplaced books are the most difficult task as well as time consuming. Consider a typical library, in which each book has its own assigned location in order to get easy assessment. However, library users would often remove books from perhaps multiple shelves and browse them through to search for intended ones. Then, it will not be easy to place them back to their original locations which make them unreachable. A similar situation arises in many retail stores where customers would try out things before buying them. Eventually, those items will be mixed up without putting them back to their proper places. Consequently, searching and sorting misplaced books becomes a difficult task often carried out by the library personnel.

Moreover, for instance, the student or the library user is looking for the book which is urgently required and unfortunately it has been misplaced or missing from original assigned location. In the mean time, the staffs have not yet started for searching process. So who will help those students or library users to find out their intended books? The university has made such huge effort by implementing the best facilities to develop up to this stage for the library users to be pleasant in studying, discussion as well as reading the books. However, if that situation is persisting every day, the solution has to be found out to overcome those problems. Many approaches have been suggested on how to restore books or stocks to their actual locations. These procedures differ with respect to the technology, accuracy, frequency of updates, and the costs of installation and maintenance. For instance, the university library has a system in which, anyone would have to hold scanner to search for any misplaced books. The alarm would be raised up whether any misplaced books are found (Chichester 2004). However, the efficiency is very low since it requires more or less manpower that can make human error during the searching operation due to fatigue. Furthermore, the scanner is expected to be half inch close to each and every book

SATELLITE IMAGE ENHANCEMENT USING DT-CWT-ABF-RE-TECHNIQUE

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Abstract— Resolution enhancement (RE) schemes (which are not based on wavelets) suffer from the drawback of losing high frequency contents (which results in blurring). The discrete wavelet -transform-based (DWT) RE scheme generate artifacts (due to a DWT shift-variant property). A wavelet – domain approach based on dual-tree complex wavelet transform (DT-CWT) and adaptive bilateral filter (ABF) is proposed for RE of the Satellite images. A satellite input image is decomposed by DT-CWT (which is nearly shift in variant) to obtain high frequency sub-bands. The high-frequency sub bands and the low – resolution (LR) input image are interpolated using the Lanczos interpolator. The high frequency sub bands are passed through an ABF filter to cater for the artifacts generated by DT-CWT (despite of its nearly shift invariance) the filtered high -frequency sub – bands and the LR input image are combined using inverse DT-CWT to obtain a resolution - enhanced image objective and subjective analyses reveal superiority of the proposed technique over the existing RE techniques

INDEX TREMS: Dual- tree complex wavelet transforms (DT-CWT), Lanczos interpolation, resolution enhancement (RE), shift variant.

I. INTRODUCTION

Resolution (spatial, spectral, and temporal) is the limiting factor for remote sensing data use (satellite imagery, etc.). Spatial and spectral resolutions of satellite images (unprocessed) are interrelated (a high spatial resolution is correlated with a low spectral resolution and vice versa). Therefore spectral ,as well as spatial resolution enhancement (RE)interpolation is desirable has been widely used for RE commonly used interpolation techniques are based on nearest neighbours (including nearest neighbour, bilinear, bi-cubic, and Lanczos) .The Lanczos interpolation (windowed from a sinc filter) is superior then its counter parts (including nearest neighbour bilinear and bicubic) due to improved ability to detect edges and linear characteristics. It also provides the best compromise in terms of reduction of aliasing, sharpness and ringing. RE schemes (which are not based on wavelets) suffer from the disadvantage of losing high -frequency components (which results in blurring). RE in the wavelet domain is a new research field, and recently several algorithms have been proposed discrete wavelet transform (DWT), stationary wavelet transform(SWT) and dual-tree complex wavelet transform(DT-CWT) .In the use of DT-CWT and bicubic interpolations ,an RE scheme was proposed and results were compared (shown superior) with the conventional schemes (i.e., nearest neighbour, bilinear, and bicubic interpolations and wavelet zero padding). Note that DWT is shift variant which causes artifacts in the RE image, and has a lack a lack of directionality; however, DT-CWT is almost shift and rotation invariant. Using the DT-CWT, Lanczos interpolation, and ABF based RE (DT-CWT-ABF-RE) technique is proposed. Note that DT-CWT is nearly shift invariant and directional selective. Moreover, DT-CWT preserved the usual properties of perfect reconstruction with well-planned frequency responses. Consequently, after the modification of the wavelet coefficients, DT-CWT gives promising results and provides fewer artifacts, compared to conventional DWT. Since the Lanczos filter offer less aliasing, sharpness, and minimal ringing, therefore, it a good choice for RE. ABF filtering is used to further enhance the performance of DT-CWT-ABF-RE by reducing the artifacts.

P. Suganya, N. Mohanapriya [1] in this work author proposed method for satellite image enhancement that includes Haar filter for pre-processing, Multi Wavelet Transform, Interpolation Process, Inverse Process of Multi Wavelet Transform for the low-resolution image. The technique of Multi Wavelet Transform and Interpolation was used to generate fewer artifacts. Limitation of this method to reduce distortion and for losing of high frequency components. Arya P Unni [2] author proposed method for enhancement of satellite colour images. Using the concept of 2D Discrete wavelet transform, threshold decomposition and morphological filtering. It can differentiate unnecessary noise contents of the image and high frequency components. Additionally, Harr filter is used to eliminate unwanted frequency components filter the frequency components. Histogram Equalization technique is also used in this paper describe about to enhance images by normalising image intensities. Limitation of this technique is it cannot be used for large images. Satellite images are large images in general so not useful in that case.

Heuristic Approach to Evaluate the Performance of Optimization Algorithms in VLSI Floor Planning for ASIC Design

S. Nazeer Hussain and K. Hari Kishore

Abstract A research on VLSI Floor planning's physical layout is addressed using optimization methods to improve VLSI chip efficiency. VLSI floor planning is regarded as a non-polynomial issue. Calculations can solve such issues. Representation of floorplan is the basis of this process. The depictions of the floor plan demonstrate more effect on search space as well as the design complexity of the floor plan. This article aims at exploring various algorithms which add to the issue of managing alignment limitations such as excellent positioning, optimal region and brief run time. Many scientists are proposing and suggesting diverse heuristic algorithms and also distinct metaheuristic algorithms to solve the VLSI Floor plan issue. Simulated Annealing, tab search, ant colony optimization algorithm at last the genetic optimization algorithm are addressed in this article.

Keywords Circuit · Design · Floorplanning · System · VLSI

1 Introduction

With fast technological modifications and improvements, the complexity of circuit design is growing and the region occupying a bigger region is therefore playing a crucial role in the design of circuits. Physical design begins with the original phase of Floor Planning, that determines block sizes and also the places where the blocks located in an IC by keeping in mind attaining minimum area and also interconnecting wire length. The floorplan is helpful for renovation of size and also complexity among floor plan and representation of floorplan. This floorplan in VLSI is regarded as NP Hard issue. As the number of modules increases, finding the optimal solution could become very hard that encounters the desired representation of the floor plan. Floorplan quality is purely depending on how well it is represented. The figure shows

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Error Performance of Hybrid Weighted Bit Flipping decoder for Security Applications using EG-LDPC codes

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Abstract— **Low Density Parity Check codes are deciphered by iterative data passing calculations, which can accomplish magnificent execution. LDPC codes are decrypted by using hard decision, Soft decision or cross breed deciphering plans. LDPC codes are the type of linear block LDPC codes. The designation originates after the normal for their equality check grid which contains just a couple of ones in contrast with the number of measured zeros. These LDPC codes primary leverage is that they stretch an execution which is near the limit with regards to a variety of channels and straight time complex calculations for deciphering. In this paper, a half and half weighted piece flipping deciphering calculation for low-thickness equality check codes is proposed. BF is straightforward and simple to be actualized, however has just restricted unravelling execution. The Hybrid Weighted BF (HWBF) calculation utilizes both the check connections and the dependability of get message, thusly acquires a superior unravelling execution when contrasted to BF calculation. Hybrid Weighted Bit Flipping (HWBF) offers a decent trade-off between execution, unpredictability and speed. The primary favourable position of HWBF is the way that at every emphasis, weighted wholes of similar qualities are processed. Thus these entities can be pre-processed, so the speed preferences of BF are safeguarded.**

Keywords- BF algorithm, EG-LDPC codes, Hybrid Weighted Bit Flipping, Iterative decoding, Error performance.

I. Introduction

1.1 Error-Correcting code

The repetitive information or equality information is additional to the first message data and it can be recovered at the collector end deprived of the requirement for the information re-transmission and furthermore the mistakes can be distinguished and rectified if there are any blunders are available. Therefore, these type of encryptions are called mistake rectifying code or forward-blunder amendment code.

1.2 Shannon's Theorem:

For the dependable transmission of information over a given correspondence channel, the information transmission rate ought not to surpass the channel limit, which is demonstrated by Shannon hypothesis.

1.3 LDPC Codes:

Robert G. Gallager was produced the proposed LDPC codes, thus the proposed were otherwise called Gallager codes. Because of handy acknowledgment appear to be incomprehensible and these codes were dismissed in spite of the fact that the code was developed in the mid 1960's. LDPC code is a direct blunder revising code and methodologies close Shannon limit. These LDPC codes are the better mistake amending utilized for encoding and unravelling at present situation [1]-[3]. Here are double sorts of proposed LDPC codes

Standard LDPC codes: These have risen to push loads (Wr) and equivalent segment loads (Wc) (No. of 1's in lines and no. of 1's in segments)

$$\text{Ex: } \begin{bmatrix} 1 & 0 & 0 & 1 & 0 & 1 \\ 0 & 1 & 0 & 1 & 1 & 0 \\ 0 & 1 & 1 & 0 & 0 & 1 \\ 1 & 0 & 1 & 0 & 1 & 0 \end{bmatrix}$$

Here W_r=3 for all rows and W_C=2 for all columns.

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AN ARDUINO CONTROLLED AIR AND SOUND POLLUTION MONITORING SYSTEM USING ARDUNIO

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***Abstract*—** In ongoing day situation, the relentless increment in air and sound contamination end up being a disturbing issue. It has gotten obligatory to control and properly screen the circumstance with the goal that the necessary strides to check the circumstance can be attempted. The prescribed innovation contains four modules to be specific, the Air Quality Index Monitoring Module, the Sound Intensity Detection Module, the Cloud-based Monitoring Module and the Anomaly Notification Module. Right off the bat, the Air Quality Index is estimated considering the nearness of the five criteria air contaminations. At that point the sound power is identified utilizing separate sensor. From that point forward, the Cloud-based Monitoring Module guarantees the way toward gaining the information with the assistance of Wi-Fi-module present in Raspberry Pi which satisfies the goal of investigation of data on a periodical premise. At last, the Anomaly Notification Module alarms the client if there should arise an occurrence of an undesired condition.

I. INTRODUCTION

To control and screen of different activities focused by Present advancements in development. To accomplish the human needs these are continuously rising. Most of this advancement is revolved around compelling checking and controlling particular activities. To screen and assess the conditions in case of outperforming the embraced element of parameters (e.g., disturbance, CO and radiation levels) a profitable regular checking structure is required. In a circumstance when a thing equipped with sensor devices, by then for this circumstance microcontroller and diverse programming applications transforms into a self-guarding Self-checking and self-controlling condition and it is moreover called as sharp condition.

In such condition when LED alerts thusly or some event happens the alarm. Sharp Environmental Monitoring System screen and control the normal changes on animals, plants and people on the reason impacts due to natural changes. Event\ Detection based and Spatial Process Estimation are the two characterizations to which applications are gathered. From the outset the sensor contraptions are passed on in condition to recognize the parameters (e.g., fuss, CO and radiation levels, etc.) while the data getting, computation and controlling action (e.g., concerning the foreordained measurements, the assortments in the uproar and CO levels). To predict the direct of a particular zone of interest and to accumulate the data, the Sensor devices are put at different territories. The essential goal of this paper is to design and execute an acceptable watching structure through which the necessary parameters are checked and controlled remotely by using web and the data accumulated from the sensors are taken care of in the cloud and on the web program to broaden the evaluated design.

A response for checking the upheaval and CO levels i.e., any parameter regard crossing its edge regard ranges, for example CO levels in air in a particular domain outperforming the conventional measurements, etc., in the earth using embedded handling system is proposed right now. The game plan in like manner gives a sharp remote seeing to a particular domain of interest. Right now in like manner depict slanting results of identified or assembled data with respect to the typical similarly as showed extents of explicit parameters. The embedded system engages the customer to remotely find a workable pace parameters and store the data in cloud and This structure is a blend of sensor contraptions with remote correspondence. The idea of air is indispensable for the endurance of living animals. It is essential to screen air quality and screen it for a prevalent future and sound living for all. The principal crucial this endeavor is to spare and improve the idea of air. Diverged from trademark sources, man's activities produce a significantly humbler proportion of overall pollution.

Right now age various sullying checking systems are arranged by contemplating different normal parameters. Existing structure exhibit is presented in uses ZigBee based remote sensor frameworks to screen physical and normal conditions with an immense number of uses in different fields. The sensor center points clearly talked with the moving center points passed on the object of interest which avoided the usage of complex coordinating computation anyway close by figuring's are irrelevant. RFID is a strategy for taking care of and recouping data through electromagnetic transmission to a RF immaculate composed circuit. There are two essential pieces of RFID structures: names and peruses. A tag has an

AUTOBOT: RESILENCE AND COST- EFFECTIVE TIMING OF A WORK BAG ON SPOT VMS

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ABSTRACT- Many parallel records and responsibilities presentations can be modelled as an effort bag (BoT) and installed on distributed grid, cluster, and cloud structures. We are present AutoBoT, a set of BoT arranging techniques on Cloud Virtual Machines (VMs) with hard time limits, to lower the overall financial price–and surprising consideration for Clouds. In adding to low-priced constant-fee VMs, AutoBoT decreases costs uniquely by proposing preemptible spot-priced VMs that can be much inexpensive, but riskier, and must time-varying expenditures. This ensures well-timed ultimate glory by making exact runtime choices on valuing, gather / release change of VMs, and placement of developments, point check-out and relocation. Our planned 7 million BoT simulations run from the Google cluster's workload using a practical cloud version and six months of pricing data from Amazon EC2 to test AutoBoT against baseline algorithms. We observe the effect of BoT size, facilities for data, time intervals, closing date period and price range for losses and pointing control techniques. Often AutoBoT gives benefits of 80 percent and rare but minor disadvantages, compared to only using VMs with fixed charges. However, the 100% full guarantee is 23/42 percent higher than using the most powerful spot-priced VMs with a comparable benefit.

I. INTRODUCTION

Over the earlier decade, CLOUD computing has accomplished exceptional fulfillment, interpreting it a de facto well-known society and also theoretical research provider (IaaS, PaaS, SaaS) for retrieving infrastructure, information, and software programs. Public clouds offer pay-as-you-cross entree to open foundations that can be accepted and released on request, zero capital expenditure for network procurements, lower operating prices due to parsimonies of scale, "endless" net with consumer-friendly landscapes, high-availability services for global records, and less difficult hardware and smooth digital services authority. Big public cloud workers consist of Amazon AWS, Microsoft Azure, Google Cloud and IBM Indigo Mix with 65% of domain market share 1.

On-demand Virtual Machines (VMs) afford the most regularly used service to quantity resources among IaaS businesses. These constant (on-call) VMs, characteristically given by the usage of IaaS transporters, perform a tough and fast rate per period (Amazon AWS EC2) or per minute (Google Compute, Azure VM) for every form of VM; Which vary in the wide variability of CPU centres and clock speeds, memory size, disk type (SSD, HDD) and distance, variety and general community card presentation; for example, a 2-core VM with 8 GB RAM charges between US$ 0:096 and zero:107 an 60 minutes in the central of the Eastern US Figure uses for AWS, Azure and Google. Rates are rising proportionately for companies that must smaller billing series that are in mark with minute or second.

AutoBoT's novelty fabrications in its ability to list BoTs on both constant-price and pre-emptible VMs to offer expressively lower charges (eighty percent lowering) even as, where probable, ensuring full previous than the final date. Most cloud schedulers are controlled to making the first-rate effort to meet the cut-off time at lower cost, using the humblest constant fee VMs to guarantee full-rate final touch or scalably scheduling the maximum effective character duties.

The following are the disadvantages:

- Most cloud schedulers are limited to making an unresolved attempt to see the deadline at concentrated costs, using the humblest constant VMs to guarantee completion at extreme speed, or scalably scheduling the greatest tasks for people.
- The AutoBoT scheduler, which usages a set of heuristics to control spot or constant rate attainment and release of VMs, recording obligations to VMs, and inspection pointing and migration duty.
- We accomplish a full collection of replications to test AutoBoT and analyze its amount decrease and consistency against two simple algorithms.

II. LITERATURE SURVEY

2.1. "Practical scheduling of complex flexibility bag-of-tasks systems on grids,"

Over the earlier decade, the network has emerged as per an attractive conversation board to talk a number of huge problems, especially in skill and

FAKE NEWS DETECTION USING MACHINE LEARNING

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***Abstract*—** This Project thinks of the utilizations of NLP (Natural Language Processing) strategies for recognizing the 'phony news', that is, deceiving reports that originates from the non-legitimate sources. Just by building a model dependent on a tally vectorizer (utilizing word counts) or a (Term Frequency Inverse Document Frequency) tfidf framework, (word counts comparative with how frequently they're utilized in different articles in your dataset) can just get you up until now. In any case, these models don't consider the significant characteristics like word requesting and setting. It is truly conceivable that two articles that are comparative in their promise include will be totally extraordinary in their importance. The information science network has reacted by taking activities against the issue. There is a Kaggle rivalry called as the "Phony News Challenge" and Facebook is utilizing AI to sift counterfeit reports through of clients' channels. Combatting the phony news is an exemplary book characterization venture with a straight forward suggestion. Is it feasible for you to construct a model that can separate between "Genuine "news and "Phony" news? In this way, a proposed take a shot at amassing a dataset of both phony and genuine news and utilize a Naive Bayes classifier so as to make a model to group an article into phony or genuine dependent on its words and expressions.

Key Words: Fake News; Social Network; Naïve Bayes; Confusion Matrix

I. INTRODUCTION

Nowadays' phony news is making various issues from mocking articles to a manufactured news and plan government purposeful publicity in certain outlets. Counterfeit news and absence of trust in the media are developing issues with colossal consequences in our general public. Clearly, a deliberately deceptive story is "phony news "however of late blathering online life's talk is changing its definition. Some of them presently utilize the term to excuse the realities counter to their favored perspectives. The significance of disinformation inside American political talk was the subject of profound consideration, especially following the American president political decision. The term 'counterfeit news' became regular speech for the issue, especially to depict accurately inaccurate and misdirecting articles distributed for the most part to bring in cash through site visits. Right now, seemed to create a model that can precisely anticipate the probability that a given article is phony news. Facebook has been at the focal point of a lot of investigate following media consideration. They have just executed a component to signal phony news on the site when a client sees 'sit; they have additionally said openly they are dealing with to separate these articles in a computerized manner. Positively, it's anything but a simple undertaking. A given calculation must be politically impartial – since counterfeit news exists on the two parts of the bargains – and furthermore give equivalent parity to real news sources on either end of the range. Moreover, the subject of authenticity is a troublesome one. In any case, so as to tackle this issue, it is important to have a comprehension on what Fake News is. Afterward, it is expected to investigate how the strategies in the fields of AI, characteristic language preparing causes us to recognize counterfeit news. There exists an enormous assemblage of research on the subject of AI strategies for trickery recognition, its majority has been concentrating on characterizing on the web audits and freely accessible online life posts. Especially since late 2016 during the American Presidential political race, the topic of deciding 'counterfeit news' has likewise been the subject of specific consideration inside the writing. Conroy, Rubin, and Chen layout a few methodologies that appear to be encouraging towards the point of impeccably group the deceptive articles. They note that straightforward substance related n-grams and shallow grammatical features (POS) labeling have demonstrated lacking for the grouping task, regularly neglecting to represent significant setting data. Or maybe, these techniques have been indicated helpful just couple with increasingly complex strategies for examination. Profound Syntax investigation utilizing Probabilistic Context Free Grammars (PCFG) have been demonstrated to be especially important in blend with n-gram strategies. Feng, Banerjee, and Choi can accomplish 85%-91% precision in misleading related arrangement errands utilizing on the web audit corpora. Feng and First executed a semantic examination taking a gander at 'object: descriptor' sets for logical inconsistencies with the content on Feng's underlying profound grammar model for extra improvement. Rubin, Lukoianova and Tatiana examine explanatory structure utilizing a vector space model with comparable achievement. Ciampa glia et al. utilize language design

SUPERVISE AND APPREHENSION OF STUDENT PRESENCE USING RFID

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***Abstract*—** Recently, student's attendance has been considered as one of the crucial elements or issues that reflects the academic achievements and the performance contributed to any university compared to the traditional methods that impose time-consuming and inefficiency. Differing programmed distinguishing proof advances have been more stylish, for example, the wireless technology like Radio Frequency Identification (RFID). A broad look into and a few applications are delivered for exploiting this innovation. RFID is a remote innovation used as a reason for recognizing an item through radio waves to move data from an electronic tag, called RFID tag or mark to transfer information to RFID per user. The present investigation centers around proposing a RFID based Attendance Management System (AMS) and furthermore data administration framework for a scholastic area by utilizing RFID innovation notwithstanding the programmable Logic Circuit, (for example, Raspberry Pi), and PHP Server.

I. INTRODUCTION

The manual technique for gauging participation in schools and universities in instructive foundations throughout the years has become a thing of concern. In the manual technique for gauging participation understudies are required to record their names and sign the participation list. The issues related with this strategy shift from pointless time wastage to ill-advised documentation, understudies neglecting to put down their names on the participation rundown or understudies composing in the interest of different understudies that are missing from the class. To annihilate the lacks related with the manual participation framework, a computerized approach is actualized through Radio repeat conspicuous verification (RFID) development. The RFID based programmed participation framework incorporates the RFID per user, RFID labels, PC framework, and host framework application. The RFID based programmed participation framework is utilized for naturally taking understudies' participation and offering cautioning to understudies on instances of low participation which could debase the exhibition of understudy or keep the understudy from taking the course assessment, if the class participation rate is under 60.

Taking attendance by calling names or marking on paper is very time-taking and uncertain, and furthermore this strategy is wasteful. This now and again have come in straightforward structures like move calls, while in all the more intriguing cases, can be positions like astonishment tests, additional credit in class, and so forth. These techniques are anyway tedious, distressing and arduous on the grounds that the significant talk time that could somehow or another been utilized for addresses is committed to understudy participation taking and at times not exact. Not with standing every one of these difficulties, the attendances are recorded physically by the mentor and in this way it might prompt individual blunders.

II. PROPOSED SYSTEM

Right now, understudy is allotted a RFID Tag that has a one of a kind ID. At whatever point the Student enters the school premises, he will swipe that card close to the Reader. The Reader will peruse the Student's Information and on the off chance that that data is effectively coordinated, at that point the understudy is allowed to enter. After some time, message will get showed on LCD demonstrating that the participation has been taken.

Merits of proposed system

1. Lessen paperwork and shop time and money with cell and cloud-based attendance management device.
2. Auto-generate diverse types of reviews of class or pupil attendance.
3. Increased security and confidentiality with role-based permissions to users.
4. Avoids human error by removing approach of manual attendance entering.

SECURE: SELF-PROTECTION APPROACH IN CLOUD RESOURCE MANAGEMENT

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***Abstract*—** Distributed computing is an advanced innovation that expansion application possibilities as far as working, flexible asset the executives and community-oriented execution approach. Cloud asset the executives requires complex strategies and choices for multi-target improvement. It is testing - the multifaceted nature of the framework makes it difficult to have exact worldwide state data. Influenced by capricious connections with the earth, e.g., framework disappointments, assaults. Cloud specialist organizations are confronted with huge fluctuating burdens which challenge the case of cloud flexibility. This paper centers around a self-securing system i.e., the property of autonomic registering was proposed to make the cloud self-shielded without human mediation from interruptions and assaults. The design of self-ensuring of cloud was introduced and portrays the essential collaboration and usefulness of every segment of engineering. Self-security is the capacity of a processing framework to guard itself against dangers and interruptions. A self-security segment helps in recognizing and perceiving scaring conduct and responds independently to ensure itself against pernicious assaults. This paper proposes a Self-insurance approach in cloud Resource the executives (SECURE) approach for managing security assaults. SECURE can make new marks consequently and give protection from DDoS, Probing, U2R, R2L and DoS security assaults. SECURE ceaselessly screens security assaults during the execution of outstanding tasks at hand, performs examination to comprehend cautions on account of security assaults, makes an arrangement to perform expected activities to oversee dangers, and executes the activity. Security operators (sensors) are made on SVM as an irregularity identifier. SECURE builds the security of cloud-based administrations and expands interruption recognition rate if a similar danger shows up once more.

Key Words: security attacks, cloud, resource management, zero-day attack, self-protection approach

I. INTRODUCTION

Nature of administration (QoS) assumes a significant job in the period of distributed computing where conveyed cloud administrations are estimated and observed regarding QoS to guarantee their accessibility. All things considered, offering submitted cloud benefits that ensure client's changing QoS needs while blocking them from security assaults is a major challenge.1 Provisioning and planning cloud assets is frequently done dependent on their accessibility without giving the necessary security.

To make distributed computing frameworks progressively successful, the security necessities of each cloud part ought to be fulfilled. To understand this, a security-based asset allotment instrument is required that naturally oversees cloud assets and conveys secure cloud administrations. Self-assurance is the capacity of a figuring framework to safeguard itself against dangers and interruptions. A self-insurance part helps in recognizing and perceiving threatening conduct and responds self-governing to secure itself against noxious assaults.

These frameworks safeguard themselves from aggressors by separating ill-conceived from real conduct and playing out the Recently, specialists concentrated on distinguishing new strategies for recognition and avoidance of interruptions in registering frameworks and found that the Intrusion Detection System (IDS) is a compelling method to shield organize from assaults. IDS stop assaults, performs recuperation after assaults, and research security escape clauses to help maintain a strategic distance from such issues later on.

IDS can be arranged into two sorts dependent on inconsistency and mark. Mark based IDS is utilized to identify the marks of known assaults in the database, while oddity-based IDS breaks down strange exercises. SNORT13 is the best IDS that can be utilized for assault location. Diverse machine acquiring systems are utilized for peculiarity-based IDS, however State Vector Machine (SVM) is the most usually utilized inconsistency-based finder.

This venture proposes a Self-protection approach in cloud Resource management (SECURE) approach for managing security assaults. SECURE can make new marks consequently and give protection from DDoS, Probing, U2R, R2L and DoS security assaults. In view of MAPEK circle, a calculation for various stages has been created to screen, break down, plan and Execute. SECURE persistently screens security assaults during the execution of remaining burdens, performs examination to

Energy Efficient Congestion Control With Packet Drop Rate and Node Status Techniques for Wireless Sensor Networks

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Abstract— **Wireless Sensor Network (WSN) is a collection of number of sensor nodes. Nodes are spatially disseminated to check various environmental conditions. The WSN should support reliability, scalability, mobility and power efficiency. The WSN is battery power operated network. So the life time of WSN is limited. The energy efficient sensor networks will provide an efficient communication which will lead reliability. The reliable data transfer is achieved by implementing node reliability and event reliability. The traffic in WSN is classified as upstream traffic and downstream traffic. The bandwidth and energy level are two important factors for achieving energy efficiency and reliability. The wake up time of sending node and receiving node are considered for data transmission and the wake up interval is also calculated. In our paper we propose a technique which is used to calculate efficient transmission based on packet drop rate and node status.**

Keywords- Bandwidth, Energy Status, Node Status, Wakeup Interval, Data Arrival Rate, Queue Length

I. INTRODUCTION

The WSN traffic is classified as upstream traffic upstream and downstream traffic. Due to convergent nature there is more traffic in upstream. In upstream direction the data packets are sent from sensor nodes to sink node. The upstream traffic is classified into four models: event-based, continuous, query based and hybrid delivery. The main reason for congestion in WSN is packet loss, buffer overflow. The node level congestion [1] occurs while packet arrival rate is greater than the scheduling rate. The link level congestion increases packet service time and reduces throughput. The congestion will reduce link utilization and efficiency. While designing protocols for WSN it is important to consider energy efficiency and reliability. The reliability is classified as packet reliability, event reliability, end-to-end reliability, hop-by-hop reliability. The sensor nodes in event based sensor networks send data packets whenever there is an event occurs. In even-to-sink reliable transport [2] the sink store collective information but not in individual node. A sensor node maintains the total event list, node id and event id. When a sensor node receives new data packets it checks all these information. The wastage of energy is one of the important factors for creating new protocols. The sensor nodes acting as three states: idle, active and sleep. So the scheduling algorithms enable the sensor nodes to change various states in order to reduce energy. The clustering concept is one of the efficient ways for reducing energy. Although it is earlier technique one the selection of cluster head node on some criteria. The role of cluster head is not only forwarding data packets and communicating with sink node. The data saving [3] concept is an efficient approach for selecting sleeping node as data buffer. In this approach when a buffer at a particular node reaches threshold value the redirection will take place for sending data packet. In case if buffer node is full the cluster head takes responsibility for selecting another node. The performance metrics, power supply, energy efficient protocol design, capacity are to be considered while creating new congestion control algorithm. The channel access, scheduling, routing are inter related with sensor nodes. The connectivity and throughput are some other factors for improving quality of service. The throughput is achieved by calculating how much data packets are delivered. When the data packet delivery delay is reduced it automatically increases the quality of WSN. The modeling is implemented by easy simulation methodologies. It should be accurate and traceable. The sampling or prototyping is selected in such a way that it should be suitable for all type of networks. In order to reduce memory and energy it is essential to implement scheduling.

II. RELATED WORK

In WSN the radio and CPU pars consume more energy than other parts. The radio part tasks are transmission and reception. The algorithm and protocols should support scalability and they should be implemented for all topologies. Our plan is to improve total throughput of network. The throughput is achieved using the factors like: collision avoidance, channel utilization, latency and control overhead. As per the ABC [4] model the resources are adjusted according to their utilization at exacting point. The latency is also considered

A Novel Method for the Identification of Phishing Web sites and Secure Transactions

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***Abstract*— Phishing is a fraudulent enterprise using methods related to social engineering. Phishers attempt to obtain confidential information fraudulently, such as passwords and credit card numbers, by masquerading an electronic message as a trusted individual or company. The phisher must convince the victim to intentionally carry out a series of acts which will provide access to sensitive information. Communication channels are common, such as email, webpages, IRC and instant messaging services. The strong techniques are important for stopping phishing attacks. In our research, we proposed a protection against phishing using Visual Secret Sharing Scheme (VSS) in Visual Cryptography (VC) to the the phishers-triggered attacks. Visual Cryptography (VC) is a process by which a secret image is encrypted into shares, so stacking a sufficient number of shares exposes the secret image. Users can conduct online transactions in a safe and secure manner by implementing the above-mentioned techniques.**

***Keywords*— Include at least 5 keywords or phrases**

I. INTRODUCTION

The number of people who use online banking increases rapidly in the past few years. The increase of novice users, however, invites the increase of criminal acts which are now known as phishing attacks. A phishing attack is one of the fastest growing kinds of attacks on the internet in recent years. Phishing attacks typically involve sending fraudulent e-mails or fake website to individuals in order to solicit sensitive and confidential personal information, such as account numbers, social security number, and passwords from the recipients.

The word Phishing comes from fishing. It is obvious that the usual way of phishing can be considered as the procedure of fishing[1]. To some degree, internet is filament and the phishing attacks play the role of fish bait. Phishing attacks usually have the following features:

i. It seems like a usual "food". It is not easy to find that it is a fake. It looks like normal things which you contact every day. Phishing attacks solicit sensitive information by setting up a fake website or sending a fake e-mail. And, both a fake website and a fake e-mail appear to come from a legitimate company such as a bank, retailer or other e-commerce business.

ii. It smells "good", and the recipients always feel nothing wrong with the normal "food". Phishing attacks typically use a false "from" address, web links, copies of company logos, and figures to make the fake websites and e-mails look like coming from the legitimate companies with which the recipients of the e-mails have business dealings, thus getting the recipients‟ trust by fraud. Then the attackers snatch the sensitive information step by step. Figure 1 illustrates that the e-commerce has an around 3.6 times increase from 2014 to 2021.

Phishing attacks have been reported in the global world, which seriously impact the security of online financial services and the development of electronic commerce. This kind of public risk already influences people's confidence in using internet. To go a step further, phishing attacks will be a big society criminal problem to prohibit from economic advancement. The main target of phishing attacks is novice users who do not have enough knowledge to understand complicate operations of computer, who do not want to install special hardware or software, and who do not want to pay lots of money to prevent phishing attacks[2]. There is no explicit survey data to back up this obvious conjecture, but Figure 2, is noteworthy.

ARDIOT – Arduino IoT Based Advanced Irrigation

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***Abstract*— Water is a vital element in agriculture with a deciding impact on subsequent production in virtually all of its facets. If plants are not treated optimally, healthy seeds and fertilizers can't reach their maximum capacity. For animal husbandry, adequate water availability is also essential. Naturally, fishing relies directly on water supplies. India accounts for nearly 17%, but just 4% of the world's freshwater wealth. It is often unequal to allocate such water supplies throughout the country's vast expanse. The increased water requirement from the expanding population in India and declining water quality due to contamination and external needs to support the spiraling industrial and commercial development in India have contributed to a rapid rise in water use while the source of freshwater remains more or less stable. We use the Internet of Things (IOT) to solve this issue in smart farming techniques. The IOT reshapes agriculture in such a way that farmers will address problems in the field with a wide variety of technologies, including precision and sustainable farming. IOT binds individuals to objects, to objects, and to men. IOT provides remote sensing and monitoring of current network models of artifacts.**

Keywords- IoT, Arduino, Smart irrigation, Sensors, Acidic and Alkaline soils

I. INTRODUCTION

Among the agricultural inputs which include seeds, fertilizer, plant protection, machinery and credit, irrigation assumes an importance place. Irrigation ensures that the fields are irrigated by some other method but air.

A. Irrigation Demand

- India is a fantastic country and lies next to China when we think about the population, so irrigation is important to feed our teams millions.
- The rainfall distribution is irregular and unpredictable that triggers either famine or drought. We may test the two problems by irrigation.
- Only irrigation services may meet the varying water needs of different crops.
- As India has a high thermal nation and is faster condensation, artificial irrigation is important for the supply of significant volumes of water, and even in the hot, intermittent, dry winter, for preventing depletion of water.

B. Irrigation methods

Depending upon the availability of surface or ground water, topography, soil and rivers, various types of irrigation practiced in India are as follows:

DEVELOPMENT OF ONLINE AUTOMATIC EXAMINATION SYSTEM WITH QR CODE USING JAVA

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***Abstract*— Conducting examination with different department question papers and to generate Hall Tickets, examination hall with "QR Code" is expected to lead assessments in a proficient way without time wasting for the checking of paper, and give results. The principle target of our task to endeavor the test, with in a specific timeframe, and give new security includes, and give past papers to competitors. It also includes, giving the assessment hall tickets dependent on QR codes, this hall tickets can be utilized at assessment login session.**

***Keywords*— QR code, online exam, multiple courses, Automatic results.**

I. INTRODUCTION

As technology is continually advancing, education system can't remain committed to the old conventional methods for learning. The expression "e-learning" turns out to be increasingly natural in the field of training. On fundamental part of e-learning, assessments are led on the web. Nowadays, in day to day life all are digitalized. So it is planned to digitalize the examination by creating online automatic examination system with QR code. since making assessment paper done by experts information, experience, and style and simultaneously we present new trend of automatic examination system which requires less labor, utilizing this system to process hallticket generation of candidate with simple QR code and different uncommon sets of question papers automatically which are stored securely in the database. Insight Education is the pattern in the advancement of modern instruction, which expects to combine internet with modern education. So as to improve the nature of teaching, reduce trouble on instructors and upgrade candidates enthusiasm in learning, we utilize the Internet, which is a fast and efficient sharing stage. The Intelligence Education can be reflected in all parts of knowledge preparing and assessment, as this is a significant piece of the instructing procedure.

In the domain of Intelligence Education, Intelligent Examination Room can be worked with the application of information technology, so as to guarantee a viable, reasonable, and effective examination process, accordingly improving the quality of conducting the examination.

II. LITERATURE SURVEY

The system is based on a QR code which is in hall ticket, shows the candidate's exam hall details before exam starts. To confirm their exam hall details candidates will scan the QR code. This helps to save time and to assemble easily in the scheduled manner.[1]

The system takes the QR code as a real time application in day-to-day life and related research areas. Since mobile phone technology constantly emerging, particularly in the area of mobile internet access, QR codes appear to be a suitable tool for quick and efficient conversation of URLs with users. The experiment carried out to better recognize the QR code which includes scratch removal techniques.[2]

A practical image preprocessing method for the recognition of QR code was proposed to lower the consumed threshold. The encoding feature of QR has been used instead of using traditional methods such as edge detection and line detection, thereby reducing the effect of background noise and geometric distortion. It also used alignment patterns to sample the barcode adaptively in terms of regions, which significantly improved the recognition rate. Experimental results show that the proposed solution can resolve the effect of noise and it fulfills the necessity of decoding in real time. [3]

Intrusion Detection System in Mobile Wireless Networks using CNN-LSTM model

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***Abstract*— The mobile ad-hoc network (MANET) is a constant automatic configuration; Communications are less mobile strategy networks are wirelessly associated. All devices are in a complementary MANET to change only in any direction and, therefore, the determination to modify their associates to previous devices is frequent. It is very difficult to identify intrusions in mobile wireless networks because the network topology can be very dynamic, the network is not always linked and resources are limited. MANET protection is an essential part of attack detection. Machine learning algorithms play an important role in the current Intrusion Detection. However, these algorithms are suffering with detection rat in MANETS. Deep learning is another sophisticated technique to solve these challenges because intrusion detection performance is not strong in MANETS. This article examines network intrusion detection using a Convolutional Neural Network (CNN) and LSTM. The integrated folding and grouping operations are used to derive the relationship of the features between the results. The model should automatically determine the efficient properties of the intrusion samples so that the intrusion samples can be classified accurately. An experimental test reveals that the proposed model will significantly increase intrusion detection performance.**

***Keywords*— Convolutional Neural Network (CNN), LSTM, Intrusion Detection System, Accuracy, Machine Learning**

I. INTRODUCTION

Mobile ad hoc networks (MANET) along with business networks, plays an important role in global economic and commercial development. The devices involved in such networks have the ability to communicate wirelessly with transmitters of limited range, so they can talk directly with other devices within their range. However, there is no established system, the network is constantly changing and routers are chosen on demand [3]. The Figure 1 shows the basic architecture of a wireless mobile network. In the face of spontaneous errors, a series of ad-hoc mobile networks are demands of a location system of wide obligation to comply with the brave survival of the operation. The challenge inserts a measure between the nearby living landscapes. Non-determinisms that still need connectivity depend on a solid architecture built to locate the origin of the accident at its roots [2].

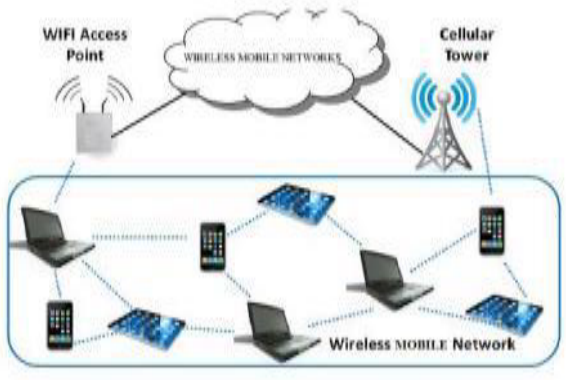

Figure 1: Simplified Architecture of a Wireless Mobile Network

However, the variety of network attacks and their continually changing nature can make it difficult to achieve a secure network. Flexible defences methods are needed that can quickly investigate large amounts of network traffic and accurately detect different types of attacks [13]. In MANET security, anomaly-based intrusion detection systems are valuable methodologies for identifying known and unknown or new attacks. Anomaly-based IDSs are trained to continually observe normal patterns of behaviour and recognize any deviations or abnormalities from existing normal behaviours [2]. In this approach it is assumed that the present for the eternity of the existing route that begins with node towards the innermost is observed and is only appropriate for a network with constant connectivity. In anomaly-based intrusion detection systems, the occurrence of an anomaly can provide critical information. However, in many scenarios, the abnormalities can be normal behaviours that have simply not yet been identified. Therefore, anomaly-based network intrusion detection systems must continually update with new behaviours and new network protocols.

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Image Texture Classification using Fuzzy Inclusion and Fuzzy Entropy Measures

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ABSTRACT

Texture classification is one of the sort-out methods in pattern recognition. Selection of features plys a crucial role in enhancing Machine Learning efficiency as it significantly improves the performance of Texture classification by discarding insignificant features from the original set. Most of the Feature Selection techniques are statistical. They are not versatile to accommodate human thinking and thus the evolving demands and desires of real-life processes. We only make a choice between including and excluding a feature. In the very least, the fuzziness of human thought and perception is not known to enhance the collection of features and thus the precision of the classifier. Accuracy in database classification can be achieved through feature selection while at the same time can speed up the classification rate. The main objective of the work is to choose the most significant features in the feature set to perform given task. In this paper, Fuzzy Inclusion and Fuzzy Entropy measures are applied in feature extraction and the experimental results show that accuracy in classification is proved with other techniques. A comparison is formed between the prevailing methods and therefore the proposed method. The proposed method shows better results than existing methods with best classification rate.

Key words: Image Texture Classification, Feature Selection, Fuzzy Inclusion, Fuzzy Entropy, Accuracy

1. INTRODUCTION

Texture classification is the method by which specific textures are identified from the specified images. While the description of the textures themselves sometimes seems irrelevant in its own way, however, it is possible to implement a large number of real-life problems related to unique textures of various materials [1]. The texture is characterized by a non-uniform spatial distribution of image intensities. There are mainly three different ways of pattern recognition on Texture Classification [9]. Statistical, Structural and Neural Network Pattern Recognition Texture based classification methods are used in a number of applications in the real world, such as content-based image recovery [2], face recognition [3], rock classification, and wood species recognition, classification of fabrics and geographic segmentation of the landscape. The aim of the texture classification is to classify the sample image in one of a number of known texture classes. There are two types of texture classification that are supervised and unsupervised. In the supervised classification, the classifier is equipped with the characteristics of the known classes. In the unsupervised classification process, the classifier identifies various classes on the basis of the similarities of the input characteristics, so there is no previous preparation of the classifier.

Classification methods texture can be divided into three pixel-related categories based on local and local characteristics [4].Choosing a feature is the job of choosing the most suitable and typical features. The approach reduces several features by removing obsolete, irritating and least important features. Function collection is often made either globally or locally [5]. Global Feature Selection (GLF) methods measure the general importance of the feature regardless of its application to any individual class [6]. Local Feature Selection (LFS) methods are those that are determined separately on each eligible class and then the selection is based on distinct scores [6]. The selection strategies are often predictive and state the status of the feature as either essential or not essential. But in real situations, selections are not easy and take into account a variety of human uncertainties. This can happen due to a number of realities that could not be constrained by [0,1] selection[7]. This outcome indicates that owing to this subjective existence of statistical techniques, the

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An Improved Convolutional Neural Network with LSTM Approach for Texture Classification

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ABSTRACT

Texture classification is a problem that has several applications, such as remote detection and recognition of forest species. Solutions tend to be customized for the dataset used, but are not generalized. Machine learning algorithms play an important role in the current Texture Classification. However, these algorithms are suffering with low accuracy and classification rate. Deep learning is another sophisticated technique to solve these challenges because texture classification performance is not strong in traditional machine learning systems. The Convolutional Neural Network (CNN) in combination with Long Short-Term Memory (LSTM) forms a robust selection between a powerful invariant feature extractor and an accurate classifier. This model should automatically determine the efficient properties of the feature samples so that the texture samples can be classified accurately. Expert fusion provides stability in classification rates between different data sets and the proposed model will significantly increases texture classification performance. From the experimental analysis, it is ascertained that CNN-LSTM is outperforms with existing state of the art of the algorithms SVM and CNN.

Key words: Texture classification, Machine Learning, Convolutional Neural Network (CNN), Long-Short Term Memory (LSTM), Support Vector Machines (SVM) and Performance Measures.

1. INTRODUCTION

Texture classification is the method by which specific textures are identified from the specified images. While the description of the textures themselves sometimes seems irrelevant in its own way, however, it is possible to implement a large number of real-life problems related to unique textures of various materials [1]. The texture is characterized by a non-uniform spatial distribution of image intensities. There are mainly three different ways of pattern recognition on Texture Classification [40,41] Statistical pattern recognition, Structural pattern recognition and Neural pattern recognition Texture-based classification techniques are being used in a variety of real-world applications, such as content-based image recovery [2], face recognition [3], rock classification, and wood species recognition, classification of fabrics and geographic segmentation of the landscape. The purpose of texture classification is to classify a sample image into one of a set of known texture classes. There are two types of texture classification, supervised and unsupervised classification. In the supervised classification method, a classifier trained with the characteristics of the known classes. In the unsupervised classification method, the classifier recognizes different classes based on the similarity of the input characteristic, no previous training of the classifier occurs. Classification methods texture can be classified into three categories based on pixels, based on local characteristics and based on regions [4].

The first two methods of texture classification are the Co-Occurrence matrix [5] and the Markov Random Fields (MRF) [6], which has been widely used to distinguish textures to a relatively small region [7], Gabor and wavelet filters [8]. The extraction and classification of texture features within a unified framework that incorporated multi-channel filtering principles are presented in [9]. Neural network architecture is widely gained popularity in texture classification. The first network they have built is a three-layer control network (including the input layer), that is, a multi-layer sensor (MLP), with each input node fully linked to a specific M X M scale area in the input image. The second network is close to that suggested by [10], and uses a weight distribution method to link secret neurons to the anterior layer. The previous network has an approximate cost of 5,000 pesos and has been equipped with an automated back-propagation algorithm.

A class of machine learning algorithms, called deep learning, has been used more and more in classification and pattern recognition in recent years. In a hierarchical architecture, deep learning applies multiple layers of information processing to generate a deep model [36]. A small range of academic studies have examined deep learning in the area of

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Multi-population Firefly Algorithm (MFA) based MAC Protocol for Dynamic Sleep Scheduling in Clustered IoT Sensor Networks

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ABSTRACT: In Internet of Things (IoT) based Wireless Sensor Networks (WSNs), the main challenges of designing MAC protocol involve poor quality of wireless links and adjusting sleep/wakeup period of sensor nodes. The sleep/wakeup period should adaptively varied based on the variance in the network loads. In this paper, a Multi-population Firefly Algorithm (MFA) based MAC protocol for IoT sensor network is designed. The IoT devices are grouped into clusters and cluster heads are randomly selected based on their remaining energy levels. It contains a dynamic sleep scheduling algorithm in which the sleep/wakeup period of each node is adaptively adjusted based on certain parameters, by applying MFA. The parameters considered are energy level of each node, expected load and channel quality. Simulation results show that the MFA MAC protocol has lesser energy consumption with higher packet delivery ratio, when compared to existing work.

Keywords: IoT, Sensor, Firefly, MFA, Sleep Scheduling, Dynamic.

I. INTRODUCTION

Internet of Thing (IoT) is one of the greatest involved themes for investigators and inventors. IoT permits stuffs that can interconnect openly with one another, like illuminations on streets, aboard radars in means of transportation, radars in medical devices or even systematic electronic devices in our day-to-day life. When the stuffs are proficient of swapping their data amongst similar devices or dissimilar ones, several shrewd applications have ascended [1].

IoT nodes have inadequate battery period and the batteries ought to be substituted. One vital feature of IoT devices is the dynamic efficacy: as numerous devices are energy-constrained and interconnect by means of a comparatively energy-demanding radio, a huge form of investigation has arisen for power-consuming Medium Access Control (MAC) protocols [3].

A far from the MAC layer features, its chief utilities can be quoted as structure limit demarcation, structure organisation, conduct of base and terminus addresses, recognition of physical medium broadcast faults, and impact prevention [4]. MAC protocols have a substantial impression on the dynamic depletion of radars. The part of MAC protocols is to agree how nodes acquire a special contact to the communal medium and to confirm that only one node access the network at a spell. Besides, MAC protocols regulate the structure for network recognizing and impacts can be abridged with well-organized strategy of MAC protocols [5]. Hence, the study of MAC layer protocols can express the way to plan an appropriate technical resolution for an application. MAC protocols is split into three major classifications: collision free protocol, contention-based protocol and hybrid protocol [6].

A. Drawbacks of Previous Works

The following drawbacks are observed from the previous study on MAC protocols in IoT networks:

– Bidirectional and concurrent transmissions occur more often than traditional WSN [1]. Majority of MAC protocols in IoT networks did not consider the quality of wireless links [2].

– Network throughput was not enhanced [2].

– The sleep/wakeup period is not adaptively varied based on channel quality and load.

– The power consumption is not minimized which reduces the lifetime of the network.

B. Main Contributions of the Work

In order to solve the above issues, this paper designs an efficient MAC protocol in IoT environment. The main contributions of the work involve:

– In order to reduce the energy consumption, clustering is applied and cluster heads are selected based on their remaining energy levels.

– The sleep/wakeup period of each node is adaptively adjusted based on node energy level, expected load and channel quality, thus ensuring wireless link quality and maximizing the throughput.

– Multi-population Firefly Algorithm (MFA) is applied for adaptive adjustment of sleep/wakeup period.

II. RELATED WORKS

Danmanee *et al.,* (2018) has developed CU-MAC protocol to competently enhance the IoT standard. It requires bi-directional communication. It utilises multiple channels to achieve unceasing and bidirectional data transmission at little duty-cycle. It also consists of a device to overwhelm the concealed fatal issue [1].

Chai *et al.,* (2016) have proposed method called link correlation (LC) which helps in receiver initiated acknowledgement (RI-ACK). They also suggested a multicast protocol to furthermore increase the output [2].

Sadek (2018) has overcome the space amid the physical wireless radar system atmosphere and the actual assorted Cyber IoT environment. His article embattled not only giving an effectual fusion dynamic alert grouping communication procedure IoT network. Hy-IoT, but also offers an actual IoT system design for inspecting the suggested procedure related to generally occurred procedures. Effectual cluster-head collection increases the use of the nodules dynamic contents and accordingly upsurges the network lifespan along with the packages broadcast rate to the base station. Hy-IoT utilises diverse biased selection prospects for choosing

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SMART IRRIGATION AND CROP PROTECTION FROM WILD ANIMALS

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***Abstract*— India is a nation dependent upon agriculture. Improving the efficiency and quality of agro-based goods therefore is very critical. The design proposed is an automatic system which assists the farmer in the irrigation process. It keeps alerting the farmer via an on-board LCD display and messages sent to the mobile of farmers. This project focuses on detecting wild animals along the farm's border and also saving water by switching on and off the motor based on soil moisture content. Here we use IR sensors to detect wild animals, soil moisture sensors to detect moisture content in the farm, some speakers to deliver some scary sounds so animals can be afraid to get into the field, and microcontrollers to collect sensor data. The microcontroller analyses the data and, based on that data, sends the signals to the speakers that it generates the sound to stop the animals from reaching the field and also sends the safety instructions to the cell phones of the nearest residents, farmers and the forest office. This will also send signals to turn on and off the motor based on the soil's moisture content through the soil moisture sensor information.**

***Keywords*— IOT, Wild Animals, Humidity, Sensor**

1. INTRODUCTION

The concept of IoT was introduced by a member of RFID development community in the year 1999. After it became more famous to the practical world because of rapid growth in mobile devices, embedded systems, cloud computing, ubiquitous computing and data analytics. The IoT technology can play a crucial role to improve the quality of lives in the application fields like transport, home appliances, healthcare, natural hazards and industrial automation [1]. In several areas, surveillance plays a major role, be it at home, hospitals, schools, public places, farmlands, etc. This lets us track a certain area and prevent fraud, and also provides evidence in the event of these incidents happening. Surveillance of farmlands or agricultural land is very important in order to prevent unauthorized persons from gaining access to the field and also to protect the field from animals.

Different strategies aim only at surveillance that is mainly for human intruders, but we appear to overlook that the biggest enemies of these farmers are the animals that eat the crops. In the states of Tamil Nadu, Himachal Pradesh, Punjab, Haryana, Kerala and many other states, the issue of wildlife attack on crops i.e. crop vandalization is becoming very common. Wild animals such as monkeys, elephants, wild pigs, deer's, wild dogs, bison, nilgais, feral animals such as cows and buffaloes and even birds such as parakeets do a lot of harm to crops by running over them, eating them and vandalizing them entirely. This leads to low crop yield and substantial financial loss for farmland owners. This problem is so severe that due to such regular attacks on animals, the farmers often prefer to leave the areas barren. This system allows us to keep these wild animals away from the farmlands and also provides flexibility for surveillance. It was found that the smell of rotten egg helps prevent the wild pigs and deers from eating the crops, so farmers spray the rotten egg solution manually on their fields, and firecrackers are used to fend off the wild elephants that eat the crops.

Depending on the need, the system is automated so there is no manual labor, thus saving time and also avoiding crop loss.

2. LITERATURE REVIEW

Bindu D and Dilip kumar M D et al describe the protection of crop fields as a major content and a complex problem in this paper. Over the years, the animals from the protected area [PAs] constantly invade the crop field and the protection of this crop field has become a major concern. The methods that are currently being used are unsuccessful, so they present a realistic method to scare them off, by developing a device that studies the animal's behaviour, senses the animal and produces the

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RATING PREDICTION BASED ON SOCIAL SENTIMENT FROM TEXTUAL TENSOR FACTORIZATION MODEL ON SOCIAL SENTIMENT FROM TEXTUAL REVIEWS

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***Abstract*—** Consumers' reviews in E-commerce systems are usually treated as the important resources that re-effect user's experience, feelings, and willingness to purchase items. All this information may involve consumers' views on things that can express interest, sentiments, and opinions. Many kinds of research have shown that people are more likely to trust each other with the same attitude toward similar things. In this paper, we consider seeking and accepting sentiments and suggestions in E-commerce systems somewhat implies a form of trust between consumers during shopping. Following this view of point, an E-commerce system reviews mining oriented sentiment similarity analysis approach is put forward to exploring users' similarity and their trust. We divide the trust into two categories, namely direct trust, and propagation of trust, which represents a trust relationship between two individuals. The direct trust degree is obtained from sentiment similarity, and we present an entity-sentiment word pair mining method for similarity feature extraction. The propagation of trust is calculated according to the transitivity feature. Using the proposed trust representation model, we use the shortest path to describe the tightness of trust and put forward an improved shortest path algorithm to configure out the propagation trust relationship between users. A large-scale E-commerce website reviews dataset is collected to examine the accuracy of the algorithms and feasibility of the models. The experimental results indicate that the sentiment similarity analysis can be an efficient method to find trust between users in E-commerce systems.

I. INTRODUCTION

Reviews from consumers are very important information in E-commerce systems. Many online shops have developed reviews system for users to post their reviews. With the rapid development of social networking media, more and more people are willing to share their feelings, opinions and suggestions on their bought items with their friends or even strangers in social network applications or E-commerce systems. These reviews can be very useful for people's decision making in many different scenarios such as users' preference mining and personalized recommendation. At present, more and more review mining based applications are being applied to make our decision process easier than before. These applications have greatly changed people's behavior patterns, especially in E-commerce activities. For example, when people want to buy a product, book a hotel or restaurant, they usually not only ask for advice from their friends but also refer to reviews available online. To adapt to this change, many famous E-commerce companies, such as Amazon, eBay and Taobao(China), have built up well-function consumer review systems. Online experience from various people can help one make decisions. In this case, people and their experience are required to be trusted by others. It makes sense that we usually ask for advice from our friends or family members before we make a decision. But the question is, why individuals are inclined to rely on strangers in cyber space to make decision? Scholars nd a primary reason for that is their lack of trust in companies that they only experience through the web medium. The virtual nature of the web medium challenges traditional understanding of customer trust. In E-commerce scenario, customers have no chance to have a face-to-face interaction with a salesman or a direct physical experience with the store and the products they want to buy. On one hand, their experience is mediated through the web which is a two-dimensional graphical display. They usually feel somewhat lost and need someone to give them advices. On the other hand, reviews from consumers who purchase an item have direct physical experiences with it, are seem to be more reliable than vendor's promotions or advertising words.

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HEALTH IOT: SMART HEALTH USING IOT

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Abstract - The Internet of Things (IoT) technology has in recent years gained tremendous interest because of the ability to relieve the pressure on health services owing to an ageing population and an uptick in chronic diseases. Standardization is a key problem which limits advancement in this sector, and this paper therefore proposes a standard model for potential IoT healthcare systems. This report provides state-of-the-art work in each sector of the model, analyzing the capabilities, shortcomings and the general appropriateness of a portable IoT health system. The issues facing IoT healthcare include protection, anonymity, wearability and low energy operations and guidelines for potential study.

Keywords- Biomedical engineering, body sensor networks, intelligent systems, Internet of Things (IoT), communications standards, security, wearable sensors.

1. INTRODUCTION

Health is an integral fact of life. Unfortunate, the increasing ageing population and the resulting increase in the amount of chronic diseases are placing an exceedingly high burden on the current structures of healthcare [1][2]. Careful approaches are obviously necessary, as well as high-quality care for vulnerable patients, to reduce pressure on healthcare systems.

Internet of Things (IoT), which is the subject of most recent study, has increasingly been described as a potential mechanism for alleviating strains on health systems,[3] and[4]. Important work has investigated the care of patients who are suffering from speci changes, including diabetes [5] or Parkinson's disease [6]. More work seeks to help patients rehabilitate themselves, for example by tracking their progress constantly [4]. Emergencies were already reported by related works[7][8], which have not yet been thoroughly studied.

Many studies relevant to IoT healthcare have already explored speci fields and technologies. A systematic survey[9] reflects on market-driven approaches, future implementations and other issues. Insteft of being part of an overall program, every subject is considered separately. In[10], data processing, storage and review, with no regard to their incorporation into a program, are called. The sensor styles in [11] with a certain emphasis on communication are contrasted. But from this text, it is difficult to draw a image of the entire scheme. Ultimately, [8] suggest sensing and big data processing, taking no account of the communications support network.

This paper makes an exceptional contribution in that it identifies each key component of a Things Healthcare System end-to-end Internet and proposes a generic model which could be applied to all IoT systems. It is important since in the literature, there are no established end-to-end solutions for remote health surveillance.

In fact, this paper offers a detailed analysis of cutting-edge technology inside the paradigm suggested. Sensors are used to track complex safety thresholds, short and long-term connectivity protocols and cloud technology. Within this article, each critical component of an IoT-based healthcare network is discussed independently and as a framework, which varies from the previous main contribution to the study.

The emphasis on LPWANs, which stress their special suitability for IoT systems, makes another original contribution. Compared to competiting unlicensed band requirements, the coming licensed band requirements such as NB-IoT are especially applicable to healthcare applications.

2. IOT IN HEALTHCARE

The Internet of Things is a comparatively recent field of study which is also an domain of its early childhood. Each segment discusses the Internet of Things and illustrates the adequacy for healthcare. Different groundbreaking research is being addressed in the creation of IoT health care networks. A general and common model for

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A FRAMEWORK FOR REAL TIME SPAM DETECTION IN TWITTER

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ABSTRACT:
As online social networks growing in popularity, spammers can easily access these sites by posting spam messages that draw users to malicious activities. We took Twitter platform in this work, and found spam tweets. Google SafeBrowsing and the Twitter BotMaker software detect and block spam tweets to avoid spammers. Such tools can block malicious connections, but can not protect the user as early as possible in real-time. Thus, various methods have been introduced by industries and researchers to make social network site spam safe. Some of them are based primarily on user-driven apps while some are based entirely on tweet-related features.
However, along with the user-based tools, there is no comprehensive solution which can incorporate text information from tweet. To solve this problem, we propose a system that takes the user-based and tweet-based features together with the tweet text function to identify tweets.
The benefit by using the tweet text function is that spam tweets can be detected even if the spammer creates a new account with user-based functionality and tweeting that was not just possible. With four separate machine learning algorithms-supporting vector machine, neural network, random forest and gradient boosting-we tested our solution. With Neural Network, we can achieve a 91.65 percent accuracy and have exceeded the current solution[1] by around 18 percent.

INTRODUCTION

Throughout the past few years, online social networks such as Facebook and Twitter have become increasingly popular outlets that are an integral part of everyday life for communities. People spend plenty of time posting their messages in microblogging websites, sharing their thoughts and making friends around the world. Such websites attract a huge number of users, as well as spammers, to transmit their messages to the word because of this rising phenomenon. Twitter is rated as the most famous teen social network[2]. However, Twitter's rapid development also encourages more unsolicited activity on this website. 200 million users today produce 400 million new tweets daily[3]. This rapid expansion of the Twitter platform encourages more spammers to produce spam tweets that contain malicious links that lead a user to outside sites that contain malware downloads, phishing, drug sales, or scams[4]. Not only do these forms of attacks interfere with the user experience, they also disrupt the entire internet, which can also cause temporary disruption of internet services around the world[5]. As a result, both researchers and Twitter have come up with different spam prevention methods to make the online social network site spam-free.

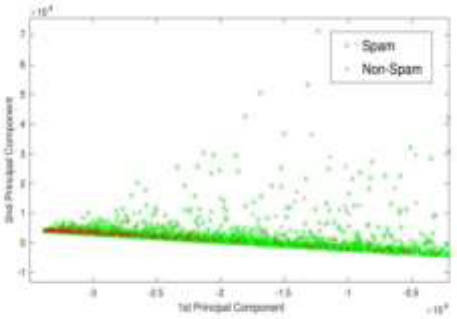

Fig. 1: Scatter plot of dataset showing distribution of two classes namely, spam(.) and non-spam(.)

After the introduction of BotMaker, they have seen a 40 per cent reduction in vital spam metrics. Yet one of BotMaker's poor points is that it fails to shield a target from new spam, i.e. it isn't an efficient tool for detecting spam tweets in real time. K. Thomas[7] found that 90 per cent of users could visit a new spam connection before the blacklist blocks it. TingminWu[8] performed identification of spam tweets based on profound research. They used word vector to train their model, but to fix the issue, they did not explore user or tweet-based functionality. At the other hand, Chao Chen[1] used lightweight features (specific app for the user and post) that are ideal for spam post detection in real time. Since Twitter has raised the character cap to 280 characters, scrutinizing the text of the tweet along with the user-specific features is important. Given many current solutions, there are very few robust solutions which can be used to block real-time spam tweets. In this paper, we provide a framework based on different approaches to machine learning that addresses various issues including accuracy shortage, time lag (BotMaker) and high processing time to handle thousands of

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Number Plate Detection of a Car Using Neural Networks

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ABSTRACT

This paper introduces a novel convolution semantic network (CNN)-based approach for detecting high-precision real-time car license plate. Most contemporary methods for detecting car license plate are reasonably effective under specific conditions, or only under strong assumptions. We show poor results, however, when the photos of the car license plate evaluated have a degree of rotation, Thanks to traffic police manual recording or video deflection. We are therefore suggesting the multi-directional car license plate identification system for a CNN-based YOLO. Our pro-positioned approach can elegantly handle rotational problems in real-time situations, using precise rotation angle estimation and a quick orthocenter-over-union evaluation strategy. A series of experiments were performed to demonstrate that the proposed method outperforms other current state-of - the-art methods in terms of greater accuracy and lower computational costs.

Keywords— number plate detection, convolutional semantic network, YOLO, ortho- centre over union, multi dentate.

1.INTRODUCTION

Recent years have seen a substantial increase in the number of private cars and this has, in effect, increased the burden of traffic management. The resulting congestion has caused extreme issues,
such as traffic accidents or exposure to violence or terrorist attacks in public spaces. Physical control of this ubiquity of cars is quite difficult and has facilitated this issue, Creation of automated traffic jam management system. Automated license plate recognition, in particular, can effectively control the cars and significantly relieve traffic management burdens; thus, this method has attracted significant researchers interest. Moreover, automatic car license plate identification can also be implemented in many other situations, e.g. for collecting expressway tolls, tracking of speed violations and man-augmenting unattended parking lots.

The problem is solved using both conventional and convolutional semantic network-based approaches. The traditional methods involve hand-crafted features such as color, edge and morphology which are primarily confined by stringent conditions. For example, some of these systems require high-resolution images as inputs, the processing of which requires expensive equipment, while others require strict, translation-and rotation-free mounting. Real-world situations, however, are quite different where car license plate detection becomes very challenging Different types of cars and roads, changing weather conditions, camera-device rotation, and thus dramatically curtail the detection efficiency. Therefore, a reliable system with hand-crafted features is relatively difficult to suggest under the complex situation. Even though people may employ multiple independent features and integrate some models together, it is still difficult to distinguish whether it is sufficient to meet the challenge with such limited features and models as stated in it. Recently, however, these types of detection methods have achieved very impressive results, their time consumption is significantly higher than that of the techniques described above.

Inspired by the frame-work of "you only look once" (YOLO), we suggest a CNN-based approach that can manage the multidirectional problem fairly well. The main contributions of our work are summarized as follows:

1) We propose a new, precise rotation angle prediction method for multi-dentate car license plate detection;

2) We propose an approximate method, namely the angle deviation penalty factor (ADPF) to quickly determine the orthocentre-over-union (IOU) between the two rotational rectangles.

3) To further encourage detection accuracy, we are developing a pre-positive CNN model that is implemented before YOLO, which is used in the overall system to assess the "attendance zone."

4)The proposed method achieves state-of -the-art precision in the identification and can also be tested in real time.

2. RELATED WORK

The computer vision group has carried out groundbreaking work over the past two decades to

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SMART AND SAFE RIDING JACKET USING IoT

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ABSTRACT

The Airbag system is first introduced in 4-wheeled vehicles, this paper gives information about the introduction of the airbag system can be used in the Riding Jackets(for bike riders). This paper shows the working, construction, installation and what will be problems can occurs are discussed. The concept of this airbag Jacket system is "To reduce the injuries to a rider when impacting with an opposing vehicle and/or opposing object in frontal collisions by absorbing rider kinetic energy.

With the help of some sensor like Gyroscope sensor, 6-axis motion tracking sensor and Accelerometers sensor with an indicator and sense of the collision and the Cartridge release the gas to open the air bags to avoid injuries from accidents.

Keywords-*Airbag, Cartridge, Injuries, Riding Jacket, Sensors.*

I. Introduction

Nowadays the increment in the death rate of India is 20% because of the accidents on the highways hence this invention can help us to reduce the death rate by 7% to 10% since this can be used in the pedestrian and safety department. In 4-wheeler vehicle the operations is based on the collision of two vehicles or collision with any object. This system is installed in the backside of the Jacket.

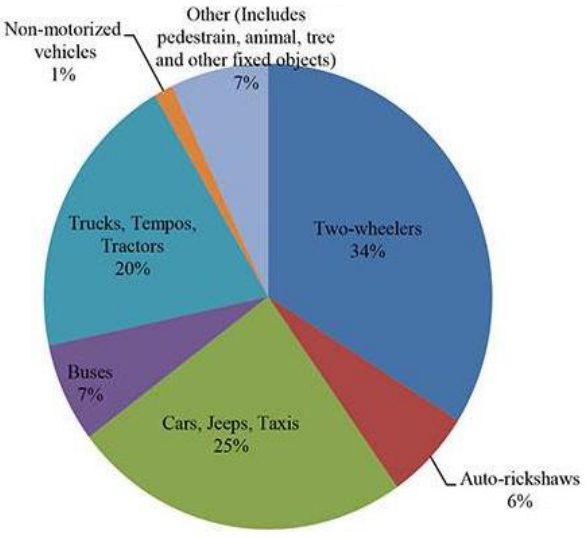

Fig 1:-graph shows the different vehicles in road accidents at 2017.

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Efficient Information Dissemination in Vehicular Networks with Topological Approach

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ABSTRACT

Owing to their ability to provide endless services such as entertainment, adaptive route selection, etc., Vehicular ad hoc networks (VANETs) have received a great deal of interest from both academia and industry in recent years. Vehicles communicate with other vehicles in VANETs and with fixed data transmission infrastructures. Vehicles in VANETs serve as intelligent sensing devices with communication and computing capabilities built in them with Application Unit (AU), and On-Board Unit (OBU). These units can be used in a wide range of applications including warning generation, community services, traffic management, and so on, and can also provide on-board passengers with security, protection, and comfort. As vehicle communications are widely used, there may be congestion in the network and the quality of service may be compromised. That also results in a deterioration of performance in data dissemination. Since its inception, a variety of research initiatives have been carried out for effective data dissemination. Most of the existing data dissemination solution in VANETs could not provide a comprehensive scheme that would meet the parameters of Quality of Service (QoS). Moreover, the existing schemes were unable to provide reliable communication and the broadcast storm problem was not been solved completely. Hence, there was a need of a new solution that meets the desired QoS parameters and ensures reliable communication. It is also necessary that the messages sent are authenticated and delivered to the vehicles in the relevant areas quickly. In this chapter, we present an efficient protocol for fast dissemination of authenticated messages in VANETs. It ensures the anonymity of the senders and also provides mechanism for law enforcement agencies to trace the messages to the senders, when necessary.

Key words: VANETS, Topology, Message, Dissemination

1. INTRODUCTION

VANETs are special class of MANETs that are distinct from MANETs in the sense that the former may have support for the infrastructure, but later not. There are a large range of VANET applications, e.g., environment sensing and monitoring, intelligent transport systems (ITS), emergency security notifications warnings, etc., that have been / were developed over the years using VANETs. Various government and private entities have invested a great deal of money in a variety of different ventures in this area with the goal of providing the passengers sitting in the vehicle with protection and comfort. Messages are transmitted from source to destination for dissemination of information in all of these applications [1,2].

The on-road vehicles communicate with each other either in a Peer-to - Peer (P2P) manner or using the existing infrastructure. In the former case, it is called Vehicle-to - Vehicle (V2V) contact while in the latter it is called Vehicle-to - Infrastructure (V2I). Help for infrastructure is provided by nearest Road Side Units (RSUs), which can serve as an intelligent router to control all vehicle activities on the road. If the vehicles are within the range of RSUs then messages would be sent directly to them otherwise, these would be passed on to the vehicles' nearest RSU. However, due to the high mobility and sparse distribution of vehicles on the road, data transmission among the vehicles is often a challenging task which can cause a long delay in delivery of messages. The distribution of message in VANETs follows store and forward strategy in which messages are held at some intermediate nodes before the strongest forwarding node (vehicles / RSUs) is found [3]. This strategy can cause lengthy delays, but this delay can affect the production of many of VANET applications.

For communication purposes, vehicles can contain some units that can be used to link to other vehicles or the infrastructure. The three major components of VANET architecture usually follow: AUs, OBUs, and RSUs. RSUs can act as a router providing services to moving customers [4],

A Privacy-Based Smartphone Protection Architecture for IOT Applications

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Abstract : Internet of Things (IOT) devices are becoming increasingly popular, becoming a core element of information architecture for the next generations: smart city, smart factory, smart home, smart health care and many more.IOT systems consist mainly of built-in devices with limited computing capabilities while having a cloud portion that processes the data and delivers it to end-users. IOT applications handle the user's private data and therefore need a robust security solution that addresses features such as accessibility and scalability.In this paper we discuss an IOT authentication service for smart-home devices using a smartphone as a security key, QR codes and cryptography (ABC) based attribute.We suggest a privacy-conserving access control protocol based on the attribute to manage user authentication to the cloud service. We use and expand the FIDO UAF protocol for smartphone centric authentication to the cloud portion by adding an associated feature focused on privacy preservation.

IndexTerms - ***IOT authentication; QR-based authentication; FIDO; U-Prove; IOT-based authentication attributes; IOT privacy conservation;***

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I. INTRODUCTION

Internet of Things (IOT) is a term that gains continuous popularity and allows for multiple applications in fields such as telecommunications, manufacturing, healthcare or transport. IOT applications will impact our lives directly, standing behind concepts such as smart cities, smart transport or smart homes. Within the IOT paradigm, embedded devices connected to the Internet manipulate sensitive user-related data and require appropriate security solutions. The security solutions designed for network-enabled embedded devices must address issues such as availability and usability, taking into account the IOT appliances ' low computing capabilities and low consumer requirements. While IOT devices allow a plethora of applications that are hard to protect through a unitary security solution, IOT architectures tend to follow design patterns. For example, one of the most frequented IOT architecture pattern is a smart home environment with end-node devices connected over a local gateway to a cloud portion. The cloud portion can provide data analytics services based on a user subscription, or can provide information such as weather forecast or many others to the IOT devices. This pattern uses a smartphone application as a security anchor for controlling, authenticating and authorizing certain actions of IOT devices.

IOT security solutions are difficult to implement, because newly purchased IOT devices are not fitted with a digital identity, so a user-friendly system must manage the security material supply and connect the IOT device to the user's cloud portion. The smart-home scenario raises a multitude of security issues because both the cloud component and the IOT appliances manipulate sensitive data and are not fully controlled by users. The cloud module exposes different IOT services while being able to aggregate data relating to private users based on device queries. The smart-home ecosystem can be populated with untrusted IOT devices which, once given full access, can abuse the user cloud component account. Access to the resources of the cloud module must be protected through the implementation of security policies which address the following:

- User Identity and IOT Device Identity
- Connection Security
- Roles, and control of access

A smartphone can be used as a security control factor for smart-home modules in the IOT context, since it can communicate with both the cloud portion and the embedded devices, and can run an IOT network protocol stack. In this paper we propose an IOT security framework for a smart-home scenario, in which a user smartphone is used to orchestrate the connection between an embedded appliance and the cloud component from a security

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Design of High Security Smart Health Care Monitoring System using IoT

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ABSTRACT

Smart Health Care Patient data privacy and security system using IOT presents to monitor the patient health care data like temperature and blood pressure, heart rate is monitored securely in webserver. However, the particular patient data would be monitor anywhere in the world with the help of IoT technology. For patient identification we use RFID technology, the RFID reader reads the particular card data. In past days we use Bluetooth and zigbee communications, with the help of this communication you can access the patient data in a particular range, with the help of IoT technology we stored this patient data in cloud and this cloud server protects the patient information also. For IoT communication we are using GPRS module for internet connectivity and the whole patient data should be controlled and processed with the Arduino microcontroller. The Internet of Things (IoT) is most commonly used for interconnecting medically available resources, providing the elderly and patients with a chronic disease with safe, efficient and smart health care services.

Key words: Arduino, RFID reader, RFID cards, GPRS, GSM, temperature sensor, blood pressure sensor, memory, LCD, adapter, power supply.

1. INTRODUCTION

The growth of the aging population has raised many health care challenges. For example, after stroke rehabilitation services for elderly people are a growing problem, requiring a long-term medical commitment. The focus and curiosity of the globe has recently grown dramatically in traditional medicine and oriental medicine. Constant monitoring will increase early detection of emergency conditions and diseases for at risk patients and also provide wide range of healthcare services for people with various degrees of cognitive and physical disabilities [6]. Not only the elderly and chronically ill but also the families in which both parents have to work will derive benefit from these systems for delivering high quality care services for their babies and little children. In particular, the use of acupuncture as an alternative cure for sicknesses in oriental medicine was studied more in depth and it is now noteworthy that some endless infections are effective in the treatment and prevention.

The Internet of Things provides many benefits in healthcare, such as the prospect of tracking patients more closely. Focusing on the consumer end, such as glucose meters, blood pressure cuffs and other devices, enables healthcare providers to automatically gather information and make data-based decisions to ensure early intervention in the treatment process.

The internet of things (IoT) is the networking of all wired and intelligent physical objects. Such instruments have the capability to capture and share data with applications, sensors and network connectivity. The IoT can be remotely controlled through existing network networks, creating the potential to incorporate devices more directly into computer systems, thus improving performance and accuracy. It, in effect, gives those who use it an economic advantage. The technology is part of cyber-physical systems an IoT computer that uses sensors and drives.

IoT is more promising than in the field of healthcare, where the concepts also apply to increase access to treatment, improve the quality of treatment and above all that the cost of healthcare. With intelligent awareness within an IoT, intelligent sanitation will enhance the efficiency of public services and medical infrastructure to enable the prompt collection and analysis of real-time data, the prompt identification and response to sudden and emergent incidents, and proper management and control of resources within a medical center.

In a modern model in healthcare, smart healthcare will provide patients with more effective and reliable medical services. In the event the smart healthcare system lacks efficient protection protocols, however, smart healthcare requires patients to share their physiologic information for online diagnosis; unauthorized or malicious users can exploit such sensitive information.

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ROAD TRAFFIC SPEED PREDICTION: A PROBABILISTIC MODEL FUSING MULTISOURCE DATA

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Abstract— Road traffic speed prediction is a challenging problem in intelligent transportation system (ITS) and has gained increasing attentions. Existing works are mainly based on raw speed sensing data obtained from infrastructure sensors or probe vehicles, which, however, are limited by expensive cost of sensor deployment and maintenance. With sparse speed observations, traditional methods based only on speed sensing data are insufficient, especially when emergencies like traffic accidents occur. To address the issue, this paper aims to improve the road traffic speed prediction by fusing traditional speed sensing data with new-type "sensing" data from cross domain sources, such as tweet sensors from social media and trajectory sensors from map and traffic service platforms. Jointly modeling information from different datasets brings many challenges, including location uncertainty of low-resolution data, language ambiguity of traffic description in texts, and heterogeneity of cross-domain data. In response to these challenges, we present a unified probabilistic framework, called Topic-Enhanced Gaussian Process Aggregation Model (TEGPAM), consisting of three components, i.e., location disaggregation model, traffic topic model, and traffic speed Gaussian Process model, which integrate new-type data with traditional data. Experiments on real world data from two large cities validate the effectiveness and efficiency of our model.

I. INTRODUCTION

Generally, data mining (sometimes called data or knowledge discovery) is the process of analyzing data from different perspectives and summarizing it into useful information - information that can be used to increase revenue, cuts costs, or both. Data mining software is one of a number of analytical tools for analyzing data. It allows users to analyze data from many different dimensions or angles, categorize it, and summarize the relationships identified. Technically, data mining is the process of finding correlations or patterns among dozens of fields in large relational databases.

Fig.1: Structure of Data Mining

While large-scale information technology has been evolving separate transaction and analytical systems, data mining provides the link between the two. Data mining software analyzes relationships and patterns in stored transaction data based on open-ended user queries. Several types of analytical software are available: statistical, machine learning, and neural networks. Generally, any of four types of relationships are sought:

- **Classes**: Stored data is used to locate data in predetermined groups. For example, a restaurant chain could mine customer purchase data to determine when customers visit and what they typically order. This information could be used to increase traffic by having daily specials.
- **Clusters**: Data items are grouped according to logical relationships or consumer preferences. For example, data can be mined to identify market segments or consumer affinities.
- **Associations**: Data can be mined to identify associations. The beer-diaper example is an example of associative mining.
- **Sequential patterns**: Data is mined to anticipate behavior patterns and trends. For example, an outdoor equipment retailer could predict the likelihood of a backpack being purchased based on a consumer's purchase of sleeping bags and hiking shoes.

II. EXISTING SYSTEM

A trajectory-based community discovery method is proposed in the existing, where the trajectory similarity is modeled by several types of kernels for different information markers (e.g., semantic properties of the locations and the movement velocity). The prediction problem of rents/returns bike number is tackled using multiple features, e.g., time and meteorology, as measures

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Face Recognition Based Automated Student Attendance System using Deep Learning

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ABSTRACT

Maintaining the attendance record is a daunting activity with day to day events. The conventional method of calling each student's name is time-consuming and there's always a chance of being a proxy. The following method is focused on face recognition to hold the student's attendance record. Students' regular attendance is reported as being topic wise that is already stored by the administrator. The system automatically starts taking snaps as the time for the corresponding subject arrives and then applies face detection and recognition technique to the given image and the recognized students are marked as present and their attendance update with the appropriate time and subject Id. We used profound learning techniques to build this program, the histogram of directed gradient method is used to detect faces in images, and the method of deep learning is used to compute and compare students' facial features to identify them. Our program is capable of actually recognizing multiple images.

Key words: Attendance, Face Recognition, Deep Learning, Student

1. INTRODUCTION

Face recognition is crucial to identifying family, friends or someone we are familiar with in everyday life. We may not consider that indeed multiple steps have been taken to recognize human faces. Human intelligence enables us to receive information and to interpret the information in the process of recognition. We obtain information in the form of light through the image that is projected through our eyes, specifically through retina. Light is a type of electromagnetic waves that radiate to an object from a source and are projected to human vision. Robinson, G. & Robinson-Riegler, B. [1] stated that after the visual processing of the human visual system, the shape, size, contour and texture of the object are in fact classified to analyze the information. The analyzed information will be compared with other object or face representations that exist to be recognized in our memory. In reality, designing an automated system is a difficult challenge in having the same capacity as a human being to recognize faces. However, in order to identify different faces, we need broad memory, for example, in the universities, there are a lot of students of different races and genders, without making mistakes, it is difficult to remember every single face. Computers with almost unlimited memory, fast processing speed, and control are used in face-recognition systems to solve human limitations.

The human face is a unique portrayal of an individual identity. Face recognition is thus defined as a biometric method in which an individual is identified by comparing the real-time capture image with the images stored in that person's database [2].

Because of its simplicity and awesome results, face recognition system is prevalent nowadays. For example, airport security systems and FBI use face recognition to track offenders, missing children and drug activity for criminal investigations [3]. In addition, Facebook, a common website for social networking, introduces face recognition to allow users to tag their friends for entertainment purposes in the picture [4]. Additionally, Intel Company allows users to access their online account using face recognition. Apple allows users to use face recognition to unlock their mobile phone, iPhone X [5].

In 1960 the work on face recognition started. Woody Bledsoe, Helen Chan Wolf, and Charles Bisson had introduced a system requiring the administrator to locate images of eyes, ears, nose, and mouth. It then measures and compares the distance and the ratios between the identified features and the standard reference points. In 1970, Goldstein, Harmon, and Lesk further enhanced the studies by using other features such as hair color and lip thickness to automate identification.

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USING DATA MINING TO PREDICT HOSPITAL ADMISSIONS FROM THE EMERGENCY DEPARTMENT

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Abstract— Crowding within emergency departments (EDs) can have significant negative consequences for patients. EDs therefore need to explore the use of innovative methods to improve patient flow and prevent overcrowding. One potential method is the use of data mining using machine learning techniques to predict ED admissions. This paper uses routinely collected administrative data (120 600 records) from two major acute hospitals in Northern Ireland to compare contrasting machine learning algorithms in predicting the risk of admission from the ED. We use three algorithms to build the predictive models: 1) logistic regression; 2) decision trees; and 3) gradient boosted machines (GBM). The GBM performed better (accuracy D 80:31%, AUC-ROC D 0:859) than the decision tree (accuracy D 80:06%, AUC-ROC D 0:824) and the logistic regression model (accuracy D 79:94%, AUC-ROC D 0:849). Drawing on logistic regression, we identify several factors related to hospital admissions, including hospital site, age, arrival mode, triage category, care group, previous admission in the past month, and previous admission in the past year. This paper highlights the potential utility of three common machine learning algorithms in predicting patient admissions. Practical implementation of the models developed in this paper in decision support tools would provide a snapshot of predicted admissions from the ED at a given time, allowing for advance resource planning and the avoidance bottlenecks in patient flow, as well as comparison of predicted and actual admission rates. When interpretability is a key consideration, EDs should consider adopting logistic regression models, although GBM's will be useful where accuracy is paramount.

I. INTRODUCTION

Emergency department (ED) crowding can have serious negative consequences for patients and staff, such as increased wait time, ambulance diversion, reduced staff morale, adverse patient outcomes such as increased mortality, and cancellation of elective procedures. Previous research has shown ED crowding to be a significant international problem, making it crucial that innovative steps are taken to address the problem. There are a range of possible causes of ED crowding depending on the context, with some of the main reasons including increased ED attendances, in appropriate attendances, a lack of alternative treatment options, a lack of inpatient beds, ED staff shortages, and closure of other local ED departments. The most significant of these causes is the inability to transfer patients to an inpatient bed, making it critical for hospitals to manage patient and understand capacity and demand for inpatient beds. One mechanism that could help to reduce ED crowding and improve patient how is the use of data mining to identify patients at high risk of an inpatient admission, therefore allowing measures to be taken to avoid bottlenecks in the system. For example, a model that can accurately predict hospital admissions could be used for inpatient bed management, staff planning and to facilitate specialized work streams within the ED. Cameron et al. also propose that the implementation of the system could help to improve patient satisfaction by providing the patient with advance notice that admission is likely. Such a model could be developed using data mining techniques, which involves examining and analyzing data to extract useful information and knowledge on which decisions can be taken. This typically involves describing and identifying patterns in data and making predictions based on past patterns. This study focuses on the use of machine learning algorithms to develop models to predict hospital admissions from the emergency department, and the comparison of the performance of different approaches to model development. We trained and tested the models using data from the administrative systems of two acute hospitals in Northern Ireland. The performance of EDs has been a particular issue for the Northern Ireland healthcare sector in recent years. EDs in Northern Ireland have been facing pressure from an increase in demand which has been accompanied by adverse levels of performance across the region compared to some other areas of the UK. For example, in June 2015 only one Northern Ireland ED department met the 4 hour wait time target, with over 200 patients across the region waiting over 12 hours to be admitted or sent home. This can have a negative impact on patients at various stages of their journey, as presented in high role incidents reported by the media. Patients attending the ED typically go through several stages between the time of arrival and discharge depending on decisions made at preceding stages. ED attenders can arrive either via the main reception area or in

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DRIVER DROWSINESS DETECTION USING VISUAL INFORMATION ON ANDROID DEVICE

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ABSTRACT

Technology plays a central part in our everyday lives. There has been a growth in the Internet of Things (IoT) market in many sectors which has received significant interest from both academia and industry in research. Vision based driver assistance systems (VBDAS) also presume a driver in the ego vehicle (i.e., the vehicle in which the systems); autonomous driving will benefit from VBDAS solutions. The article reviews research topics for VBDAS and provides a detailed bibliography. It starts by describing basic principles and ratings in the field, emphasizing the value of performance assessment for VBDAS solutions as well. The article then discusses briefly the functionalities of protection and comfort (evitating blind spots, night vision, and virtual windshield), before exploring in depth the basic and midlevel awareness of the world. This includes computing distance and motion, knowing ego motion, detecting obstacles, tracking objects (vehicles or pedestrians), and detecting and recognizing key elements of the infrastructure (road, lane, traffic signs, and free space).Also listed are typical VBDAS examples (e.g. driver monitoring and awareness of the driver environment, speed adaptation, queuing, parking, blind spot supervision, lane departure warning, incorrect lane detection, intelligent headlamp control, or inter car communication). The article ends with outlook for autonomous driving and simulation of the road-environment.

1. INTRODUCTION

Drowsy driving is one of the most important factors behind fatal road accidents. One of the latest study shows that one out of five road accidents are caused by drowsy driving, which is approximately about 21 percent of road accidents, and this figure rises every year, based on data from 180 different countries, according to the global road safety status report.This definitely underlines the fact that the overall number of road traffic deaths worldwide is very high due to the drowsiness of the driver. Driver exhaustion, drinkanddrive and carelessness emerge as major reasons behind these accidents on the lane. Because of this, many lives and families across various countries are getting affected.Realtime drowsy driving identification is one of the biggest possible significance that can be introduced to help drivers make them aware of drowsy driving conditions. These conductor behavioral state identification system may help identify the driver's drowsy conditions early and can likely prevent mishaps. With this paper we're presenting driver drowsiness identification technique using Free CV, raspberry pi.

2. LITERATURE SURVEY

2.1 EXISTING SYSTEM:

In current we use an eye twitch sensor to detect the person's drowsiness. It looks like regular spectacles with a sensor attached. The sensor emits rays in the infrarot. If the sensor detects it is the sign of drowsiness so we can use Buzzer to warn the driver.

Drawback:

• Long exposure to the IR rays is eye damage.

• People with eye sight can not wear spectacles, since such spectacles do not act as spectacles of vision.

• This sensor is in the center of the spectacles so the driver can have trouble driving.

2.2 PROPOSED SYSTEM:

We are using raspberry pi and Webcam in this project. Web cam will catch the driver's eyes in real time and will send the details to the raspberry pi. Raspberry pi can check whether the driver has opened or closed his eye on the frames sent from the webcam. When the driver closes his eyes, the person becomes drowsy and sends alert message to driver and show it on the Bluetooth application.

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Indoor Navigation system based on vision for smartphones

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ABSTRACT:

Indoor navigation services focused on smartphones are so desperately needed in indoor environments. Nevertheless, their adoption was relatively slow, due to the lack of fine-grained and up-to-date indoor maps, or the potentially high implementation and maintenance costs of indoor localization solutions based on infrastructure. This work proposes ViNav, a scalable and cost-effective system that uses visual and inertial sensor data collected from smart phones to implement indoor mapping, localization and navigation. ViNav uses structure-from-motion (SfM) techniques to reconstruct indoor 3D models from crowd-based images, locate points of interest (POIs) in 3D models, and compile 3D models. ViNav introduces image-based localization that defines the locations and directions of the users, and leverages this function to calibrate dead-reckoning user trajectories and sensor fingerprints collected along the trajectories.The optimized information is used to create indoor maps more descriptive and precise, and to reduce the response delay of requests for localisation. The system functions properly according to our experimental results in a university building and a supermarket, and our indoor localization achieves competitive performance compared to traditional approaches: in a supermarket. ViNav locates users in 2 seconds, with less than 1 meter of distance error and less than 6 degrees of direction error in the face.

I. INTRODUCTION:

Indoor mobile navigation systems are essential for complex indoor environments such as airports, malls and museums. Unfortunately, the in-door navigation systems adoption rate is still very low, although initial efforts were made several decades ago to deploy them. The slow progress has been attributed to several factors. First, indoor navigation requires indoor maps that are fine-grained and up-to-date to calculate navigation routes and search for points of interest (POI). Many solutions1 ask users to show images of floor plans as their indoor maps in public venues. Most of them, however, lack data, or were not kept up to date. So they can never be used directly to navigate indoors. Secondly, even in the case of specific indoor maps, most systems rely on pre-scanned radio maps or pre-installed hardware [14],[19] for location, which are expensive to install and difficult to maintain. So, we saw it worth investigating whether we could build an alternative method of indoor navigation that would not require pre-created indoor maps, pre-scanned radio maps or pre-installed hardware.

Today, smartphones are fitted with high-resolution cameras, and mobile users are willing to share some of their images in public, e.g. through photo-sharing websites such as Flickr or Instagram. In addition, researchers have demonstrated that crowdsourced images can be used to create 3D models of indoor and outdoor environments using structure-from-motion (SfM)4 techniques. For SfM-based 3D models, the development of maps and further navigation meshes has good potential. In addition, image-based localization services can be made available based on matching features. Inspired by this, we are proposing to create a system, ViNav, that uses crowdsourced visual data and SfM— based 3D models to solve indoor mapping, localization and navigation problems as a whole.

Our system is based on sensor-enriched 3D models which are bootstrapped and upgraded from smartphones using crowdsourced visual and sensor data collected. By using SfM techniques, ViNav first takes crowdsourced images and videos as an input to create 3D models (in the form of 3D point clouds) of an indoor area of interest. It then creates navigation meshes for path planning based on the information obtained from 3D models about obstacles. Because the crowdsourced photos are taken at arbitrary locations, the generated 3D model may not cover every aspect of a space,and may suffer from uneven distribution of density points. That could result in incomplete meshes of navigation. To overcome this issue, we suggest using motion sensors to monitor

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ON THE EFFICIENCY OF VEHICULAR CONNECTIVITY PRIVACY METRICS

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ABSTRACT- Vehicle connectivity plays a key role in the near-future transport of vehicles, offering features such as increased traffic safety and improvements to wireless technologies. Nonetheless, vehicle communication can disclose the positions of drivers and thus poses risks to privacy. Several mechanisms have been introduced to protect privacy in vehicle communication, and their efficacy is typically measured with data protection metrics. In this paper, we analyze and compare the strength of 41 privacy metrics in terms of four new criteria. We test all four criteria with state-of - the-art adversary models on real and virtual traffic and create a ranking of privacy metrics. Our results show that no single metric predominates over all parameters and traffic conditions.

Keywords- Anonymity, monotonicity, privacy metrics, technology that improves privacy, vehicle communications, vehicle networks.

I. INTRODUCTION

Vehicular communication technologies allow vehicles to communicate with other vehicles and infrastructure nodes so that features such as collision avoidance intersection and cooperative adaptive cruise control are possible. For these features to be realized, vehicles transmit sensitive data –often without encryption –such as their location, speed and heading. Anyone within the wireless transmission range can use this information to track vehicles and their drivers on a large scale, which raises concerns about privacy [8]. Such privacy issues are well understood, and many solutions to protecting privacy have been suggested. For example, vehicles are often assumed to have a pool of pseudonyms in addition to a long-term identifier, and different schemes have been proposed to change pseudonyms in a privacy-preserving way without compromising safety and accountability [30]. The data security metrics measure how effectively these systems are protecting privacy.

Contributes. We are making two contributions in this paper to research into privacy in vehicle networks.

First, we are contributing to the analytical basis of data protection calculation by proposing a framework for measuring the strength of data protection metrics using four novel criteria:

- Certain monotonicity requires metrics to display declining privacy with growing adversarial power. It prevents misjudging the effectiveness of new technologies for privacy enhancing (PETs).
- Extent allows metric values to be distributed across a wide range of values, and evenness requires a consistent distribution of metric values.
- Together, scale and evenness allow fine-grained analysis of privacy within a context, e.g. between cars, over time, and between parts of a city, as well as simulation of privacy rates.
- Shared value range means that when implemented in different traffic environments, metric values share a common value range. This makes comparisons between various scenarios.

Second, we assess the strength of 41 privacy metrics for vehicle networks, rate the metrics in the four parameters according to their ratings, and make specific recommendations for the use of data protection metrics in vehicle networks.

- In particular, our key findings and recommendations are: in all four measures, no single metric excels, and the intensity of many metrics varies between traffic conditions. So we always suggest using metrics packages that incorporate the strengths of different metrics.
- Many metrics have significant weaknesses that were used in the past to test pseudonym-changing systems, such as the mean tracking length, time / distance to

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An Efficient Hybrid Load Balancing Algorithm for Heterogeneous Data Centers in Cloud Computing

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ABSTRACT

Cloud computing has recently grown into a major global trend of computing. Using the Internet and Wide Area Network (WAN) to make services remotely is a modern design. This is a new solution and technique to achieve high availability, versatility, cost savings and demand-scalability. However, cloud computing faces many problems, such as wasteful resource use, which has a major effect on the performance of cloud computers. These issues have to be managed from time to time to avoid the utilization factors of the various attributes that are used while implementing the process. Because of the enormous amount of knowledge these issues emerged and are unaddressed for so many years even though they were just adjusted in between to carry out the normal activities. Therefore, one of the most critical issues in this area in improving cloud computing performance is the need for robust and efficient load balancing algorithms for cloud computing. Many researchers have proposed different load balancing and job scheduling algorithms in cloud computing, but system efficiency is still very unstable and load still unbalance. This has subsequently delayed the process of executing the algorithms within the required timelines. Hence, in this research, we propose a load balancing algorithm to improve performance and efficiency in a heterogeneous cloud computing environment. We propose a hybrid algorithm that utilizes both random and greedy algorithms. The algorithm takes into account the current resource data and the CPU capacity factor to attain the objectives. The hybrid algorithm was tested using Cloud Analyst simulator, and compared with other algorithms. This comparison has been carried out both in a subjective way and also objective way to establish the proposed method. The experimental investigations showed improvements in average response time and processing time by taking current resource information and the CPU capacity factor compared to other algorithms into consideration.

Key words: Cloud Computing, Load Balancing, Virtualization, Virtual Machine, Scheduling, Cloud Analyst.

1. INTRODUCTION

Cloud computing provides the resources and data for shared processing. It will happen by the involvement of a host application service provider, so that the user does not need to lease a server or pay for heating and cooling energy. It's also easy for remote workers to connect and fly, who can easily log in and use their applications wherever they are [1]. This type of environment provides a customizable option such that processing of the data is carried out without any hassles at a particular given time. When the number of users in the cloud computing world increases, demand for shared resources grows rapidly. Hence, load balancing between these services is a key challenge for scheduling tasks. This demand has to be addressed in a scientific manner such that it meets all the criteria that was set by the various protocols to operate these types of algorithms.

Load balancing is the process by which a cloud computing system distributes workloads and computing resources. It helps organizations to handle application or workload requests by allocating resources to different computers, networks, or servers. In this manner various requests can be taken care without pampering the integrity of the entire system and its specifications. Load balancing is often used to avoid bottlenecks, so that other load balancing characteristics can be achieved, such as: fair distribution of tasks among all hosts, facilitation of the quality of service, improved overall system performance, reduced response time and improved resource utilization [2]. These factors are most common checklist points that have to be maintained in these types of applications.

Figure. 1 displays Virtual Machine Load Balancer (VMs). It assigns numerous tasks to VMs which execute them simultaneously in a way that ensures a balance between those VMs. The tasks that are allocated are to be monitored to devoid of any tricky situations that may arise due to over burden of the work slots. The main goal and also key issue of the load balancing in a cloud environment is to handle the workload of the host in proportion to its capacity, measured in terms of processor speed, free memory space, and bandwidth. While keeping these constraints in control the load balancing

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AUTOMATIC SPEAKER RECOGNITION SYSTEM USING K-NEASREST NEIGHBOR ALGORITHM

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Abstract-- Speaker recognition is a technique of identifying the person talking to a machine using the voice features and acoustics. It has multiple applications ranging in the fields of Human Computer Interaction (HCI), biometrics, security, and Internet of Things (IoT). At present, multiple biometric techniques co-exist with each other, for instance, iris, fingerprint, voice, facial, and more. Voice is one metric which apart from being natural to the users, provides comparable and sometimes even higher levels of security when compared to some traditional biometric approaches. This paper aims to evaluate different pre-processing, feature extraction, and machine learning techniques on audios recorded in unconstrained and natural environments to determine which combination of these works well for speaker recognition and classification. Thus, we present several methods of audio preprocessing like trimming, split and merge, noise reduction, and vocal enhancements to enhance the audios obtained from real-world situations. Mel Frequency Cepstral Coefficients (MFCC) are extracted for each audio, along with their differentials and accelerations to evaluate machine learning classification techniques such as k-Nearest Neighbor, Multilayer Perceptron, Support Vector Machines, and Random Forest Classifiers. In this paper, we used k-nearest neighbor Algorithm to get best classification rate with its hyper-parameter.

Keywords-- **Speaker recognition, Audio pre-processing, Mel Frequency Cepstral Coefficients (MFCC), k-Nearest Neighbor Algorithm, Performance measures**

1. INTRODUCTION

The human voice is a phenomenon which depends heavily on the speaker who produces it.Studies show that no two individuals sound the same[1], the acoustic aspects of what determines the discrepancies between the voices of the speakers are unclear and difficult to differentiate from signals that represent the identification of segments. The causes of variability between speakers are threefold, (1) the difference in speech styles (accent included), (2) the difference in vocal tract shapes and vocal cords, and (3) the way speakers articulate themselves to communicate a specific message (words or phrases used). Nonetheless, because a speaker's propensity to use certain phrases, sentences, and syntactic structures (referring to the third source) in an experiment is not easy to quantify or control, automatic speaker recognition systems use the first two sources only by exploring a speech signal's low-level acoustic characteristics.

Recognition of speakers is an important topic in signal processing and has a variety of applications, especially in security systems[3]. The voice controlled systems and apps rely heavily on the recognition of speakers. Many speaker recognition security control systems for confidential information, customer verification of bank transactions, forensics and remote computer access[2]. Researchers have published many publications in the field of speaker recognition [4]- [10] but very few (if not none) attempts to build speaker recognition systems developed using under-resourced languages have been made public. The official languages are still

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Verifiable and Multi-Keyword Searchable Attribute Based Encryption Scheme for Cloud Storage

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***Abstract*-In have the Attribute-based Searchable encryption (ABSE) scheme, information proprietors can scramble their information with get to approach find a good pace security thought, and encode keywords to get keywords list for insurance keyword search, and information clients can glance through entrancing keywords on keyword records by keyword search trapdoor. In any case, many existing quality encryption plots simply help single keyword search and most of the ebb and flow Attribute-based Searchable encryption (ABE) plans have high computational costs at customer client.**

These issues on a very basic level farthest point the utilization of quality based Attribute-based encryption plots for all intents and purposes. At this moment, propose a certain and multi-keyword accessible Attribute-based encryption (VMKS-ABE) plot for disseminated capacity, in our new arrangement, multi-keywords can be looked and the interest security is guaranteed. That is, the cloud server can look the multi-keyword with keyword search trapdoor anyway it doesn't have the foggiest thought regarding any information about the keywords looked. In the proposed plot, many figuring endeavors are redistributed to the cloud mediator server, which fundamentally diminishes the handling inconvenience at the customer client.

***Keywords*--Attribute-based Searchable encryption, Encode, Trapdoor, Multi-keyword.**

1. INTRODUCTION

The SE advancement generally deals with the issue of how to use the server to complete the mission for charming keywords when the information is scrambled and put away in CS, anyway CS isn't completely trusted. The best strategy to improve the capability of key search while lessening neighborhood enlisting load is up 'til now an issue to be unwound. That is, where an information customer uses multi-keywords search, the cloud cut off will return commonly scarcely any number of reports containing this multi-keyword, thusly the inquiry thing is considerably more careful.

With the progression of distributed computing, gigantic quantities of information can be shared through PC frameworks. The cloud server (CS) can outfit customers with a grouping of administrations, for example, redistributing commission estimations and information stockpiling. With the ultimate objective of the security of limit information and customer's assurance, information is ordinarily taken care of in scramble structure in CS.

Most by far of existing characteristic based encryption (ABE) plans has high computational costs at customer client. These issues immensely limit the usage of ABE plots practically speaking. To handle the issues of framework information, move limit waste and high computational cost, we propose a verifiable and multi-keywords searchable attribute based encryption (VMKS-ABE) plot for circulated capacity, in which various enlisting assignments are re-appropriated to cloud go- between server to diminish close by figuring inconvenience, the arrangement similarly supports the affirmation of the rightness of re-appropriated private keys.

2. ASSOCIATED WORKS

Searchable encryption. Tune et al. [1] first proposed characteristic encryption (SE), which gives a crucial strategy to looking on scrambled cloud information. Dong teal. [2] Utilized RSA open key encryption calculation and middle person encryption

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Aspect Oriented Concept Drift Detection in High Dimensional Data Streams

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ABSTRACT

The drift of the concept is the critical goal of data mining over data transmission, which often deotes the diversity between the pair of sequentially transmitted data tuples. The drift of the concept can be incremental, which increases gradually in the face of data transmission. The other dimension of the drift concept is sudden drift that manifests itself considerably between the pair of tuples of transactions transmitted in sequence. Contemporary Concept drift identification approaches are primarily intended to deal with incremental or sudden drift. In this document, aspect-oriented concept drift detection (AOCDD) is projected into high-dimension data streams. To report concept drift, the AOCDD represents the diversity of data projection for the aspects that are used to frame the record structure in the target data streams. The experiments carried out the reference data sets as flows, which show the importance and scalability of the AOCDD for the detection of drift. The performance advantage of the proposal is scaled by comparing the experimental results with another contemporary model in recent literature.

Key words: Drift detection methods, Concept-drift, Aspect Pattern Weights, online imbalance datasets.

1. INTRODUCTION

Operating with complete data sets in a static environment allows store data sets to be durable and the process can be continuously accessed. Furthermore, the theory behind the data remains unchanged. However, with the advancement of technology in the recent past, a large possibility of applications made, researchers will focus on dynamic environments, such as banking, telecommunications, genomics, e-commerce and the social media platforms they generate. data streams in real time and on a continuous basis. The data generated from these types of uses continuously form the flows at a higher frequency. Maintaining such a large amount of data through storage and post-processing will be impossible due to volume involvement. In specific defined applications such as "social networks" and "quick responses to the banking mandate".

Consequently, data streams require novel algorithms from such applications through limited storage usage, one-time data scanning, and real-time response. In addition to these additional demands, the application also challenges the change of the whole theory on which the algorithm is based. The term derived, the theory behind it, is the collection of data changes after defined stability stages during the period.

The inability of the algorithms to include the alterations in the results of the data transmission to the method with less precision and total effectiveness [1]. And since machine learning is based on cases that are constant, functioning in the dynamic atmosphere requires a timely identification of the concept of drift [2]. Some of the examples of the concept of drift can be seen in the detection of scams and garbage and in the estimation of the climate.

The concept of drift is divided into 2 subtypes, according to the rate of change: the concept of fast or fast drift and the concept of gradual drift. The word sudden drift reflects a sudden change in data collection theory, while gradual drift occurs over a period of time. To ensure an accurate classification, it is important to classify the established drift in 1 of the 2 classifications, as well as to reduce false negatives.

Through the importance of categorizing the concept of drift, multiple methods are suggested for the detection of concept drift. The 3 important approaches in this classification are drift detection methods (DDM), inline algorithms, and ensembles. In between these three, the ensemble method has become more popular in expressions of precise categorization. And the set method joins the votes for each intended class tag.

This document focuses on improving the efficiency of the data flow drift detection concept. In contrast to previous approaches that focused on sudden or incremental detection of deviations, the suggestion in this article reached the importance of detecting sudden and incremental deviations in the model.

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An Improved Convolutional Neural Network with LSTM Approach for Texture Classification

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ABSTRACT

Texture classification is a problem that has several applications, such as remote detection and recognition of forest species. Solutions tend to be customized for the dataset used, but are not generalized. Machine learning algorithms play an important role in the current Texture Classification. However, these algorithms are suffering with low accuracy and classification rate. Deep learning is another sophisticated technique to solve these challenges because texture classification performance is not strong in traditional machine learning systems. The Convolutional Neural Network (CNN) in combination with Long Short-Term Memory (LSTM) forms a robust selection between a powerful invariant feature extractor and an accurate classifier. This model should automatically determine the efficient properties of the feature samples so that the texture samples can be classified accurately. Expert fusion provides stability in classification rates between different data sets and the proposed model will significantly increases texture classification performance. From the experimental analysis, it is ascertained that CNN-LSTM is outperforms with existing state of the art of the algorithms SVM and CNN.

Key words: Texture classification, Machine Learning, Convolutional Neural Network (CNN), Long-Short Term Memory (LSTM), Support Vector Machines (SVM) and Performance Measures.

1. INTRODUCTION

Texture classification is the method by which specific textures are identified from the specified images. While the description of the textures themselves sometimes seems irrelevant in its own way, however, it is possible to implement a large number of real-life problems related to unique textures of various materials [1]. The texture is characterized by a non-uniform spatial distribution of image intensities. There are mainly three different ways of pattern recognition on Texture Classification [40,41] Statistical pattern recognition, Structural pattern recognition and Neural pattern recognition Texture-based classification techniques are being used in a variety of real-world applications, such as content-based image recovery [2], face recognition [3], rock classification, and wood species recognition, classification of fabrics and geographic segmentation of the landscape. The purpose of texture classification is to classify a sample image into one of a set of known texture classes. There are two types of texture classification, supervised and unsupervised classification. In the supervised classification method, a classifier trained with the characteristics of the known classes. In the unsupervised classification method, the classifier recognizes different classes based on the similarity of the input characteristic, no previous training of the classifier occurs. Classification methods texture can be classified into three categories based on pixels, based on local characteristics and based on regions [4].

The first two methods of texture classification are the Co-Occurrence matrix [5] and the Markov Random Fields (MRF) [6], which has been widely used to distinguish textures to a relatively small region [7], Gabor and wavelet filters [8]. The extraction and classification of texture features within a unified framework that incorporated multi-channel filtering principles are presented in [9]. Neural network architecture is widely gained popularity in texture classification. The first network they have built is a three-layer control network (including the input layer), that is, a multi-layer sensor (MLP), with each input node fully linked to a specific M X M scale area in the input image. The second network is close to that suggested by [10], and uses a weight distribution method to link secret neurons to the anterior layer. The previous network has an approximate cost of 5,000 pesos and has been equipped with an automated back-propagation algorithm.

A class of machine learning algorithms, called deep learning, has been used more and more in classification and pattern recognition in recent years. In a hierarchical architecture, deep learning applies multiple layers of information processing to generate a deep model [36]. A small range of academic studies have examined deep learning in the area of

Fuzzy C Means Method for Cross – Project Software Defect Prediction

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Abstract

Cross-project software defect prediction helps increase the chances of delivering a bug-free product from the software industry. The ultimate goal of predicting cross-project software defects is to reduce the cost and time of the project in the software testing phase to improve the quality of the software. Many defect data sets are publicly available online and are used as historical data. But the data sets are not the same; the environments, the projects are different and most of the projects have multiple visions. The objective of this research is to show the performance of both types of data sets using the machine learning approach. After that, a high-performance data set of all selected data sets will be identified based on their performance, which will help predict future data.

This paper presents a Fuzzy C Means algorithm that is proposed to predict and classify software defects in defective and non-defective modules. The Fuzzy C Means algorithm that efficiently classifies and predicts the accuracy of software defect detection. This algorithm also makes use of a selection of heuristic features through the fitness function. The empirical analysis showed that the proposed approach can be used effectively with a high accuracy rate. In addition, a measure of comparison accuracy is applied to compare the proposed prediction model with the current state of the algorithms. The collected results showed that the delineated algorithm achieved better performance with respect to Accuracy measurements.

Keywords: *Cross-project software defect prediction, Fuzzy C Means, Accuracy, Classification, F1-Measure*

1. Introduction

The use of software is increasing continuously; As a result, prediction of cross-project software defect prediction has become an important research topic in software engineering. The defect is a bug or error in the software source code, it may cause software failures. Finding and correcting defects is expensive for the development and maintenance of both fields. Nowadays, the software grows enormously and questions and attention also arise in size and complexity [1]. Before delivering it to customers, it is very important to predict and correct defects because ensuring software quality takes a long time. Here the prediction of defects is important to fight for large and complex

An Ensemble based approach for Node Failure Detection in Mobile Wireless Networks

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Abstract

The mobile ad-hoc network (MANET) is a constant automatic configuration; Communications are less mobile strategy networks are wirelessly associated. All devices are in a complementary MANET to change only in any direction and, therefore, the determination to modify their associates to previous devices is frequent. It is very difficult to identify node failures in mobile wireless networks because the network topology can be very dynamic, the network is not always linked and resources are limited.

In this paper, mobile wireless networks are designed to systematically incorporate an Ensemble-based method and a node malfunction prediction scheme with decentralized tracking, position estimation and node coordination. Extensive simulation results in connected and disconnected networks show that our schemes achieve high failure detection rates and incur a low communication overhead. In the first approach, we use the input from the Ensemble, the node cannot respond to the start of an alternative node and it uses the individual data of the option. However, our solution has the advantage that it extends to both connected and disconnected networks, while centralized control refers only to connected networks. Our approach has up to 80% overhead communication and only slightly lower detection rates compared to approaches that use centralized monitoring.

Keywords: *Mobile Wireless Networks, Ensemble Feedback, Node failure*

1. Introduction

Mobile ad hoc networks (MANET) are built ad hoc on mobile devices in order to do so. The devices involved in such networks have the ability to communicate wirelessly with transmitters of limited range, so they can talk directly with other devices within their range. Some of the machines often volunteer to forward some of the communications they receive, or in other words, they serve as routers, creating a network as a result. However, there is no established system, the network is constantly changing and routers are chosen on demand. The figure 1 shows the basic architecture of a wireless mobile network.

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RESEARCH ARTICLE

Irrigation control system-data gathering in WSN using IOT

Kurakula Arun Kumar | Karthikeyan Jayaraman

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Summary

Agriculture plays an important role in the growth of agriculture nation like India. The main source of water is essential for agriculture. The irrigation process supplies water, but sometimes the wastage of water may occur. For this reason, the irrigation control scheme in wireless sensor network (WSN) using Internet of things (IoT) is developed to save water and time. This paper presents an ANFIS-PEGASIS: Irrigation control system-data gathering in WSN using IoT. The process of the fuzzy inference system (FIS) is utilized for an optimum cluster head (CH) selection that depends on the distance and residual energy. After that, the power-efficient gathering in sensor information system (PEGASIS) is used for the data collecting process in irrigation structure. PEGASIS is to make a chain between the sensor nodes (SNs), and every node communicates to the CH, and it's transferring the data to the base station (BS). Finally, the decision-making process

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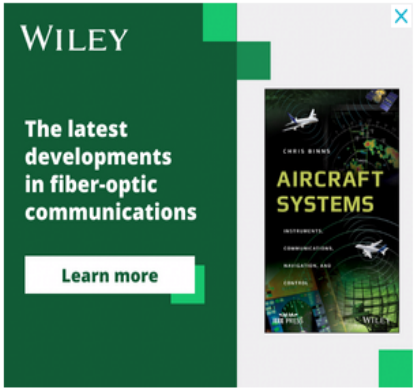

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Image Texture Classification using Fuzzy Inclusion and Fuzzy Entropy Measures

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ABSTRACT

Texture classification is one of the sort-out methods in pattern recognition. Selection of features plys a crucial role in enhancing Machine Learning efficiency as it significantly improves the performance of Texture classification by discarding insignificant features from the original set. Most of the Feature Selection techniques are statistical. They are not versatile to accommodate human thinking and thus the evolving demands and desires of real-life processes. We only make a choice between including and excluding a feature. In the very least, the fuzziness of human thought and perception is not known to enhance the collection of features and thus the precision of the classifier. Accuracy in database classification can be achieved through feature selection while at the same time can speed up the classification rate. The main objective of the work is to choose the most significant features in the feature set to perform given task. In this paper, Fuzzy Inclusion and Fuzzy Entropy measures are applied in feature extraction and the experimental results show that accuracy in classification is proved with other techniques. A comparison is formed between the prevailing methods and therefore the proposed method. The proposed method shows better results than existing methods with best classification rate.

Key words: Image Texture Classification, Feature Selection, Fuzzy Inclusion, Fuzzy Entropy, Accuracy

1. INTRODUCTION

Texture classification is the method by which specific textures are identified from the specified images. While the description of the textures themselves sometimes seems irrelevant in its own way, however, it is possible to implement a large number of real-life problems related to unique textures of various materials [1]. The texture is characterized by a non-uniform spatial distribution of image intensities. There are mainly three different ways of pattern recognition on Texture Classification [9]. Statistical, Structural and Neural Network Pattern Recognition Texture based classification methods are used in a number of applications in the real world, such as content-based image recovery [2], face recognition [3], rock classification, and wood species recognition, classification of fabrics and geographic segmentation of the landscape. The aim of the texture classification is to classify the sample image in one of a number of known texture classes. There are two types of texture classification that are supervised and unsupervised. In the supervised classification, the classifier is equipped with the characteristics of the known classes. In the unsupervised classification process, the classifier identifies various classes on the basis of the similarities of the input characteristics, so there is no previous preparation of the classifier.

Classification methods texture can be divided into three pixel-related categories based on local and local characteristics [4].Choosing a feature is the job of choosing the most suitable and typical features. The approach reduces several features by removing obsolete, irritating and least important features. Function collection is often made either globally or locally [5]. Global Feature Selection (GLF) methods measure the general importance of the feature regardless of its application to any individual class [6]. Local Feature Selection (LFS) methods are those that are determined separately on each eligible class and then the selection is based on distinct scores [6]. The selection strategies are often predictive and state the status of the feature as either essential or not essential. But in real situations, selections are not easy and take into account a variety of human uncertainties. This can happen due to a number of realities that could not be constrained by [0,1] selection[7]. This outcome indicates that owing to this subjective existence of statistical techniques, the

Synthesis and Luminescence Properties of Chemically Synthesized ZnS Nanopowders

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Abstract:

Pure and Cu-doped ZnS nanopowders are synthesized successfully with chemical method. XRD displays the synthesized powder have cubic structure and crystallites size is to be 2-3 nm. These results were confirmed by transmission electron microscopy (TEM), which tune with the XRD results. SEM and TEM micro graphs of ZnS nanopowders were in sphere-shaped nature. The chemical composition is found in pure and doped ZnS nanopowders using EDAX spectra. UV-Vis spectra appearance the absorption peak between 310-320 nm. Photo luminescence studies reveal harsh emission crests at 439 nm, 450 nm and 466 nm with declining intensity for pure and doped powders.

Keywords: ZnS nanopowders, XRD, SEM with EDAX, Absorption spectra, PL and HR-TEM.

1. Introduction:

Dilute magnetic semiconductors (DMSs) are important in research field to find their innovative properties and control the spin and charge carrier concentration [1], these are used in MRI contrast imaging, drug delivery, biomedical imaging and protein separation [2–5]. Zinc sulfide exists as II–VI composite semiconductor of band gap 3.67 eV with binding energy 40 meV. ZnS semiconducting substance used in lasers, sensors and displays [6–8]. Pronounced improvement had been attained in gathering magnetic and optical properties by varying different doped ions into ZnS nanopowders. Among these nobbled ions, transition metals (TM) doped ZnS nanopowders has been observed as a hopeful new-fangled discussion of DMS spreading to their greater magnetic and optical assets [9–11]. Cu-doped ZnS nanopowders display green and

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Flow characteristics of unsteady MHD Newtonian fluid past a rotating vertical porous plate *

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Abstract A theoretical analysis with numerical solutions is performed to explain the flow characteristics of an unsteady MHD Newtonian fluid along a vertical porous plate with rotation under the existence of heat and mass transfer. The governing equations of the flow pattern are converted to non-dimensional form and then solved by using finite difference scheme. The effects of different physical parameters like thermal radiation, heat source and sink, thermal diffusion and Dufour number are considered. The impact of these parameters on the fluid velocity, temperature and species concentration is depicted in the form of numerical results and graphical presentations. The current results are compared with the previously published ones and they confirm the correctness of the numerical method. The primary velocity of the fluid increases when the value of rotation parameter increases and the secondary velocity decreases in the same case.

Key words Rotating fluid, Thermal radiation, finite difference scheme, Soret number and Dufour effect.

2020 Mathematics Subject Classification 76M20, 76S05, 76S99, 76U05, 76U99, 76W05, 76W99.

1 Introduction

Rotating flows through porous media have received extensive importance in the modern research in computational fluid dynamics. Tremendous treatises on this area with applications in geophysics and planetary sciences have been in existence in the literature since the early 1950's. The joint impacts of heat and mass transfer in rotational hydrodynamics have largely been inspired due to their applications in chemical engineering and manufacturing processes in the industries.
The theoretical concepts of rotating fluids are given by Greenspan [1]. Hydrodynamic resistance and the heat loss of rotating solids are established by Dorfman [2]. Kreith [3] invented the convective mode of heat transfer in rotating fields. The detailed information on higher order heat transfer from a rotating sphere was given by Takhar and Whitelaw [4]. Hossain and Takhar [5] considered the rotating bodies and established radiation-conduction interaction in mixed convection. Naroua et al. [6] explained natural convection flow of rotating fluids with finite element method under the existence of radiation mode of heat transfer. The nature of the fluid flow along an accelerated horizontal plate in

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THERMOPHORESIS EFFECT ON MHD FLOW OF A MICROPOLAR FLUID UNDER VARIABLE HEAT FLUX

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ABSTRACT

This paper consist of the combined effects of thermal radiation and thermophoresis on steady magnetohydrodynamic free convection flow of a micropolar fluid past a vertical porous plate through a porous medium under variable heat flux. The governing non linear partial differential equations of the problem are transformed into a system of nonlinear ordinary differential equations through appropriate similarity transformation and then solved by Runge–Kutta Fourth order with shooting technique method. The effects of various physical parameters on the dimensionless velocity, microrotation and temperature profiles are discussed and presented graphically. Finally, numerical values of the physical quantities, such as the local skin friction coefficient, The couple stress coefficient and the local Nusselt are tabulated and analyzed.

Keywords: Thermal Radiation, Thermophoresis, MHD, Micropolar fluid, Heat flux.

1. Introduction:

Thermophoresis is an excellent phenomenon by which small sized particles suspended in a non-isothermal gas acquire a velocity relative to the gas in the direction of decreasing temperature. The velocity acquired by the particles is called thermophoretic velocity and the force experienced by the suspended particles due to the temperature gradient is known as thermophoretic force.

Many articles was published which are related to combined effects of thermal radiation and thermophoresis on steady magnetohydrodynamic free convection flow of a micropolar fluid. Chen [1] established the effects of magnetic field and suction/injection on convection heat transfer of non-Newtonian power-law fluids past a power law stretched sheet with surface heat flux. Reddy [2] explained heat generation and radiation effects on steady MHD free convection flow of micropolar fluid past a moving surface. Talbot et al. [3] reported thermophoresis of particles in a heated boundary layer. Noor et al. [4] analyzed mixed convection stagnation flow of a micropolar nanofluid along a vertically stretching surface with slip effects. Bhattacharyya et al. [5] discussed the effects of thermal radiation on micropolar fluid flow and heat transfer over a porous shrinking sheet. Bourantas and Loukopoulos [6, 7] analyzed the modeling of MHD natural-convection flow in an inclined square enclosure filled with a micropolar-nanofluid. Rashidi et al. [8] established MHD stagnation point flow of micropolar nanofluid between parallel porous plates with uniform blowing. Chandra Reddy et al. [6, 7] analyzed thermal and solutal buoyancy impacts on this flow under varying suction and variety of parameters.

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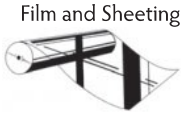

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Corrosion protection performance of titania nanoparticles filled poly(4-methyl-5-vinylthiazole) applied on mild steel in 3.5% sodium chloride solution

I Pugazhenthi and S Mohammed Ghouse

Abstract

Mild steel materials have wide applications in marine construction, because they are low cost, available and easy to handle. However, they have to be protected from corrosive media by coating with polymer hybrid materials. This paper focuses on the anticorrosive properties of poly(4-methyl-5-vinylthiazole) PVTZ coatings on mild steel. Further the coating resistance is enhanced by incorporating Titania Nano particles (TiO_2NPs). The nanoparticles were evaluated using X-ray diffraction studies (XRD) and transmission electron microscopy (TEM). PVTZ and its TiO_2 nanocomposite were coated on mild steel. Their anticorrosive behavior was analyzed by potentiodynamic polarization and electrochemical impedance spectroscopy in 3.5% (w/v) NaCl.

Keywords

Vinyl polymer coatings, PVTZ/TiO_2, anticorrosive coatings, TiO_2 polymers nanocomposites, polyvinyl thiazole

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Polymers and Polymer Composites

Photostable electroactive polymer based nanocomposite films for the protection of mild steel from corrosion

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Abstract

The deterioration of organic film due to chemical and UV attack is an increasing concern in paint technology. Thus, the development of new material for UV blocking anticorrosive film draws significant attention in materials science research. This can be achieved by the incorporation of wide band gap nanoparticles like titania (TiO_2NPs) and zirconia (ZrO_2NPs) in electroactive polymer namely poly(pyridine-4-yl-methyl) methacrylate-co-butyl methacrylate (poly(PyMMA-co-BMA)) film (hybrid film) for the protection of mild steel (MS) from corrosion. The TiO_2NPs and ZrO_2NPs in combination with polymer absorb

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Energy transfer induced enhancement in NIR luminescence characteristics of Yb^{3+}/Er^{3+} co-doped sodium zinc bismuth fluorophosphate glasses

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ABSTRACT

The results pertaining to the energy transfer-based photoluminescence characteristics of Er^{3+}-doped and Yb^{3+}/Er^{3+} co-doped NaF–ZnO–BiF_3–$NH_4H_2PO_4$ (NZBFP) glasses prepared through melt-quench technique were demonstrated here. By applying McCumber's theory, the absorption, stimulated emission cross-sections and optical gain have been estimated for Yb^{3+} (0.97 μm) and Er^{3+} (1.54 μm) ions. Yb^{3+}-doped glass exhibited a sharp emission at 979 nm at 808 nm excitation while Er^{3+}-doped glass displayed a broad NIR emission band at/around 1545 nm for 980 nm excitation. The presence of Yb^{3+} absorption band along with the Er^{3+} absorption bands in the co-doped glass suggests the energy transfer (ET) possibility within these ions. On pumping Er^{3+}-doped & $y Yb^{3+}/Er^{3+}$ co-doped NZBFP glasses with 980 nm Laser Diode, a broad Er^{3+} emission at 1545 nm attributed to $^4I_{13/2} \rightarrow {}^4I_{15/2}$ is observed in the NIR region. The increasing of Yb^{3+}concentration with respect to Er^{3+} (fixed to 1 mol%) in co-doped glasses have resulted in enhancement of Er^{3+} NIR emission because of the resonant energy transfer (ET) process from $Yb^{3+} \rightarrow Er^{3+}$. The energy transfer (ET) mechanism has been illustrated from the spectral overlap of Yb^{3+} emission and Er^{3+} absorption, Er^{3+} decay lifetime curves, and partial energy level diagram. Further, the nature of interaction responsible for the energy transfer process (ET) has been explained using Forster-Dexter theory and I–H fitting. In addition, the suitability of the present synthesized fluorophosphate glasses for optical amplifier and NIR laser applications were explored in terms of optical amplification and gain parameters, like effective band-width ($\Delta\lambda_{eff}$), stimulated emission cross-section (σ_e), optical gain (G), and gain bandwidth (ΔG).

1. Introduction

The rapid development of telecommunication system by optical transmission and fibre optical communication have extended their optical range of operation to the integrated circuits. The device like dielectric waveguides (single/multi-mode fibre optic systems) have been interfaced with the integrated optical circuits for better operation with widespread applications in multiplexing technologies like WDM (1310–1550 nm), Coarse WDM (1270–1610 nm), Dense WDM (C-band: 1530–1565 nm) and EDFA for high-speed digital communication [1–3]. Glasses are considered to be suitable materials for the fabrication of optical fibres because they offer a wide composition range and glass-forming ability with exceptional optical transparency, UV to NIR transmission besides low attenuation. Though, these features promoted glasses for optical communication, they are passive and lack in electronic transitions. So, to overcome this, glasses are incorporated with optically active ions like lanthanides and transition metal ions. The unique characteristics which distinguish rare earths from the transition metals are their rich electronic structure, where outer 5s and 5p subshells shield the optical transitions of 4f shell by enabling them as optically active exhibiting narrow emissions with longer lifetimes and **PLQYs** [4–6]. These diverse spectroscopic and electronic properties of di- and trivalent rare earth ions make them ideal for probing the local structure. In recent past, solid-state materials e.g., glasses, glass ceramics, ceramic powders, polymers containing rare-earth ions have been investigated for a number of potential applications, e.g., solar cells, bio-imaging, displays devices, lasers, fibre optics, LEDs, spectral converters (up and down converters) and optical thermometry [7–10].

Lia Mara Marcondes et al. explained the emission characteristics of Er^{3+} doped and Er^{3+}/Yb^{3+}-codoped GeO_2-Nb_2O5–K_2O glasses in the

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In situ engineered 0D interconnected network-like CNS decorated on Co-rich $ZnCo_2O_4$ 2D nanosheets for high-performance supercapacitors

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ABSTRACT

Co-rich $ZnCo_2O_4$ (ZCO) two-dimensional (2D) nanosheets are decorated with highly porous, glucose-derived, zero-dimensional (0D) interconnected network-like carbon nanospheres (CNS) using an *in situ* hydrothermal method. The content of CNS in the reaction is varied to produce two different composites (CNS@ZCO-I and CNS@ZCO-II). Their physicochemical properties are examined and compared with those of the pristine-CNS and ZCO samples. The non-stoichiometry of the elements in ZCO of the composites is quantified by X-ray diffraction using a Reitveld refinement and X-ray photoelectron spectroscopy. CNS@ZCO-II is found to be Co-rich in $ZnCo_2O_4$ compared to the other samples. The high surface area of the CNS and non-stoichiometry of Zn/Co in the composites provide a short ion/electron transport path distance, high electronic conductivity, additional electrochemical active sites, and stable structural integrity. This viable strategy offers a good interaction between the CNS and ZCO, which translates to better electrochemical activity as an electrode material for energy storage devices. The CNS@ZCO-II composite with a higher CNS concentration shows an excellent electrochemical performance of approximately 1116.24 F g^{-1} at 0.35 A g^{-1} (compared to the pristine-ZCO and CNS@ZCO-I composite).

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1. Introduction

Supercapacitors are one of the most significant energy storage devices because of their extremely high-power density and good energy density [1-3]. In recent years, transition metal oxides (TMOs) have attracted considerable attention in electrode materials owing to their multiple oxidation states, which are favorable for the generation of pseudocapacitance [4-6]. Among them, RuO_2, which has high electronic conductivity and specific capacitance (1580 F g^{-1}), is a potential electrode material for supercapacitors [7]. RuO_2, however, is unsuitable for supercapacitor applications because of Ru is relatively rare, expensive, and toxic [8]. Currently, low-cost and eco-friendly TMOs, such as ZnO [9], NiO [10], MnO_2 [11], Co_3O_4 [12], $NiCo_2O_4$ [13], and $ZnCo_2O_4$ [14] have been explored for supercapacitor applications and are replacements for RuO_2. In particular, spinel zinc cobaltite ($ZnCo_2O_4$-ZCO) has attracted considerable interest as an electrode material for supercapacitors because of its outstanding electrochemical performance compared to individual zinc and cobalt oxides [15–17].

The various morphologies of ZCO electrodes have reported for enhancing specific capacitance by adjusting the textural properties. Typically, the electrochemical performance depends largely on the physical control of the electrode, including the particle size, surface area, electronic conductivity, phase structures, and crystalline nature [18]. Furthermore, the highly porous nature of the electrode material is particularly favorable for active ion/electron transportation [19]. ZCO micro/nanostructures with different morphologies have been constructed for supercapacitor applications, such as flake/flower-like [20,21] and nanosheets/rods/wires/spheres [22-25]. In addition, another approach to enhance the specific capacitance of the ZCO structures are strategically achieved by tuning the non-stoichiometric ratio of electrochemically-active cations such as Zn/Co in the $ZnCo_2O_4$ electrodes. Interestingly, among these two metal cations (Zn and Co, which as the impact of one cation is predominant over other in electrochemical redox responses), Co-rich $ZnCo_2O_4$ micro/nanostructures have reported to exhibit enhanced specific capacitances as compared to the stoichiometric and/or Zn-rich $ZnCo_2O_4$ [26]. For instance, Zhang et al., concluded from the calculations for both primary spinel Co_3O_4 and

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Mass transfer analysis of two-phase flow in a suspension of microorganisms

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Abstract The aim of present work is to investigate the mass transfer of steady incompressible hydromagnetic fluid near the stagnation point with deferment of dust particles over a stretching surface. Most researchers tried to improve the mass transfer by inclusion of cross-diffusion or dust particles due to their vast applications in industrial processes, extrusion process, chemical processing, manufacturing of various types of liquid drinks and in various engineering treatments. To encourage the mass transport phenomena in this study we incorporated dust with microorganisms. Conservation of mass, momentum, concentration and density of microorganisms are used in relevant flow equations. The arising system of nonlinear partial differential equations is transformed into nonlinear ordinary differential equations. The numerical solutions are obtained by the Runge-Kutta based shooting technique and the local Sherwood number is computed for various values

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Mechanistic investigation of defect-engineered, non-stoichiometric, and Morphology-regulated hierarchical rhombus-/spindle-/peanut-like $ZnCo_2O_4$ microstructures and their applications toward high-performance supercapacitors

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ABSTRACT

Self-assembled hierarchical rhombus-, spindle-, and peanut-like zinc cobaltite ($ZnCo_2O_4$, ZCO) microstructures have strategically engineered using an effective solvothermal approach. The various morphology-regulated ZCO samples have obtained by altering the concentration of precursors in the solvent. Effective strategic methods led to various regulated morphologies, as well as different physicochemical properties, such as the surface area/pore size/volume, crystalline nature, and non-stoichiometry of Zn and Co in the ZCO samples. The metal (Zn/Co)/O deficiencies have quantitatively estimated via X-ray photoelectron spectroscopy and confirmed by the Rietveld refinement of ZCO samples using X-ray diffraction data. A mechanistic study has performed to investigate the formation mechanism of the precursor concentration-dependent self-assembled ZCO microstructures. We demonstrate that the specific capacitance of ZCO has proportional to the Zn-deficiency/Co-excess. The Co-deficient-dependent electrochemical properties have studied for three samples and a decline in the following order: *P*-ZCO (1608.95 F g^{-1} at 0.35 A g^{-1}) > *S*-ZCO (1007.48 F g^{-1} at 0.35 A g^{-1}) > *R*-ZCO (629.05 F g^{-1} at 0.35 A g^{-1}). The simple and inexpensive method of synthesized non-stoichiometric ternary metal oxides micro/nanostructures will introduce new directions in this emerging energy field.

1. Introduction

In recent years, the demand for renewable and sustainable energy has increased owing to the rapid development and improvement of the human lifestyle. To satisfy these energy requirements, considerable attention has been paid to energy-storage devices [1–3]. Supercapacitors (SCs) have attracted the attention of scientists for novel energy-storage devices owing to their outstanding power density, long lifespan, high charge–discharge (CD) rate, and environmental friendliness [4–6]. According to their energy-storage mechanism, the electrodes for SCs can be divided into two categories: electric double-layer capacitors (EDLCs) and pseudocapacitors (PCs) [7–10]. PCs exhibit significantly larger capacitance values and energy densities than EDLCs. The pseudocapacitive materials exploit the fast and reversible redox reactions of the electrochemically active electrode materials [11–13]. Owing to their excellent intrinsic properties, transition-metal oxides, hydroxides, and their compounds are the most promising electrode materials for PCs [4,14–15].

Binary transition-metal oxides (BTMOs), such as MnO_2 [5], Co_3O_4 [7], CoO [14], NiO [16] and ZnO [17–19], have been developed as electrode materials with good pseudocapacitance properties for electrochemical energy-storage devices. However, these electrode materials have shortcomings, e.g., poor electrical conductivity, high voltage plateaus, and large volume expansion, limiting their utilization in device applications [20–22]. To overcome these problems, an alternative approach is to select ternary metal oxides ($CuCo_2O_4$ [9], $MgCo_2O_4$ [11], $CoMoO_4$ [12], $ZnCo_2O_4$ [15], $NiCo_2O_4$ [23], $MnCo_2O_4$ [24], $NiMoO_4$ [25], $FeCo_2O_4$ [26], and $CoMn_2O_4$ [27]) that enhance the

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Unsteady MHD free convective flow of a radiating fluid past an inclined permeable plate in the presence of heat source

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Abstract: In this manuscript we analyzed an unsteady MHD free convective flow of a radiating fluid past an inclined permeable plate in the presence of heat source, chemical reaction and thermal radiation with uniform temperature and species diffusion. The dimensionless governing partial differential equations are solved by using closed analytical method. The effects of various physical parameters on the velocity, temperature and concentration are shown graphically and discussed in detail. Numerical results for the skin friction, rates of heat and mass transfer are presented in the form of tables and discussed. Velocity increases with increase in Gr, Gm and K while it decreases with increase in M and α.

INTRODUCTION

Several industrial applications involve the flow of non-Newtonian fluid and thus the flow behavior of such fluids finds a great relevance. Moltenmetal's, plastic, pulps. Emulsions, slurries and raw materials and fluid state are some examples to mention. Non-Newtonian flow also finds practical applications in bio-engineering, where in blood circulation in human/animal artery is explained by an appropriate Visco-elastic pulsatile flow helps in understanding the mechanism of dialysis of blood through an artificial kidney. Naga raju et al. [1] discussed MHD visco elastic fluid flow past an infinite vertical plate in the presence of radiation and chemical reaction. Ravi kumar et al. [2] investigated combined effects of heat absorption and MHD on convective Rivlin-Ericksen flow past a semi-infinite vertical porous plate with variable temperature and suction. Chamkha [3] discussed unsteady MHD convective heat and mass transfer past a semi-infinite vertical permeable moving plate with heat absorption. Ravi Kumar et al. [4] discussed theoretical investigation of an unsteady MHD free convection heat and mass transfer flow of a non-Newtonian fluid flow past a permeable moving vertical plate in the presence of thermal diffusion and heat sink. Sucharitha et al. [5] investigated radiation absorption and thermal diffusion effects on conducting fluid past an exponentially accelerated vertical plate with exponentially varying temperature and concentrations. Umamaheswar et al. [6] discussed Unsteady MHD free convective Visco-elastic fluid flow boundary by an infinite inclined porous plate in the presence of heat source, viscous dissipation and ohmic heating. Raju and Varma [7] studied Unsteady MHD free convection oscillatory couette flow through a porous medium with periodic wall temperature. Seth et al. [8] studied effects of hall current and rotation on unsteady MHD natural convection flow with heat and mass transfer

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Analytical Study On MHD Convective Non-Newtonian Fluid Flow Under The Influence Of Diffusion-Thermo And Heat Source Effects

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Abstract: An analysis has been carried out to study an unsteady MHD convective non-Newtonian fluid flow in the presence of heat source and radiation absorption. The governing partial differential equations along with the boundary conditions are first cast into a dimensionless form and then the equations are solved by closed analytical method. The effect of various physical parameters like porous permeability, Prandtl number, heat source, radiation absorption, diffusion-thermo, Schmidt number and chemical reaction parameter on velocity, temperature and concentration profiles are presented graphically. The effects of all these parameters on wall velocity gradient, wall temperature gradient and wall concentration gradient are also discussed with the help of tables. Temperature increases in the presence of heat source, radiation absorption parameter and Dufour number while decrease in the presence of Prandtl number and radiation parameter.

Keywords: MHD, Radiation absorption, Diffusion-thermo, Non-Newtonian fluid.

INTRODUCTION

A porous medium is a continuous solid phase with many pores in it. Examples are sponges, clothes wicks, paper sand gravel, filters, concrete, bricks, plaster walls, many naturally occurring rocks, packed beds used for distillation, absorption etc. Most of the studies of flow in porous media assume the Darcy's law is valid. owever, this law is known to be valid only for relatively slow flows through porous media. In general, we must consider the effect of fluid inertia as well as of viscous diffusion at boundaries which may become significant for material with high porosities such as fibrous and foams. Agarwall and Ahmed [1] studied MHD mass transfer flow past an inclined plate with variable temperature and plate velocity embedded in a porous medium. Bhargavi and Sharath Kumar Reddy [2] examined an analytical study of forced convection in a channel partially filled with porous material with effect of magnetic field. Sheikholeslami et al. [3] analyzed Lorentz forces effect on NEPCM heat transfer during solidification in a porous energy storage system. Raju et al. [4] deliberated analytical study of MHD free convictive, dissipative boundary layer flow past a porous vertical surface in the presence of thermal radiation, chemical reaction and constant suction. Effect of rotation and hall current on mixed convection mhd flow through a porous medium in a vertical channel in presence of thermal radiation was studied by Singh and Pathak [5]. Seth et al. [6] considered effect of rotation on unsteady hydro magnetic natural convection flow past an impulsively moving vertical plate

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THREE DIMENSIONAL LAMINAR FLOW OF MAGNETITE WATER BASED NANOFLUIDS UNDER HEAT GENERATION AND COUPLE STRESS EFFECTS

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Abstract

The present investigation reveals a study on the flow of magnetite water based nanofluids under heat generation and couple stress effects over a stretching sheet in conducting field. The governing partial differential equations are reduced into ordinary differential equations with the help of suitable similarity transformations and solved numerically by shooting method using MATLAB code under the

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Keywords and phrases: couple stress, heat generation, conducting field, nanofluid, stretching sheet and shooting method.

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A Mixed Stream of Viscoelastic Liquid Through a Porous Medium is Situated in a Vertical Channel with Permeable Walls

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Abstract: ***We examined the completely developed mixed convection flow of a visco-elastic fluid via a porous medium in a vertical channel with a permeable wall. The non-linear control equations have been resolved using the conventional disturbing method for the speed and temperature domain. Graphs will be used to detail the effects on speed and temperature of the viscoelastic Reynold number, the cross flow parameter, the number of Grashof , and Prandtl temperature.***

Keywords: ***Viscoelastic fluid, porous medium, flow, vertical channel, mixed convection.***

I. INTRODUCTION

Many recent papers have been published on the issue of convective fluid flow in saturated porous media. The interest in understanding pores material transport processes is growing thanks to the growth of geothermal technologies, high-quality insulating buildings and cold stores, increased interest in energy efficient drying methods. The nuclear industry also has an interest in the assessment of heat dissipation in hypothetical accidents and in the effective insulation of a nuclear reactor. None of us have examined the convective flux of the mixed viscoelastic fluid, fully developed in a permeable vertical flux through a porous fluid. In the vicinity of the porous medium, the flow of non-Newtonian liquids finds essential applications in improved oil extraction, filtration, insulation systems and development of composites, etc. Some of the studies [1] can be mentioned here. The combined effects of viscosity changes and convective cooling in an unstable nano-fluid circulation via a permeable tube were studied by Kamiset et al. [2] later, according to a Buongiorno method. In a vertical porous tube, Singh [3] investigated thermal radiation with a viscous-elastic sliding mixed MHD mixture. Idowu et al [4] studied the dynamic stream of MHD in an oblique magnetic field between the two infinite parallel flat surfaces. In a porously saturated porous channel, Falade et al. [5] analyzed the MHD oscillating present. Recently studied heat and mass transfers in the non-Newtonian MHD fluid on the infinitely vertical porous plate were made by Raghunat and Siva Prasad [6]. Saleh et al. [7], which focused on observations of reversal of convective flows.

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II. MATHEMATICAL FORMULATION

As shown in figure 1, we use the laminar convection stream of viscoelastic fluids in a permeable vertical flow through the porous matrix. The rate of injection on one wall shall equal the level of suction on the other wall. The x-axis has to be paralleled by a rectangular (x and y) coordination unit, but it crosses the walls of the channel opposite the x-axis. At a constant temperature of T_1 the left side (i.e. Y = 0), the right side of the wall (i.e. at y = h) is retained every time $T_1 > T_2$ is possible.

The stream is theoretically stable and fully developed, i.e. zero cruising speed. The continuity formula then comes down to $\partial u / \partial x = 0$.

Rivlin-Ericksen constitutive equation can be modeled on viscoelastic fluids

$$S = -pI + \mu A_1 + \alpha_1 A_2 + \alpha_2 A_1^2 \quad (1)$$

Scalar pressure p, μ, α_1 and α_2 surface constants, commonly referred to as viscosity, elasticity and cross-viscosity coefficients, are the places where the Cauchy stress sensor is found. The product constants of a particular liquid can be calculated by viscometric fluxes.

A_1 and A_2 are tensors from Rivlin-Ericksen, showing the degree of distortion and acceleration respectively. A_1 and A_2 are set by

$$A_1 = \nabla V + (\nabla V)^T \quad (2)$$

$$A_2 = \frac{dA_1}{dt} + A_1(\nabla V) + (\nabla V)^T A_1 \quad (3)$$

$$\mu \geq 0, \quad \alpha_1 > 0, \quad \alpha_1 + \alpha_2 = 0 \quad (4)$$

Visco-elastic liquids are called second-degree liquids when they are modeled by Rivlin-Ericksen. Dunn and Rajagopal are known for their detailed description of the properties of second-degree fluids. In the context of dissipative inequality (Clausius-Duhem), Rajagopal and Gupta [8] study thermodynamics and generally agree that Helmholtz's special free energy must be at least balanced. From the thermodynamic consideration that they assumed

According to the approach of Boussinesq, the basic equations of momentum and energy control such a stream

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Free Convection Flow through a Porous Medium in the Third Grade Vertical Channel

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Abstract

We analyzed the fully developed unfixed convection through the flow of a third degree liquid by a porous medium on a vertical channel. Non-linear equations are resolved by means of the disturbance system for the speed and temperature field. Component graphs are used for the effects of different growth parameters on speed and temperature fields.

Keywords: *Free convection flow, porous medium, vertical channel, third grade fluid.*

1. Introduction

The heat transfer in free and mixed convection takes place in vertical channels with various mechanical processes and natural phenomena. Much detailed work has been done in this way for most statistical tests in different types of flows. For example, a great deal of interest for this topic stems from its use in the development of electronic cooling systems and energy treatment. As noted, the innovation in the heat exchanger includes a convection flow in the vertical channels. In general, these fluxes suggest uniform channel heating states that can be represented by the uniform distribution temperature (UWT) or by the uniform temperature thermal limit conditions (UHF). The speculation of Newtonian fluids depends on all of the above research into free and mixed convection streams on vertical channels. Hypothetical research into free, limited and mixed convective flow of non-Newtonian fluids in channels and tubes is, however, necessary in some modern procedures because of their primary and innovative importance.

The third-degree liquid flow between heated parallel plates was investigated by Akyıldız [1]. Hayat et al. [4] described the flow of a 3rd degree fluid on an exponentially expanding magneto hydrodynamic (MHD) surface. The analysis is conducted in the presence of a first order chemical reaction. The chemical reactions were constructive and adverse. M. M. Rashidi et al. [5], investigated the purpose of this newsletter is to investigate the convection flow of a non-Newtonian 3rd degree fluid as a result of a linearly stretched sheet exposed to a magnetic zone. Third-degree fluids (Rajagopal, [3], Fosdick and Rajagopal, [2]) form a subclass of fluids with a differential shape that have been well studied for many flux conditions and are designed to take advantage of non-shear as well as daily stress. Aiyesimi YM et al. [6], in the presence of a uniform magnetic field with heat transfer, the combined effect of the magnetic field on the MHD slip of a 3rd degree fluid through an inclined channel

Any porous material has been found in all the above investigations. The heat transfer work into porous media has important applications for synergistic reactors in packing beds, geothermal dams, porous solid drying, thermal insulation, storage tanks in packaged beds, gas generation, grain storage, oil resources etc. It is also keen for the nuclear industry, notably in terms of assessing heat against a nuclear reactor speculative defect and providing strong protection.

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Intensity Modulated U-Shaped Bent Tapered Optical Fiber Concentration Sensor

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Abstract In this paper, a liquid concentration (viscosity) sensor is designed and developed at a low cost using a clad removed U-shaped bent plastic optical fiber (POF). A small portion of POF cladding is removed and bends to form a U-shaped probe for an optimized radius to improve the sensitivity of parameter measurement. The probe is immersed in a viscous liquid, then the interaction of the evanescent field with the ambient viscous liquid in both forward and reverse directions movements of the liquid were recorded. As the probe dipped slowly in and out of the liquid an offset is observed in the response of the sensor, it can be measured as the hysteresis loss in the loop. The offset has been measured in both horizontal (Distance) and vertical (Intensity) directions. The experimental results reveal that the sensor is highly linear with about 0.98 linearities. From the results, It is observed that intensity offset measurement is more suitable than distance offset owing to high sensitivity. Thus, the concentration (or viscosity) of the liquid can be measured using the proposed simple sensor in terms of the offset height and hysteresis area. This sensor is easy to make, simple, low cost, and had inherent advantages of the optical fiber like Immune to EMI, corrosive, small size, flexibility in length. The sensor may found many applications in measuring the viscosities of fluids such as motor oils, petroleum products, chemical solvents, and many other industrial and biological fluids.

Keywords Plastic optical fiber · U-shaped bend · Intensity modulated · Concentration · Viscosity · Hysteresis area

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Thermal Radiation Effects on MHD Flow of Nanofluid over an Exponentially Stretching Sheet with Heat and Mass Fluxes

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ABSTRACT:

This research work addresses the thermal radiation effects on magneto hydrodynamics (MHD) flow of an incompressible nano fluid due to an exponentially stretching sheet with heat and mass fluxes boundary conditions. Similarity transformations are used to obtain the self-similar equations which are then solved numerically using shooting technique along with fourth order Runge-Kutta method. Characteristics of various sundry parameters on the non-dimensional velocity, temperature, nanoparticle volume fraction, local Nusselt and Sherwood numbers are visualized. Besides these the numerical values of skin friction coefficient, local Nusselt and Sherwood numbers are also computed and analyzed.

Keywords: *Thermal Radiation; Magneto hydrodynamics (MHD); Nanofluid; Heat and Mass fluxes.*

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1. INTRODUCTION:

In recent years, the analysis of flow and heat transfer over a stretching surface have achieved extensive attention because of its wide applications, such as continuous casting, exchangers, metal spinning, bundle wrapping, foodstuff processing, chemical processing, equipment and polymer extrusion. Crane [1] was the first who study the Newtonian fluid flow caused by a stretching sheet. Many researchers Dutta *et al*. [2], Chen and Char [3] and Gupta [4] modified the work of Crane [1] by taking the effect of mass transfer under various circumstances. Nadeem *et al*. [5] took the exponential stretching sheet to discuss the heat transfer phenomenon of water-based nanofluid. Mukhopadhyay *et al*. [6] scrutinized the heat transfer flow over a porous exponential stretching sheet with thermal radiation. Zhang *et al*. [7] concentrates the heat transfer of the power law nanofluid thin film occur due to a stretching sheet in the presence of velocity slip effect and magnetic field. The boundary layer flow of ferromagnetic fluid over a stretching surface is demonstrated by Majeed *et al*. [8]. Pal and Saha [9] examined the unsteady stretching sheet to discuss the heat and mass transfer in a thin liquid film with the effect of non linear thermal radiation. Weidman [10] studied a unified formulation for stagnation point flows with stretching surfaces.

The study of magnetohydrodynamics (MHD) flow of an electrically conducting fluid over a stretching sheet has promising applications in modern metallurgical as well as in metal-working procedures. Many professional techniques regarding polymers require the cooling of

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RELEVANCE AND SIGNIFICANCE OF TECHNICAL COMMUNICATION COURSE CONTENTS: A CRITICAL EVALUATION IN THE STATE OF ANDHRA PRADESH

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Abstract

In this world of gizmos, Master of Computer Application students are in dire need of enhancing their career opportunities and job prospects, possessing good communication and employability skills to achieve success in campus drives. To meet this demand, Technical Communication course in a three year MCA programme is viewed in a positive perspective in terms of reaching their goals and reducing the unemployment rate among Computer Application graduates.
Against this backdrop, the present study specifically aimed at critically examining the Course Contents of the Technical Communication course for MCA programme in select institutions of Andhra Pradesh. Structured questionnaire has been administered to major stakeholders (i.e. students and faculty) to collect the data which is further analyzed both quantitatively and qualitatively. Making use of the descriptive analysis and frequency distribution method, the results and recommendations are provided to the respective university officials to customize the course contents of Technical Communication course as per the students' and industry needs.

Keywords: *Technical Communication, Grammar and Vocabulary, Course contents, employability skills, Job opportunities, analysis and findings.*

1. Introduction

In this modern world Master of Computer Application has become an instrumental pathway for young Computer Professionals to open the better avenues for successful careers. In the global arena, opportunities in Multi-National Companies, Private or recognized Banks and Media are so rampant so also the demand for this course. Inevitably, the range of candidates for this course is from undergraduate to senior professionals, employed to entrepreneurs, from primary sectors (such as agricultural and mining) to secondary sectors (production and manufacturing) to tertiary sectors (banking). The students who opt and enroll for MCA (Master of Computer Application) are varied demographically in case of age, qualification and experience. This momentum has achieved due to the right fulfillment of course objectives and learners' needs.

In this context, universities are paying a lot of attention in allowing the right platform and opportunities for MBA participants to improve better language skills by introducing Technical Communication course. As part of designed course content they are destined to gain the required oral and written skills along with the Basic English skills like grammar, vocabulary, punctuation, pronunciation besides the concepts of business communication. Such courses which come under the category of ESP are being offered in various universities as a part of MCA programme. The syllabus contents of this course at this level of study are obviously different from the general English syllabus which focuses more on grammatical aspects and literary appreciation and less on acquisition of communication skills.

As the course of Technical Communication is equally challenging and at par with the core subjects prescribed for the students of MCA and as it is also one of the determining factors in

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Teaching English Language and Communication Skills through Eclectic Approach for Engineering Students - An Experimental Study

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Abstract--- The importance of learning communication skills has assumed greater significance in today's world. The need of the hour is that the teacher has to come up with many innovative methods to enhance communication skills of his or her students. This paper tries to explore how a novel method called Eclectic approach help engineering students to promote their communication skills. Eclectic approach is a methodology that makes use of the varied language learning approaches instead of confining to one approach. It is a skilled based approach as the teacher can base his method or approach on the basis of the learner's age, knowledge and aims and objectives of the lesson. This study was conducted for engineering students by dividing them into two groups such as control and experimental groups. Each group consists of sixty students of first year B.Tech hailing from rural background.

Keywords--- Teaching and Learning, English Language, Eclectic Approach, Role of Teacher, Communication Skills, Class Room.

I. Introduction

The importance of English has increased all over the world by leaps and bounds and has been playing an instrumental role in social, economic and cultural life of people living across the globe. In today's competitive world, name any discipline the use of English language has become an expedient thing to be acquired. So, Students cutting across their profession are craving for learning English language. Now the time has come for an English teacher to impart umpteen number of innovative methods among engineering students to make them gain proficiency in English language. So it is challenging for a teacher to make students learn various techniques to bolster their communication skills. If the teacher gets acclimatized with various approaches and the methods to use them in an appropriate manner, then the job of the teacher becomes easier to bestow upon such skills among the students. Also means that the English teacher should have certain objectives in his mind to which he might made them mandatory for his students to strictly emulate.

The following are the objectives of English language Teacher / Teacher:

- To enable students to learn the spoken forms and make them more vocal
- To develop student's proficiency levels to communicate effectively in their day-today life
- To make them read articles and make them comprehend the same
- To enable students to write in English correctly and meaning fully to express their ideas

The above mentioned objectives can be achieved by employing certain methods and particularly by making use of The Eclectic approach.

The UGC report advocates an approach to the teaching of English based on the needs for language learning both at the national and individual level. The report says that English must serve as the Window of the world at the national level, and it provides opportunity for an individual who seeks socio-economic advancement in the individual level. According to the report, the teaching of English at college level should aim at:

1. Equipping the student with communication skills necessary to cope with the situations he is likely to encounter (these should be predictable) and
2. Providing the kind of information context which is relevant to contemporary culture. (Syllabus Reform English 1977:4)

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Thermal Radiation and Thermophoresis Effects on Steady MHD Free Convection Flow of a Micropolar Fluid through a Porous Medium with Variable Heat and Mass Flux Boundary Conditions

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Abstract: ***In this paper, the combined effects of thermal radiation and thermophoresis on steady magneto hydrodynamic free convection flow of a micro polar fluid in the presence variable heat and mass fluxes are taken into account is considered. The governing non linear partial differential equations of the problem are transformed into a system of nonlinear ordinary differential equations through appropriate similarity transformation and Runge–Kutta Fourth order with shooting technique method. The effects of various physical parameters on the dimensionless velocity, microrotation, temperature, and concentration, local skin friction coefficient, local Nusselt number and local Sherwood number are tabulated and discussed.***

Keywords: Thermal Radiation, Thermophoresis, MHD, Micropolar fluid, Porous Medium, Heat and Mass flux.

I. Introduction

The theory of micro polar has received enormous attentions during the recent years since the traditional Newtonian fluids cannot specifically depict the feature of fluid with suspended particles, polar fluids, suspension solutions, liquid crystals, colloidal solutions and fluid containing small additives. Physically, micropolar fluids may present the non-Newtonian fluids consisting of short rigid cylindrical elements or dumb-bell molecules, polymer fluids, fluids suspensions and animal blood. The existence of dust or smoke particular in a gas may also be modeled using micro polar fluid dynamics. Cogley et al. [i] showed that in the optically thin limit, the fluid does not absorb its own emitted radiation but the fluid does absorb radiation emitted by the boundaries. Kim and Fodorov [ii] considered the case of mixed convection flow of a micropolar fluid past a semi-infinite, steadily moving porous plate with varying suction velocity normal to the plate in the presence of thermal radiation. The transient free convection interaction with thermal radiation of an absorbing emitting fluid along moving vertical permeable plate was studied by Makinde [iii]. Ibrahim et al. [iv] discussed the case of mixed convection flow of a micropolar fluid past a semi infinite, steady moving porous plate with varying suction velocity normal to the plate in presence of thermal radiation and viscous dissipation. Rahman and Sattar [v] studied transient convective heat transfer flow of a micropolar fluid past a continuously moving vertical porous plate with time dependent suction in the presence of radiation.

Most of the real time industrial processes involve heat and mass transfer. Heat or mass flux must be removed, added or moved from one stream process to another. In many practical situations occur in which the hot surface is subject to a constant heat flux instead of being at a prescribed temperature. Dutta et al. [vi] first investigated the effect of uniform heat flux on the temperature field in case of flow due to a stretching sheet. Simillar studies are found in [vii-x]. Most of previous works are not studied heat and mass transfer MHD free convective flow of micropolar fluid through a porous medium with heat and mass fluxes in the presence of the thermophoresis. Hence, in the present work, we have performed a numerical investigation on the combined effects of thermal radiation and thermophoresis on steady magnetohydrodynamic free convective heat and mass transfer flow of a micropolar fluid past a past a vertical porous plate with heat and mass flux boundary conditions.

II. Mathematical analysis

Let us, consider a steady two-dimensional MHD free convective flow of viscous incompressible electrically conducting fluid past a semi-infinite permeable inclined flat plate, while a magnetic field of uniform strength B_0 is applied in the *y*-direction which is normal to the flow direction. Fluid suction is imposed at the plate surface and the suction hole size is taken to be constant. The temperature of the surface is held uniform at T_w which is higher than the ambient temperature T_∞ .The Roseland approximation is used to describe the radioactive heat flux in the *x*-direction which is considered negligible in comparison to the *y*-direction. The effects of thermophoresis are being taken into account to help in the understanding of the mass deposition variation on the surface. Under the above assumptions, the governing equations for this problem can be written as:

(i) Continuity:

$$\frac{\partial u}{\partial x}+\frac{\partial u}{\partial y}=0 \tag{1}$$

(ii) Momentum:

$$u\frac{\partial u}{\partial x}+v\frac{\partial u}{\partial y}=\nu_a\frac{\partial^2 u}{\partial y^2}+\frac{S}{\rho}\frac{\partial N}{\partial y}+g\beta_T 2\left(T-T_\infty\right)$$
$$+g\beta_C\left(C-C_\infty\right)-\frac{\sigma B_0^2 u}{\rho}-\frac{\nu_a}{K'}(u-U_\infty)-\frac{b}{K'}(u-U_\infty)^2 \tag{2}$$

(iii) Angular momentum:

$$u\frac{\partial N}{\partial x}+v\frac{\partial N}{\partial y}=\frac{\nu_s}{\rho j}\frac{\partial^2 N}{\partial y^2}-\frac{S}{\rho j}\left(2N+\frac{\partial u}{\partial y}\right)=0 \tag{3}$$

Thermal radiation and viscous dissipation effects on steady MHD heat and mass transfer flow of a micropolar fluid over an inclined isothermal permeable surface in the presence of thermophoresis

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Abstract: In this paper, The combined effects of thermal radiation and viscous dissipation on steady free convection Magnetohydrodynamic flow of a micropolar fluid over an inclined isothermal plate in the presence of thermophoresis is considered. The governing non linear partial differential equations of the problem are transformed into a system of nonlinear ordinary differential equations through appropriate similarity transformation and shooting technique method with Runge–Kutta Fourth order integration scheme. The effects of various physical parameters on the dimensionless velocity, microrotation, temperature, and concentration profiles are discussed and presented graphically. Finally, numerical values of the physical quantities, such as the local skin friction coefficient, the local Nusselt number and the local Sherwood number are tabulated with the variation of thermal Grashof number, modified Grashof number, magnetic parameter and coupling constant, Radiation parameter, Eckert number, thermophoretic parameter and Schmidt number parameters.

Keywords: *Thermal Radiation; Viscous Dissipation; MHD; Heat and Mass Transfer; Micropolar fluid; Thermophoresis.*

1. Introduction:

The theory of micropolar fluids has received enormous attentions during the recent years since the traditional Newtonian fluids cannot specifically depict the feature of fluid with suspended particles, polar fluids, suspension solutions, liquid crystals, colloidal solutions and fluid containing small additives. Physically, micropolar fluids may present the non-Newtonian fluids consisting of short rigid cylindrical elements or dumb-bell molecules, polymer fluids, fluids suspensions and animal blood. The existence of dust or smoke particular in a gas may also be modeled using micropolar fluid dynamics. Eringen [1] first derived the theory of micropolar fluids, which illustrates the microrotation effects to the microstructures. Eringen [2] extended his idea to the theory of thermomicropolar fluids, which interest to the special effects of microstructures on the fluid flow. The mathematical theory of equations of micropolar fluids and applications of these fluids in the theory of lubrication and in the theory of porous media are given in recent books by Eringen [3] and Lukaszewicz [4]. Free convection in the boundary layer flow of a micropolar fluid along a vertical wavy surface was investigated by Chiu and Chou [5]. Hassanien and Gorla [6] studied the heat transfer to a micropolar fluid from a non-isothermal stretching sheet with suction and blowing. Mixed convection boundary layer flow of a micropolar fluid on a horizontal plate was derived by Gorla [7]. Furthermore, The flow characteristics of the boundary layer of micropolar fluid over a semi-infinite plate in different situations have been studied by many authors in Refs. [8–15]. In the above mentioned works the effect of the induced magnetic field was neglected.

Analytical Study of Buoyancy Effects on MHD Visco-Elastic Fluid Past an Inclined Plate

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Abstract: This analysis reveals an analytical study on heat and mass transfer effects on MHD visco-elastic fluid flow past an inclined vertical plate embedded in porous medium. The nature of the flow is examined with the influence of thermal radiation, heat source, chemical reaction, Prandtl number and Dufour number. A closed analytical solution is evaluated for the flow velocity, temperature and concentration from the equations that govern the flow. Graphical presentations are taken to discuss the impact of considered parameters. Further the variations in skin friction, Nusselt number and Sherwood number are examined under the impact of related parameters.

INTRODUCTION

Viscoelastic materials are popular in our daily activities and also in small (large) scale industries due to their unique properties like recover, ability to slink, soak up energy and experience stress reduction. When compared to Newtonian fluids, the complex viscoelastic fluids have an efficient strategy for tumbling turbulent skin friction in major-scale flows. Non-Netonian fluids follow macroscopic properties that disregard our intuition. Hence the researchers are showing prominence to these flows. As a result plenty of papers on the special properties of this type of flows were published.

An exact solution for the flow of MHD viscoelastic fluid was given by Kumeresan and Vijay Kumar [1] in unsteady case. Nayak et al. [2] examined this flow surrounded by porous surface along with the existence of chemical reaction. Chowdary and Islam [3] established and reported on viscoelastic fluid past an immeasurable plate with free convection model. Choudhury and Kumar Das [4, 5] analyzed the impact of heat and mass transfer on this flow under the occurrence of chemical reaction and radiation simultaneously. Chandra Reddy et al. [6, 7] analyzed thermal and solutal buoyancy impacts on this flow under varying suction and variety of parameters. Further the survey is done on the flows past inclined plates. Reddy et al. [8] discussed and concluded the mass transfer and heat source consequences on MHD flows through inclined porous vertical porous surface. Bhuvaneswari et al. [9] analyzed exactly the radiative flow over an inclined plate under simultaneous heat and mass transfer. Rajput and Gaurav Kumar [10] considered mass diffusion and changeable temperature and analyzed this type flow. Srinivasa Raju et al. [11, 12] used finite element method to examine the nature of Casson viscous dissipative flows and then adding cross diffusion parameters.

The above literature shows that the analyses were done on viscoelastic fluids past vertical porous plates. Flows through inclined plates were considered on Newtonian fluids only. Hence we have chosen the flow of viscoelastic fluid past an inclined plate and examined its nature. The research paper of Nagaraju et al. [13] is taken into contemplation and extended. As the novelty of the work, the angle of inclination, impact of Dufour effect and heat generation effects are included.

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UNIFORM BOUNDARY LAYER FLOW OF CASSON FLUID PAST A VERTICAL PLATE THROUGH POROUS MEDIUM IN CONDUCING FLUID

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Abstract:

The present study is related to investigation of unsteady MHD Casson fluid flow of a past a vertical porous plate through a porous medium in the presence of a uniform transverse magnetic field. The effects of radiation, heat generation/absorption, radiation absorption and homogeneous chemical reaction are considered. The coupled nonlinear partial equations are turned to ordinary by super imposing solutions with steady and time dependent transient part. Finally, the set of ordinary differential equations are solved with a perturbation method to meet the inadequacy of boundary condition. The impact of different parameters on the flow is revealed by the help of graphs and tables.

Keywords: Casson fluid, heat and mass transfer, radiation absorption, porous plate, thermal radiation, chemical reaction.

1. Introduction

An important class of two dimensional time dependent flow problem dealing with the response of boundary layer to external unsteady fluctuations of the free stream velocity about a mean value attracted the attention of many researchers. Besides that convective flow through porous medium has applications in geothermal energy recovery, thermal energy storage, oil extraction, and flow through filtering devices. Nowadays Magneto hydrodynamics is very much attracting the attention of the many authors due to its applications in geophysics and engineering. MHD flow with heat and mass transfer has been a subject of interest of many researchers because of its varied application in science and technology. Such phenomena are observed buoyancy induced motions in the atmosphere, in water bodies, quasi solid bodies such as earth, etc. Talbot et al. [1] reported thermophoresis of particles in a heated boundary layer. Noor et al. [2] analyzed mixed convection stagnation flow of a micropolar nanofluid along a vertically stretching surface with slip effects. Bhattacharyya et al. [3] discussed the effects of thermal radiation on micropolar fluid flow and heat transfer over a porous shrinking sheet. Bourantas and

Heat and Mass Characteristics of Magneto-Newtonian Fluid Through Upright Porous Plate

P. Chandra Reddy, P. V. Sanjeeva Kumar, L. Rama Mohan Reddy and M. C. Raju

Abstract An examination has performed to explain the flow characteristics of an unsteady MHD Newtonian fluid past over a vertical porous plate with rotation under the existence of heat and mass transfer. The governed expressions of the flow pattern are solved by using finite difference scheme. The impact of diverse parameters on the fluid velocity, temperature and species concentration is depicted in the form of numerical results and graphical presentations. The obtained results are having the close agreement with the existed literature results and promising the trueness of the numerical method. The enrichment of rotation parameter causes to decline the primary velocity of the fluid and also raises its secondary case velocity.

Keywords Rotating fluid · Thermal radiation · Chemical effect · Soret number and Dufour effect

1 Introduction

Rotating flows along porous media has received extensive importance in the modern research on computational fluid dynamics. Tremendous treatises on this topic with advantages in planetary sciences and geophysics have been published before the year 1950 onwards. The shared impact of heat transfer and mass transfer is much inspired to analysts in dynamic applications especially in chemical and manufacturing processes industries.

The theoretical concepts of revolving fluids were described by Greenspan [1]. Hydrodynamic resistivity and heat thrashing of revolving solids were established by

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Synthesis and properties of (Fe, Ni)-doped zinc sulfide nanopowders

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Abstract
Pure and (Fe, Ni)-doped ZnS nanopowders have been successfully synthesized by chemical co-precipitation method using Poly Vinyl Pyrrolidone (PVP) as capping agent. Powder X-ray diffraction (XRD) studies reveal that the synthesized powders are in cubic blended structure. The average crystalline size of pure and doped ZnS nanopowder conform around 2–3 nm. In the investigations, Ni is kept constant at 3 mol% and Fe is increased from 1 to 5 mol%. Transition electron microscopy (TEM) is also used to investigate the average size of the nanopowders. TEM results are reasonably in good agreement. SEM micrographs of the (Fe, Ni)-doped nanopowders result in agglomeration with spherical in shape. The EDAX spectra show the chemical composition of dopants is uniform in ZnS. Optical absorption spectra show the absorption edge at 310 nm. Photoluminescence (PL) studies are conducted with excitation wavelength of 306 nm. Pure ZnS exhibits sharp emission peaks at 438 nm, 450 nm and 466 nm. (Fe, Ni)-doped ZnS samples also exhibit the sharp emission peaks at 450 nm and 467 nm with decreasing intensity. The magnetic measurements reveal that 5 mol% Fe- and 3 mol% Ni-doped ZnS nanopowders exhibit a weak ferromagnetic behavior.

1 Introduction

Semiconducting materials doped with magnetic materials are known as dilute magnetic semiconductors (DMS) [1]. The authors have a lot of interest in transition and rare-earth dopants and hence in DMS due to their charge and spin controlling features, DMS materials have created a lot of interest in various scientific fields. The semiconducting materials like II–VI and III–V group compounds are popular host materials for transition metals (TM) and rare-earth metals (RE). These materials have found applications in spintronics and other bandgap engineering devices, light emitting diodes, field detectors, lasers, magnetic resonance imaging (MRI) and solar cells [2–7]. II–VI compounds such as CdS, CdSe, ZnS, ZnO and ZnSe are most popular host materials which are doped with transition metals (TM) or rare-earth metals (RE) [8–13]. ZnS is a wide bandgap material (3.72 eV) and a favorable host for transition metals due a variety of applications. Many have investigated the optical and magnetic properties of ZnS-based DMS nanostructures [14–29]. Some important studies are electrical and magnetic properties of cold compacted Fe-doped ZnS nanoparticles [30, 31]. A gradual increase of magnetization in (Fe, Ni)-doped samples has been observed at room temperature. Sambavisham et al. [32] have reported induced magnetism in Fe-doped ZnS nanoparticles. Pure ZnS nanopowders have exhibited diamagnetic behavior and Fe-doped ZnS samples a superparamagnetic-like behavior with weak ferromagnetism. Eryong et al. [33] have observed the reduction in the intensity of photoluminescent (PL) peaks and superparamagnetism in the Fe-doped ZnS nanopowders. Various studies on PL and magnetic studies of TM-doped ZnS nanostructures are available in the literature. However, room temperature magnetism induced in TM-doped ZnS DMS nanostructures still remains as an enigma. Fe-doped nanopowders s are expected to have future applications in solar cells, biomarkers, bandgap engineering devices, lasers and nanoelectromechanical systems (NEMS) [34–40].

Pure and (Fe, Ni)-doped ZnS nanostructured materials have been synthesized by using chemical co-precipitation method. XRD results show that all the synthesized samples are in cubic blended structure. The average crystalline sizes of pure and (Fe, Ni)-doped ZnS nanoparticles are found to be around 2–3 nm. These results have been confirmed by the

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Maragoni Convection Impact On Magneto-Nano Fluid In Porous Medium

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Abstract: A laminar magnetohydrodynamic (MHD) forced convection two phase nanofluid model in porous medium is considered along with Marangoni convection. It is assumed that the surface tension varies linearly with both the temperature and concentration and that the interface temperature and concentration are quadratic functions of the interface arc length x. Numerical solutions for the velocity, temperature and concentration distributions are obtained by using Shooting method. Influences of the Marangoni ratio, Schmidt number, Brownian motion parameter, magnetic number and thermophoretic parameter on the hydrothermal characteristics are presented through graphs and tables. Results depict that the temperature increases with increase of Permeability of porous medium, the Schmidt number, Brownian motion, magnetic number and the thermophoretic parameters but it reduces with the rise of the Marangoni ratio.

Keywords: MHD; Free convection; Marangoni convection; Brownian motion; Porous medium.

INTRODUCTION

Marangoni boundary layers are dissipative layers which may occur along liquid–liquid or liquid–gas interfaces. The surface tension gradients that are responsible for Marangoni convection can be both temperature and/or concentration gradients. The basic research work in this field was first promoted by Napolitano [1]. As reported by Christopher and Wang [3] and Eyer et al. [4], Marangoni flow induced by surface tension variations along the liquid–fluid interface causes undesirable effects in crystal growth melts in the same manner as buoyancy induced natural convection. According to Straub [5], these undesirable effects become dominant in the absence of buoyancy forces in the microgravity environment of space-based crystal growth experiments. Later, Magyari and Chamkha [6] stated that, Marangoni convection appears due to surface tension gradients and also proved that liquid–liquid interfaces can generate Marangoni boundary layer. As per these reports, newly innovative kinds of fluids are required to reach more efficient performance in this case. Hence, a nanofluid was proposed by several researchers in the current research as innovative way to enhance heat transfer characteristics. In a review article, Sheikholeslamiand Ganji [7] elaborately presented various applications of nanofluids in several fields. They found some uncertainties with the variation of the nanofluid volume fraction of heat transfer change. Various aspects related to nanofluids were studied by Ma et al. [8, 9], and many more others [10-14]. Motivated by the above

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RADIATION ABSORPTION AND SORET EFFECTS ON MHD CONDUCTING FLUID FLOW PAST AN EXPONENTIALLY ACCELERATED VERTICAL PLATE

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Abstract: In this article an investigation is done on hydromagnetic effects on electrically conducting fluid past an exponentially accelerated infinite vertical plate with exponentially varying temperature and concentration. The influence of thermal diffusion and radiation absorption is considered in this analysis. The problem is governed by coupled non-linear partial differential equations which are solved by finite difference method. The plate temperature is increasing linearly with time and the concentration level near the plate is increased. Among the effects of various

The Characteristics of Heat and Mass Transfer on MHD Fluid Flow over a Moving Melting Surface

S. Harinath Reddy, D. Harish Babu, K. Kumaraswamy Naidu, M. C. Raju, and P. V. Satya Narayana

Abstract The magneto-hydrodynamics (MHD) fluid flow above a moving melting surface in the existence of sticky intemperance under heat in addition mass transfer characteristics are examined theoretically and to be furnished in this article. The flow equivalent equations are solved by means of R-K method of 4th order. The impact of notable parameters on velocity, concentration, and temperature is deliberated through graphs. A comparison is made with the previous literature to validate the method and found good agreement. Concentration of the fluid decreases up to $\eta = 2$ and it increases for $\eta > 2$ with increasing values of Sc and Sherwood number increases for raising Sc values.

Keywords Moving melting surface · MHD · Viscous dissipation · Heat as well as mass transfer

Nomenclature

B_0	Constant
C_f	Skin friction coefficient
C_s	Heat capacity of the solid surface
Ec	Eckert number
H	Dimensionless melting parameter
M	Magnetic field parameter

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Radiation and Partial Slip Effects on Magnetohydrodynamic Jeffrey Nanofluid Containing Gyrotactic Microorganisms Over a Stretching Surface

In this study, the impact of thermal radiation and partial slip on magnetohydrodynamic flow of the Jeffrey nanofluid comprising motile gyrotactic microorganisms via vertical stretching surface is analyzed. The governing partial differential equations are reformed to a system of coupled ordinary differential equations by utilizing the similarity transformations. The transformed equations are of order four, which are complex to solve analytically and hence, the coupled system is solved computationally by using the shooting technique along the Runge–Kutta integrated scheme. The ramifications of different thermophysical parameters on the density of gyrotactic microorganisms, Jeffrey nanofluid velocity, nanoparticles concentration, temperature, Sherwood number, and Nusselt number are illustrated graphically. Comparing this study with the results already published favors the validity of this study. It is established that the Nusselt number is boosted on enhancing the thermal radiation parameter, and the reverse trend has been observed on increasing the Richardson number, whereas the gyrotactic microorganisms density is more in case of viscous nanofluid compared to the Jeffrey nanofluid. [DOI: 10.1115/1.4048213]

Keywords: bio-heat and mass transfer, heat transfer in manufacturing, magnetohydrodynamic (MHD), micro/nanoscale heat transfer, porous media, radiative heat transfer

Introduction

Nanofluid is an innovative form of heat transfer comprising nanoparticles that are distributed consistently and steadily in the base fluid. Such scattered nanoparticles with a particle size 1–100 nm, usually a metal or metal oxide, significantly improve the nanofluid's thermal conductivity and increase the convection and conduction coefficients, enabling further heat transfer. Owing to their importance, they are used in applications such as drug delivery and oil recovery, vehicle thermal management, and cooling of electronics. Initially, Choi and Eastman [1] first proposed the new class of nanofluids, and they discovered high thermal conductivity nanofluid that depends on suspending metallic nanoparticles of size less than 100 nm. Free convection flow over a nonisothermal plate in a porous medium saturated with the nanofluid was studied by Gorla and Chamkha [2]. Mahanthesh et al. [3] explored the influence of nanoparticles shape factor over an infinite disk with Marongoni convective effects. Bazdar et al. [4] studied numerically the influence of turbulent flow and heat transfer of a nanofluid over a curved channel with different wavelengths. They reported that the Nusselt number does not change significantly due to low Reynolds number, whereas it augments for high Reynolds number. Many researchers [5–9] studied nanoliquid flows in different flow geometries.

Motile microorganisms in suspensions are slightly impenetrable than water, and their self-propelled nature typically swims in the upward direction that increases the thickness of the based fluid. It leads to an unstable dense upper surface. Bioconvection starts when the microorganisms are collected in the uppermost section of the liquid as a result of uneven density stratification of certain microorganisms. Bioconvection plumes form during this cycle and the microorganism travel from the upper liquid section to the inferior liquid section due to the difference in density. Kuznetsov and Avramenko [10] studied the stability of a suspension of motile gyrotactic microorganisms in a horizontal layer. Khan et al. [11] discussed the joint impact of the magnetic field and Navier slip on the frontier layer stream with heat transfer and mass transfer of a nanofluid results in gyrotactic microorganisms over a vertical plate. Chamkha et al. [12] examined the radiation effects on the bioconvection flow of a nanoliquid comprising gyrotactic microorganisms with the variation of surface temperature. Sudhagar et al. [13] explained the ramification of gyrotactic microorganism via a vertical cylinder. Rashad et al. [14] investigated the mixed bioconvection flow of a nanofluid containing gyrotactic microorganisms past a circular cylinder. Khan et al. [15] presented a model on motile microorganisms past a truncated cone. Ferdows et al. [16] examined the heat transfer analysis of bioconvection and nanofluid flow over an exponentially stretching sheet with magnetic effects. A few researchers addressed the impact of different parameters of water-based nanofluid containing motile microorganisms [17–19].

In recent decades, there have been important developments in the study on non-Newtonian fluid flows due to its vast applications in industrial and emerging engineering processes such as food and paper production, polymer processing, and technology. The non-Newtonian fluids are viscoelastic in nature, for example, oils, paints, ketchup, and fluid polymers. In view of this, numerous authors [20–23] deliberated the different non-Newtonian fluid flows in various geometrical phases. Hayat et al. [24] explored the homogeneous and heterogeneous effects of the Maxwell fluid at the stagnation point. Oyelakin et al. [25] explored the transfer of mass and heat on the Casson nanoliquid flow along a vertical channel with gyrotactic microorganisms. They conveyed that the skin friction coefficient retards with increasing microorganisms.

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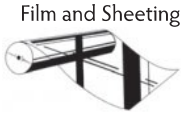

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Corrosion protection performance of titania nanoparticles filled poly(4-methyl-5-vinylthiazole) applied on mild steel in 3.5% sodium chloride solution

I Pugazhenthi and S Mohammed Ghouse

Abstract

Mild steel materials have wide applications in marine construction, because they are low cost, available and easy to handle. However, they have to be protected from corrosive media by coating with polymer hybrid materials. This paper focuses on the anticorrosive properties of poly(4-methyl-5-vinylthiazole) PVTZ coatings on mild steel. Further the coating resistance is enhanced by incorporating Titania Nano particles (TiO_2NPs). The nanoparticles were evaluated using X-ray diffraction studies (XRD) and transmission electron microscopy (TEM). PVTZ and its TiO_2 nanocomposite were coated on mild steel. Their anticorrosive behavior was analyzed by potentiodynamic polarization and electrochemical impedance spectroscopy in 3.5% (w/v) NaCl.

Keywords

Vinyl polymer coatings, PVTZ/TiO_2, anticorrosive coatings, TiO_2 polymers nanocomposites, polyvinyl thiazole

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Strength and Durability Properties by Replacement of Natural Zeolite and Fly ash in Ordinary Portland Cement

Chalapati Harish, T.Naresh Kumar, V.Vishnuvardhan

Abstract: ***Natural zeolite and Flyashresidue, a sort of hydrated Alumino-Silicate is used amply as ordinary pozzolanic material in particular areas of the world. In this calculation, the suitability of a secretly quarried zeolite and mineral admixture called fly ash is used for getting better mechanical and durability property of bond. The presentation of strong quality was better with a dissimilar degree of zeolite and fly ash was examined. The substitution on zeolite and fly ash with other proportions like 10% zeolite with ordinary Portland cement (OPC), 10% zeolite and 10% fly ash, 10% zeolite and 20% fly ash, 10% zeolite and 30% fly ash for M25 grade of concrete and done valuations with mechanical properties such as compressive strength, split tensile test, water permeability test, rapid chloride permeability test. By differentiating these effects between a run of the mill concrete and dissimilar degrees of Zeolite and Flyash.By comparing these results between normal concrete with different proportions of Zeolite and Flyash.***

Keywords: Cement, fly ash, zeolite

I. INTRODUCTION

Concrete, typically Ordinary Portland cement concrete possibly will be a compound substance collected of a fine and coarse aggregate bond by the side of through a flowing cement (cement paste) to harden time mainly commonly a lime-based strengthen binder, like Portland cement, though naturally with another hydraulic cement, like a calcium-aluminate. It is well-known from different; non-cementitious types of concrete all required some type of aggregate along, as well as asphalt concrete through a hydrocarbon binder, to aid is normally used for the road surface.

Fly ash or flue residue, also called pulverized fuel residue in the UK may be energy-burning produce that's together of the particulates (fine element of burn fuel) to are determined out of coal-fired ignition chamber by the side of by resources of the channel gas. In the example to fly ash was produced since coal, as an instance, previously solid waste is incinerated in a specifically waste-to-energy ability in the way of providing electrical energy, the residue strength have a high level of pollutants than energy ash. In that container the powder formed is typically off the record as harmful waste. Most in abundance used the structure of natural pozzolanic material in a few regions of the sphere is natural zeolite, it's a form of hydrated alumina-silicate mineral then might be used as a more cementetious material. Zeolite tuff– the lime mixture is widespread utilize in constructions while former period. Natural zeolite by the method of volcanic or volcano-sediment essential have a 3-dimensional outline structure and is portion as a hydrated alumina-silicate of alkali before alkaline earth cations. Crystals are considered as a honeycomb-like creation with mainly slight pore then channel, changeable in dimension from $3\times10^{4}$to 4×10^{4}micro meters. It's a similar entire specific surface interior and exterior area of 35 to 45 m^2/gram is referred from Mumpton FA, editor, mineralogy and geology of natural zeolites. Newyork: Reprint of the mineralogical society of America's reviews in mineralogy; 1993. Zeolite is also known for its ability to lose stream by more than 30th of its dry weight.; moreover, component cations will be altered with no major conversion within the formation of crystals.

II. LITERATURE REVIEW

Miguel A.Climent et.al.(1999) this paper discusses regarding the potentiometric volumetric analysis process to produce usage of Gran's technique for end-point finding have been industrial to examine acid-soluble chloride in cement, mortar, and concrete, eliminate the filtration stepladder perform in normal laboratory situation ways. through this, the accurateness and accountability of the intended logical method has been check beside a normal method, like Volharda, by examining replacement sample of cement, mortars, and concretes by varied chloride contents and as well the result complete that the accurateness and task of the future technique is similar to that of a laboratory situation process like Volharda technique, for a Cl_2 attention vary as wide as 0.01 to 1.5% by some weight.

Nai-QianFeng et.al. (2005) exposed that readily available remain extra than one hundred zeolite mineral deposit create in a huge range of 21 provinces now an existence the practice of zeolite greater than earlier mainly in the industry of china. Natural zeolite is the relations of a frame. Structured alumina silicate hydrates. Zeolite is used in china future for both an ion-exchange efficacythen adsorption function. Natural zeolite is anunique mineral source for the creation and building materials, it acts as anti-bacteria agent, mineral admixture aimed at inhibition extension of material produced by alkali-aggregate reaction, blended material for cement developed.

Bulupradhan et.al.(2007) the author describes the conclusion of a complete tentative investigation everywhere the corrosion presentation of a variety of sorts of steel and cement be considered in several existing mixtures polluted complete admixed chloride.

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Statistical Analysis of 30 Years Rainfall Data of YSR Kadapa District, Andhra Pradesh, India

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Abstract: Water is a vital natural resource for the existence of life on earth. Water is used for domestic consumption, is also a source of power and serves many useful purposes for agriculture and related sectors, food security, energy security and industries. The main important source of water in any area is rain and it has a dramatic effect on agriculture and other sectors. So, we need to analyze the rainfall data across the country to get the status, so that future rainfall criteria and its effects on various places can be determined. Rainfall distribution of YSR Kadapa district has been assessed for 30 years (1990-2019) precipitation data and results indicated that the annual rainfall is erratic and the maximum rainfall of 1154.1 mm occurred in 1996 followed by 2007 (1006.1 mm) and minimum rainfall occurred in 2018 of 350.4 mm and that in 2014 (401.3 mm) being the second lowest. The year 1996 is referred as 'wet year' and 2018 as 'dry year' among the study period.It is also shown that the average rainfall for the selected study period of 30 years is 678.0 mm. The mean monthly rainfall analysis of study period shows that the October month observed maximum average rainfall of 138.5 mm and the lowest average rainfall observed in the month of January which is 1.1 mm. Statistical features of annual and monthly rainfall series of YSR Kadapa district was studied and then variability and trends of the rainfall were analyzed. A variability analysis of rainfall is of great importance for researchers and policy makers in their decision making as rainfall plays dominant role in deciding the use of the water availability in the areas.

Keywords: Annual rainfall, Monthly rainfall, Rainfall trend, Statistical parameters, YSR Kadapa district

I. INTRODUCTION

Climate change is the most crucial and everyone's talk around the world and these changes bring a drastic change in nature. Climate change resulted drought, flood, cyclones, hurricanes and rise in temperatures [1]. Humans are unable to bear these changes and their effects, which occur due to changes of precipitation and temperature. However, atmospheric temperature and precipitation are the two most sensible factors to the people. Between these two, changes in precipitation are one of the most important factors, which impact the society and then determine the overall impact of climate change. Water is a vital natural resource for the existence of life on earth. Water is used for domestic consumption, is also a source of power and serves many

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Flow characteristics of unsteady MHD Newtonian fluid past a rotating vertical porous plate *

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Abstract A theoretical analysis with numerical solutions is performed to explain the flow characteristics of an unsteady MHD Newtonian fluid along a vertical porous plate with rotation under the existence of heat and mass transfer. The governing equations of the flow pattern are converted to non-dimensional form and then solved by using finite difference scheme. The effects of different physical parameters like thermal radiation, heat source and sink, thermal diffusion and Dufour number are considered. The impact of these parameters on the fluid velocity, temperature and species concentration is depicted in the form of numerical results and graphical presentations. The current results are compared with the previously published ones and they confirm the correctness of the numerical method. The primary velocity of the fluid increases when the value of rotation parameter increases and the secondary velocity decreases in the same case.

Key words Rotating fluid, Thermal radiation, finite difference scheme, Soret number and Dufour effect.

2020 Mathematics Subject Classification 76M20, 76S05, 76S99, 76U05, 76U99, 76W05, 76W99.

1 Introduction

Rotating flows through porous media have received extensive importance in the modern research in computational fluid dynamics. Tremendous treatises on this area with applications in geophysics and planetary sciences have been in existence in the literature since the early 1950's. The joint impacts of heat and mass transfer in rotational hydrodynamics have largely been inspired due to their applications in chemical engineering and manufacturing processes in the industries.
The theoretical concepts of rotating fluids are given by Greenspan [1]. Hydrodynamic resistance and the heat loss of rotating solids are established by Dorfman [2]. Kreith [3] invented the convective mode of heat transfer in rotating fields. The detailed information on higher order heat transfer from a rotating sphere was given by Takhar and Whitelaw [4]. Hossain and Takhar [5] considered the rotating bodies and established radiation-conduction interaction in mixed convection. Naroua et al. [6] explained natural convection flow of rotating fluids with finite element method under the existence of radiation mode of heat transfer. The nature of the fluid flow along an accelerated horizontal plate in

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Vibration Mode Analysis For Control Algorithm Implementation In Gyroscope Development

Mittapally Gopala Krishna Murthy, Dantala Dinkar, IM Chhabra, NVN Rao, KC Das and Putha Kishore

Abstract: Gyroscope is an inertial sensor widely used in the navigation systems for sensing angular motion about its axis. Various types of gyroscopes being used for different navigation applications. Coriolis Vibratory Gyroscope (CVG) comes under the category of vibratory gyroscope in which, a rotational sensitive Hemispherical Shell (HS) made to vibrate at one of its resonant mode by a suitable method like physical forcing by using impact hammer or electronically by the electro static forcing. The imparted wave mode on the hemisphere need to be a standing wave, with a group of four anti-nodes and four nodes separated by 90° phase. This mode of wave is basic requirement on the HS for sensing the rotation. In this paper, we have presented a novel method to characterize HS wave mode by measuring its frequency and study the wave pattern with capacitive pickoff measurement method. In this method, the localised displacement of HS at anti-nodal and nodal locations and their phase variation analysed to ensure the required wave mode on the HS for gyroscope applications.

Keywords: Hemisphere Navigation, Gyroscope, Vibration, Standing wave, Coriolis

1. INTRODUCTION

Groscope is a rotation sensing instrument in Inertial Navigation Systems (INS) [1]. Development of Coriolis Vibratory Gyroscope (CVG) delivers all the aerospace requirements like small in size, weight, power and high reliability [2]. CVG has rigidly fixed hemispherical shell, in which its resonant vibration mode called primary wave mode at a known amplitude (a) is excited [3]. Once the gyroscope rotates about its axis, the Coriolis forces acts on the vibrating HS generate a second standing wave on it [4], [7]. This Second wave mode receives energy from the primary wave. The rate of transfer of vibration energy on both the standing modes can be accounted in terms of changing amplitude and phase about the HS [4]. The major requirement in the CVG is to measure the frequency and standing wave profile on the HS. A Phase Locked Loop (PLL) control is used to follow the change in phase of vibration mode [5],[6] with temperature during the operation [8],[9]. The designed frequency of the HS is in the human audible frequency range (20 Hz to 20 KHz), a low cost frequency measurement method is proposed by using the high sensitive microphone compare to the expensive optical method by using laser vibrometer. The standing wave profile at nodes and anti-nodes locations along the phase relation between them is measured electronically through capacitor formation at a fixed locations around the HS [10]. This scheme of capacitive pickoff is used in pendulous accelerometers [11], where the pendulum is suspended between the two fixed electrodes. When the accelerometer experiences an external force, the pendulum moves in response to the force applied.

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- *This leads to change in capacitance(∆C), proportional to the force applied. Similar scheme is adopted in the present work to sense the standing wave on the HS [12].*

2. STANDING WAVE PATTERN

The HS forced by using the impact hammer to excite it's all mode waves, along with the mode under study. One complete cycle of the required wave mode pattern on the shell is as shown in the Fig. 1a, during the initial phase the shell bows to its highest ellipsoidal shape and then revers to its spherical form as shown in Fig.1b. In the following phase, deformation into an ellipsoidal shape with semi-major and semi-minor axes of the ellipsoid interchanged at the equator and returning to its original spherical shape, this cycle repeats at the designed frequency. The circumference of HS creates a standing wave with four uniformly spaced anti-nodes (maximum displacement A, B, C, D) and four nodes (zero displacement E, F, G, H). This mode of wave called driving mode and the pattern remained constant on HS under no rotation condition.

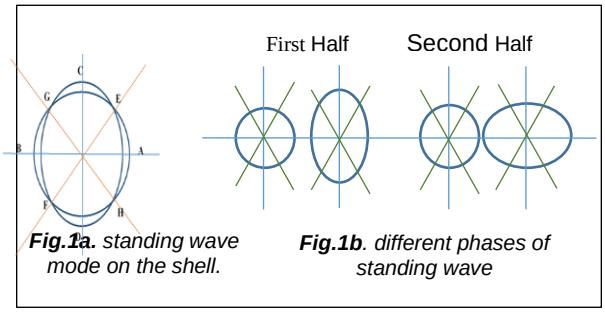

Fig.1a. *standing wave mode on the shell.*

Fig.1b*. different phases of standing wave*

3. DESIGN OF HEMISPHERICAL SHELL

HS designed with 1 mm thick wall out of Aluminium by using SOLIDWORKS® a Computer Aided Design Software with high geometrical accuracies of ±5µm. It weighs 12 gm and 30 mm in diameter. The design and realized HS is as shown in Fig.2a is fabricated on CNC machine. HS has 6 mm solid cylindrical central stem to support the structure to minimize other wave modes when it is forced. Finite Element map (FEMAP) with NASTRAN simulation software used to analyse the wave mode profiles, frequencies etc. on the HS. Fig.2b shows the simulation of the required wave pattern. This figure displays a localised red shades on the shell's rim, where the displacement is maximum are called anti-nodes of the wave. The two adjacent anti-nodes separated spatially

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Synthesis and optimization of Dy-doped $SrZr_4(PO_4)_6$ nanophosphors for plant growth light-emitting diodes

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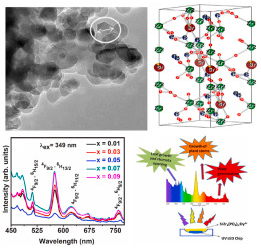
Highlights

- Dy-doped $SrZr_4(PO_4)_6$ nanophosphors were prepared using the sol-gel method.
- Rietveld refinement of XRD was carried out.
- Surface-states of the phosphors were studied by XPS.
- The phosphor has shown CIE values (0.30, 0.29) and CRI-77.

Abstract

Indoor plant growth can protect crops from damage caused by climate variations in outdoor lighting systems. For indoor plant cultivation, artificial light sources are needed to enhance the plant growth. Regarding this problem, a series of $SrZr_4(PO_4)_6:Dy^{3+}$ nanophosphors with various concentrations of dopant ions were synthesized using a sol-gel method. The Rietveld refinement method confirmed that existence of the impurity phases in the synthesized phosphors. The elemental state and chemical composition of the host and dopant (Dy^{3+}) were analyzed by X-ray photoelectron spectroscopy (XPS). The surface morphology was examined by field emission scanning electron microscopy (FESEM), and the nanostructure was confirmed by high-resolution transmission electron microscopy (HRTEM). The photoluminescence (PL) spectra consisted of broad peaks in the range of 460–510 nm (blue), 560–596 nm (yellow), 602–651 nm (red), and 743–773 nm (near-infrared), which were exited at a wavelength of 349 nm. The emission spectra were suitable for the absorption band of phytochromes of plants, showing that the $SrZr_4(PO_4)_6:Dy^{3+}$ nanophosphor may have potential applications in plant growth promoted by light-emitting diodes (LEDs).

Graphical abstract



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Short Communication

One-pot hydrothermal synthesis: Enhanced MOR and OER performance using low-cost Mn_3O_4 electrocatalyst

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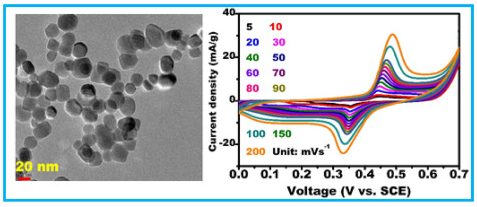
Highlights

- A successful synthesized Mn_3O_4 NPs via simple one-pot hydrothermal method.
- The synthesized Mn_3O_4 NPs were cubic, spherical, and hexagonal.
- The Mn_3O_4 NPs were studied the MOR and OER at room temperature.
- The Mn_3O_4 electrocatalyst showing excellent stability in MOR, and lower Tafel slope.

Abstract

Mn_3O_4 NPs were synthesized using a simple, rapid, and cost-effective hydrothermal method. High-resolution transmission electron microscopy showed that most of the synthesized NPs were cubic, with some NPs being spherical and hexagonal. The electrochemical results showed that the Mn_3O_4 cubes were exhibited good oxygen evolution activity (OER) and methanol oxidation activity (MOR) and stability in alkaline media, making them a promising and efficient material in energy applications.

Graphical abstract



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Introduction

With the rapid energy consumption and environmental pollution over the past decades, researchers have focused on the development of new types of energy devices. Direct methanol fuel cells (DMFCs) have attracted significant attention in portable applications owing to their high energy density, convenient/safe transport and storage, and eco-friendliness [[1], [2], [3]].

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A Study on Grievance Handling Mechanism with Reference to Vijaya Diary, Nellore

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Abstract:
Grievance handling mechanism is an important aspect in human resource management that contributes majorly to the satisfaction of employees in the organization. Better is the Grievance handling mechanism better will be the productivity of the employees. The present study focusses on analyzing the common grievances of the employees, knowing the level of mindfulness regarding grievance handling mechanism and analyzing the factors as well as level of satisfaction towards grievance handling mechanism in the company. The study also concentrates on knowing the association between demographic factors and the grievance handling at work place. 120 samples have been drawn out for the study by using stratified random sampling method and the statistical tools like factor analysis and chi-square tests are used. It is suggested to the management to concentrate more on building interpersonal relations in the organization as well as focus on conflict resolution at work place.

Keywords: *Care Hospitals, Conflict Resolution, Grievances, Interpersonal Relations, Organization, Productivity.*

I. INTRODUCTION

A grievance is a proper grumbling that is raised by a worker towards an employer in the working environment. A complaint dealing with structure fills in as an outlet for representative frustrations, discontents, and issue like a weight release an incentive on a steam kettle. Delegates don't have to keep their mistake limited until in the long run discontent causes blast. The presence of a compelling complaint method lessens the need of self-assertive activity by directors since management realize that the workers can ensure such conduct and make fights to be heard by top management. The very reality that workers reserve a benefit to be heard and are truly heard improves resolve. In point of view on all these, every affiliation should have an undeniable method for complaint dealing with.

II. REVIEW OF LITERATURE

Chitralekha Kumar (2013) identified the reasons for faculty grievances, checked the availability of grievance handling mechanism in management colleges as well as identified the role of HR Department towards Faculty grievance handling. A survey is conducted by

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Volume 7, Issue 6, April 2020, Pages 426-431, Page Count - 6

EXPLORING THE INFLUENCES OF CELEBRITY ENDORSEMENT ON PURCHASE INTENTION AND BRAND LOYALTY AMONG RURAL YOUTH

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Abstract

Celebrity endorsement is a marketing strategy used by corporate companies or some non-profit organizations which involving the celebrities and a well-known reputed or intellectual person by using their social status and their fame in the society. It helps to organization to promote the product, service or even raise awareness on products In addition to that multinational corporations are used celebrity endorsement in the advertisement owing to strongly believed that the celebrities in advertisement have a unique vital and it create more influence on consumer buying behaviour, purchase intention and their brand loyalty. In India, normally people will consider celebrities such as cine starts and cricketers are their role models and they follow their trends such as dressing, hair styles and habits etc. In this paper, we considered the impact of celebrity endorsement among rural youth, students of their purchase intensions and loyalty of beverages used rural students. In order to examine the objective of the present study the data were collected out of the total population, using convenience sampling of 245 respondents are randomly selected. Data was collected through a well-developed structured questionnaire. The impact of celebrity endorsement is computed by using Smart Partial Least Squares (Smart PLS) tool. It is evident from the results; Celebrity Endorsement is played most significant role in shaping brand loyalty of a consumer based on their purchase intension.

Abbreviations: *CE, Celebrity Endorsement; BL, Brand Loyalty; PI, Purchase Intention*

Author Keywords

Celebrity Endorsement, Consumer Purchase Intention, Customer Loyalty

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INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

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AN EMPIRICAL STUDY ON ROLE OF COMMERCIAL BANKS ON ISSUING LOANS AND ADVANCES SELECTED AREAS, IMFACT ON ECONOMIC GROWTH IN INDIA

K subbareddyasst professor
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Abstract:.Banks performs important functions in the development of a country. The basic role of commercial banks is to mobilize financial resources to meet the financial demands of various productive sectors of economy. In other words economic development is economic progress of a country but Banks have catalyst role in economic development because banks control a large part of supply of money in circulation In India for improvement of Financing Internal and External Trade and Provision for Long-term Finance for the Improvement of Agriculture and various Consumers Activities. At present The study investigates the commercial banks how it helpful in economic development selected areas like industry sector, agriculture sector and external trade and internal trade and Progress under Financial Inclusion Plans in between the period 2011-2019.

Key words: capital formation, economic development, agriculture financing, industries

I. INTRODUCTION

Activities of the commercial banks in India are expanding at a rapid space during the period after Independence. There is territorial as well as functional. Expansion of the activities of the bank. Banks which are conservative and conventional in their approach have come out from their shell and face the challenges of planned economic growth. In recent years non-conventional sectors are receiving the attention of commercial banks in India. A better understanding of the implications of financing nonconventional sector by commercial banks is possible only if one looks back the position of commercial banks during the pre-nationalization era banking in India before nationalization. Commercial Banks are is the institutions that ordinarily accept deposits from the people and advances loans. The banking sector in India comprises of banks big and small, public, private, old and new, viable and nonviable. There are wide diversities' in their sizes, organizational patterns geographical presence and functional specialization. India commercial banks operate both in urban and rural areas and foreign banks function in cities and ports..

1.2 CLASSIFICATION OF COMMERCIAL BANKS

1. Scheduled banks: - Banks which have been included in the Second Schedule of RBI Act 1934. They are categorized as follows:
2. Public Sector Banks: - are those banks in which majority of stake are held by the government. Eg. SBI, PNB, Syndicate Bank, Union Bank of India etc.
3. Private Sector Banks: - are those banks in which majority of stake are held by private individuals. Eg. ICICI Bank, IDBI Bank, HDFC Bank, AXIS Bank etc.
4. Foreign Banks: - are the banks with Head office outside the country in which they are located. Eg. Citi Bank, Standard Chartered Bank, Bank of Tokyo Ltd. etc.
5. None scheduled commercial banks: - Banks which are not included in the Second Schedule of RBI Act 1934.

1.3 review of related literature:

Tripathi, L. K., Parashar, A., Mishra, S. (2014): The present study, with the help of multiple regression model attempts to investigate the impact of priority sector advances, unsecured advances and advances made to sensitive sectors by banks like SBI group and other nationalised banks on Gross NPAs of banks.

Ram Mohan TT (2010) in article highlighted the fact that despite the worst financial crisis of the century, Indian banking sector fared well. Indian banks showed 1% ROA in both 2007-08 and 2008-09. Capital adequacy and spread also improved. All these indicators place banking sector among most profitable banks in the world today. ROA of 1% is a benchmark of good performance in banking despite the ups and downs of the economy. This shows that Indian banking is crisis proof. It is suggested that banks need more sophisticated products and should meet the challenge of financial inclusion.

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Measuring Service Quality in Hotel Industry with Reference to the Hotels in Hyderabad City

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ABSTRACT:

The purpose of the study is to measure customer expectations and perceptions as well as to identify the gap between expectations and perceptions. The study also focused on analyzing the influence of service quality on customer satisfaction in star hotels. For this 10 hotels are selected randomly and from them a sample of 220 is extracted through convenience sampling method. The statistical tools like mean, standard deviation, t-test and regression analysis are used to analyze the data. It is found that the 25 attributes related to service quality used in the study are very significant. It is also found that the service quality factors selected for the study are highly significant with customer satisfaction. From this it is concluded that the service quality is very important in hotel industry because quality service makes the existing customers satisfied and it also helps in drawing out new customers to have long sustainability of the hotel industry.

KEY WORDS:

Service quality, tangibility, reliability, responsiveness, assurance, empathy and customer satisfaction.

INTRODUCTION:

Competition is very large in the market to attain and retain customers in every sector. Hotel is one among them. There is a greater number of hotels in the society and the owners of the hotels need to focus on service quality in order to retain existing customers and add new customers. Service quality is the term that speaks about maintaining quality in provision of service.

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Jeopardy and Arrival Analysis of Certain Cement Securities in India

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Abstract

Risk reference to the likelihood that the real result of a venture will vary from its normal result. At the end of the day, the hazard is the chance of misfortune or the likely result of all the potential occasions. Most financial specialists are worried about the genuine result being not exactly the normal result. The level of hazard relies on the highlights of advantages, speculation instruments, methods of the venture, and so on. The more extensive scope of potential results, the more noteworthy the hazard. Hazard comprises of two parts, efficient hazard, and unsystematic hazard. The orderly hazard is brought about by factors outside which are wild and influence the market all in all. The unsystematic hazard is because of reasons which are explicit, one of a kind and specific to industry or organization. As of June 2019, concrete creation limit remained at 28.3 million tons for each annum (MTPA). Limit expansion of 20 million tons for every annum (MTPA) is normal in FY19-FY21. The Indian concrete industry is ruled by a couple of organizations. The best 20 concrete organizations represent just about 70 percent of the all-out concrete creation of the nation. The paper concentrating on hazard and return evaluation of chose concrete protections in India.

Keywords: *Cement, India, Investment, Jeopardy (Risk), Arrival (Returns) Performance, Risk, Return, Securities.*

1. Presentation

Risk is focal present-day society, both as a maker and as an irksome idea. From one viewpoint, hazard alludes to a circumstance of chance. Just the individuals who embrace a hazard bear the vulnerabilities and face the potential unfriendly outcomes may again the prizes. Then again, hazard alludes to principal vulnerability; at the hour of hazard taking, one can't know without a doubt whether the open door concerned will be acknowledged; in the most pessimistic scenario, the expenses acquired may be more prominent than any advantage. Hazard, in this manner, expands the extension for both balanced and apparently silly choices: without the eagerness to attempt a hazard a few open doors may never be understood; the expenses of an ineffective unsafe choice, be that as it may, might be unbearably high and may, therefore, exclude the entire venture looking back.

Each venture is portrayed by hazard and return. Hazard is a circumstance including an investigation of vulnerability. At the point when a speculator uses assets into certain protections, he/she does as such subsequent to examining the normal return. On the off chance that real return gets is equivalent to the normal return; such speculation viewed as hazard-free, for example, a

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INDIAN STARTUP ECOSYSTEM- ISSUES, CHALLENGES AND OPPORTUNITIES

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Abstract: *The objectives of a startup are to be one's own boss and to create employment to others which warrants lot of endurance and sacrifice. Large population with high percentage of middle income group, educated youth with technical background, IT domination, high internet and mobile penetration are some of the drivers that have thrown up opportunities for spreading startup revolution in India. The 'Make-in-India' initiatives and other government schemes have also given a boost to startups with many individuals entering the fray. Starting a venture is a well planned and disciplined exercise with due consideration of both internal and external factors that may impact the sustainability of the venture. The idea behind the venture, market size, revenue and profit targets are some of the important factors that need to be clearly defined before embarking on the journey. Time, team work and tenacity are important elements which determine entrepreneurial success. Infrastructure, government regulations and availability of finance at various stages of growth could be some of the challenges for startups. In fact, history is replete with examples of startups which began with big fanfare but ended as damp squibs within a short span of time due to various reasons. The paper discusses few issues and challenges that an Indian startup has to face and the opportunities that the country can provide in the current ecosystem.*

Key words: *Entrepreneur, Employment, Finance, 'Make-in-India', Startup.*

1. INTRODUCTION

A startup venture could be defined as a new business that is in the initial stages of operation, beginning to grow and is typically financed by an individual or small group of individuals. It is a young entrepreneurial, scalable business model built on technology and innovation wherein the

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A Speculative Model to Explore Data Hub and Quality of Service in IAAS Cloud Computing Systems

N. Narasimha Prasad, P. Swathi, P. Kavitha

Abstract: ***Cloud server ranch the specialists is a key issue in context on the one of a kind and heterogeneous systems that can be applied, associating from the VM circumstance to the union with various fogs. Execution appraisal of dissipated figuring establishments is required to predict and assess the cash sparing favored circumstance of a framework portfolio and the relating thought of affiliation experienced by customers. The experience of the customers accepts a crucial activity to envision the structure utilized. Such assessments are not practical by reenactment or on the field experimentation, by ethicalness of the fantastic number of parameters that must be investigated. In this work, a logical model is presented, considering Stochastic Prize Nets (SRNs), that is both versatile to show structures made out of thousands of benefits and versatile to address different methodologies and cloud-express systems. A couple of display estimations are portrayed and evaluated to investigate the lead of a cloud server ranch: use, openness, holding up time, and responsiveness. These estimated attributes are concerned to be major factors for assessing the performance analysis of the system. An adaptability examination is also given to consider load impacts. Finally, a usual philosophy is shown that, starting from the possibility of system limit, can help structure managers to fortunately set the server ranch parameters under different working conditions. These conditions are said to be feasible for the functioning of the system without any hassles.***

Keywords: ***Execution assessment, Cost-advantage, Quality of administration, Cloud-explicit, Resiliency examination.***

I. INTRODUCTION

Scattered figuring is the utilization of getting ready assets (rigging and programming) that are passed on as a help over a system (ordinarily the Internet).

The utilization factor of the available assets and attributes has a tremendous impression on the system such that ringing phenomenon can be verified at the earliest. The name begins from the basic utilization of a cloud-molded picture as a discussion for the confounding foundation it contains in framework charts. Scattered enrolling supplies remote associations with a client's information, programming and figuring.

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Scattered handling includes equipment and programming assets made open on the Internet as regulated pariah associations. These associations for the most part offer access to forefront programming applications and wonderful quality structures of server PCs.

Based on the associations, the varied applications are concerned during the programming and its quality assessment is also performed to ensure the effective implementation. The objective of scattered handling is to apply normal super enrolling or unmatched figuring power, generally utilized by military and research working environments, to play out a colossal number of estimations for each second, in customer orchestrated applications, for example, budgetary portfolios, to pass on changed data, to give information collecting or to control tremendous, striking PC games. The flowed handling utilizes systems of epic social events of servers for the most part running straightforwardness buyer PC progression with express association with spread information arranging tasks crosswise over them. This typical Information Technology foundation contains monstrous pools of frameworks that are related together. As a rule, computed systems are utilized to develop the power of appropriated processing. Cloud figuring is a promising headway arranged to assets will be gotten to sooner rather than later. Through the arrangement of on-request access to virtual assets accessible on the internet, cloud frameworks offer associations at three excellent levels: foundation as assistance (IaaS), organize as a help (PaaS), and programming as a service (SaaS). Specifically, IaaS hazes give clients computational assets as virtual machine (VM) occasions sent in the supplier server farm, while PaaS and SaaS mists offer associations to the degree express arrangement stacks and application programming suites, independently. The corresponding arrangement schema must be drafted in an satisfactory environment and it should not be dependent on any other attributes. To intertwine business fundamentals and needs on application stage, like nature of association (QoS), cloud association provisioning is facilitated by association level agreements (SLAs): contracts among customers and suppliers that express the cost for assistance, the QoS levels required during the association provisioning, and the orders related with the SLA infringement. In such an extraordinary condition, execution assessment expects a key action engaging structure boss to review the impacts. of various asset the authorities methodology on the server farm working and to foresee the relating costs/benefits. Cloud structures change from common coursed systems. To the exclusion of everything else, they are portrayed by countless focal points that can explore specific authoritative spaces.

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Efficient Intrusion Detection Using Deep Learning Approaches

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***Abstract*:** The main element in life is privacy, even in usual day-to-day life or in the world of the cloud. The major idea which is beyond the IDS concepts in a system is to discontinue the unknown events occurring from the surrounding or between the systems. It is suggested that the IDS be sent at two focuses. As there is a firewall securing the host organization or the private organization, it is smarter to put the IDS behind the firewall. The IDS sent can work effectively and search for suspicious events inside the organization. The attacks come from outside the host organization, or from the web that is attempting to send information to the host system. This research work can help in constructing IDS, using deep learning methods such as XGBoost, and MLP that can watch out for the information entering an organization and all the while sort out the unauthorized events. Among the two methods, MLP produces a better result in terms of accuracy value of about 89.5% compared to XG Boost algorithm which is 88% respectively.

Keywords: *Intrusion Detection, Deep Learning, Accuracy, Network Attacks, Accuracy*

1. Introduction

IDSs are safety devices used to identify suspicious actions. NIDS is extraordinary compared to other known settings of AI applications in the security field. IDSs can be arranged utilizing a few rules. One of these standards is the discovery approach, as far as which IDSs (and NIDSs) can be anomaly or signature-based. The former class predicts attacks by contrasting the information stream under examination with designs put away in a mark data set of known attacks. The latter recognizes irregularities utilizing a model of typical conduct of the monitored system and flagging behavior lying outside of the model as suspicious. Signature-based IDSs can recognize notable attacks with high precision yet neglect to predict or discover unknown attacks, though anomaly-based IDSs have that limit. [1].

Supervised ML techniques when applied to recorded ready information can essentially further develop grouping accurateness and reduce research time for examiners. It can enhance investigators with extra information and bits of knowledge to settle on better decisions. However prediction systems dependent on recorded information can further develop examiner efficiency, they won't ever supplant security investigators inside and out.

The objective of a NIDS is to produce cautions when the opposition attempt to break in or assault the organization. Believe a stream to be a grouping of IP packages with comparative elements. Normally an intrusion includes a couple of streams tucked away among many real streams. In factual terms, the issue of recognizing some of the streams in a huge arrangement of streams is like the issue of predicting Higgs bosons.

The main purpose of the IDS is to identify the unknown events, log security-based events, decrease the data damage level, block unauthorized events, and report about the intrusion occurrence. Figure 1 illustrates the main usage of the IDS.

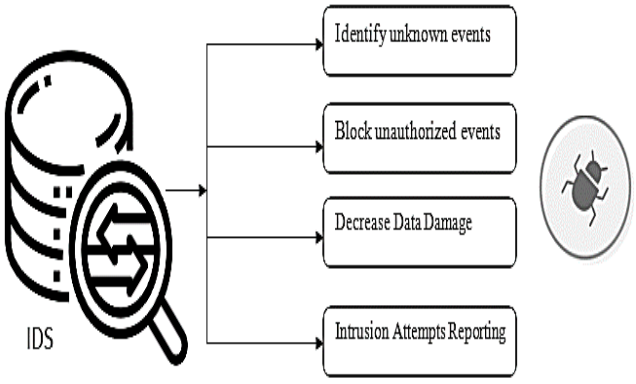

Figure 1: Purpose of IDS

This paper will introduce a model through which different boundaries identified with the information are determined, because of which IDS could be created to assist with getting the organization using deep learning methods. Part 1 provides a concise introduction about IDS and its importance; part 2 cover-up the literature survey associated with the current topic which will illustrate the different approaches used to categorize the data; part 3 elaborates the current research work's theoretical background including XGBoost and MLP; part 4 presents the output received through MLP and XGBoost on the

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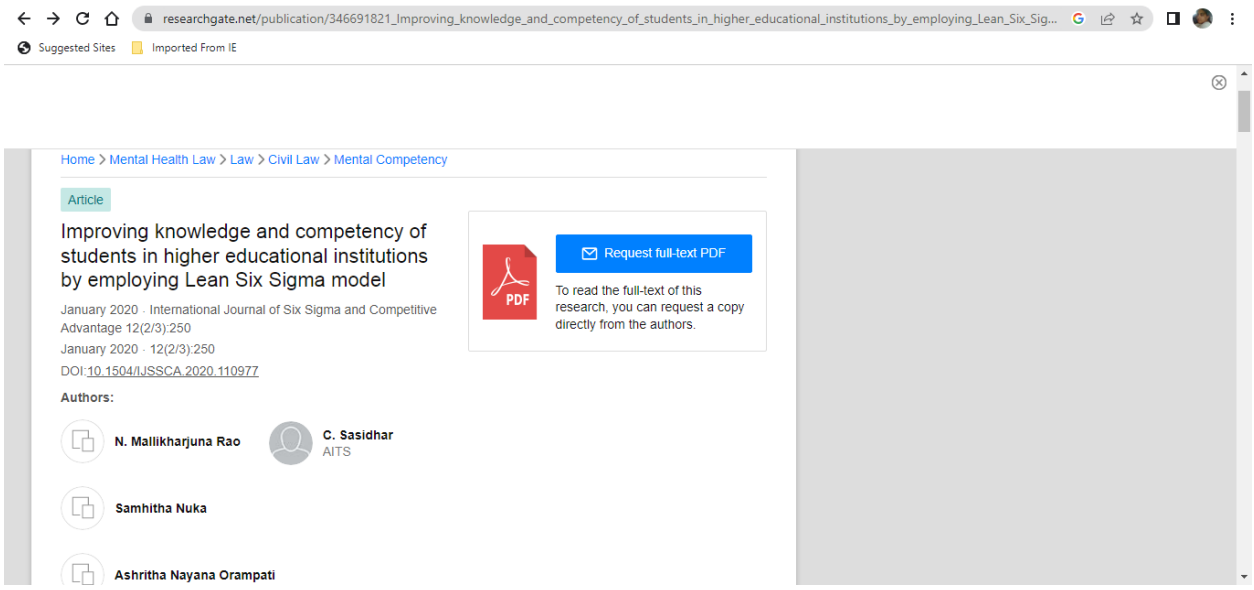
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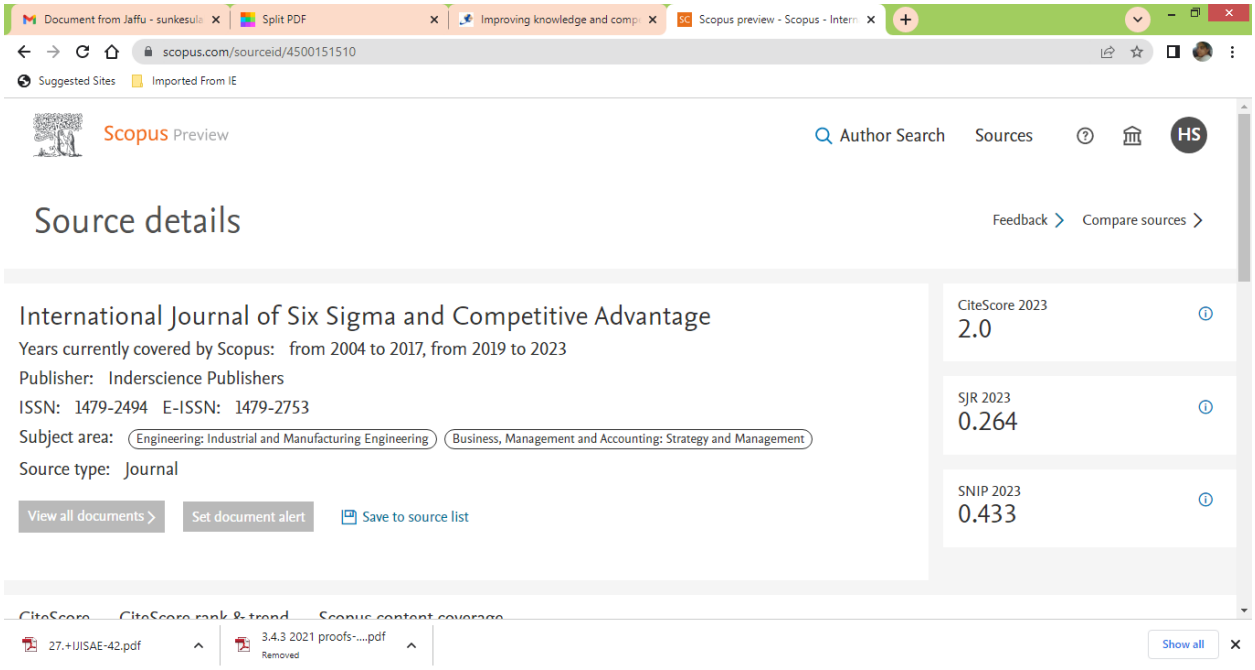
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Seasonal forecasting of mobile data traffic in GSM networks with linear trend

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Recently, the popularity of predictive analytics has grown in many areas. For mobile networks, it is the most critical technique that can offer the advantages of mobile network planning to operators for predicting the mobile traffic of each Long Term Evolution (LTE) market. It can help operators spend the least investment on new sites and new communities but can guarantee an excellent service experience for mobile broadband users. Mobility management essentially has two databases: one is the Home Location Register (HLR) and the other the Visitor Location Register (VLR) is. The mobile user can move to call tracking from anywhere in the network location registry. In mobile data networks, an essential factor is a demand for telecommunications containing the number of subscribers and the prices for the required service data. To understand what subscribers need to build customer satisfaction, this requirement needs to be precisely predicted. In this context, the approach to forecasting mobile telephony used in Indian telecommunications, in our view, does not fully take into account the demand for data already recorded on its core network. In this paper, we are analyzing the Seasonal Forecast Time series model (SFT). This approach is used in this paper to first analyze the transferred data traffic from the core network of the operator to find a suitable model describing the inherent characteristics of data traffic and the use of model for future predictive loading in VLR database.

Keywords: Mobile Data Traffic; Seasonality forecasting; Time series analysis; HLR-VLR databases

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1. Introduction

The mobile phone industry has grown in the last decade. They play an important role in people's lives. One of which is an introduction to many of the best service technologies (Over-the-top), which helps drive the demand for information and voice traffic in mobile networks to grow at a steady rate at a relatively high level, the data flow is rapidly increasing [1]. Customers are concentrating increasingly on the use of mobile data. For example, between 2010 and 2015, multimedia traffic accounts for 10% to 50% [2]. Compared to revised estimates of transport demand for 2005 and 2020 estimates made in 2012 show that previous forecasts significantly underestimate future levels of mobile data [3]. Third-generation technology developed by the mobile network (3G) to enable the efficient delivery of high-traffic networks has altered the operating conditions and technical complexity. In many ways, 3G technology can be seen as GSM and GPRS having made changes related to the network access segment. As well as the subscribers expanding rapidly, the service providers face challenges in meeting customer needs [4]. The number of subscribers is increasing as new users. The company is calculating ability as technology expands available networks to handle traffic and provide customers at the lower end of the service quality they need. Capacity forecasting and network preparation based on expected traffic are necessary to properly manage data explosions. It should be noted that in a low-traffic environment, allocating a large number of resources would result in low resource utilization, a waste of costly radio transmitters. Allocating certain resources to high-traffic areas can result in congestion in the system that ultimately leads to poor quality service units [5].

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International Journal of Advanced Science and Technology

AN EMPIRICAL SURVEY ON FREQUENT EXTRACTIONS IN DATA STREAMS OF MOBILE NETWORKS

V.SATHYENDRA KUMAR et. al

Abstract

Frequent data mining patterns is a stimulating and difficult problem due to the emergence of recent applications and restricted resources in terms of main memory and time interval. Based on the lack of existing algorithms, this paper analyzes the sliding window model and proposes an effective sliding window data mining model algorithm. This method provides an extracted dynamic sliding window using a series of simple lists of existing items in the window. For every component of the window, chooses the most extreme stockpiling proficiency list type dependent on its recurrence to store the presence data.

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