Stage of Groundwater Development – A Case Study for Handri River Basin, Andhra Pradesh, India

Gouse Peera D.

Assistant Professor, Civil Engineering Department, AITS, Rajampet-516126, Andhra Pradesh, India.
Email: gouse_mgr@yahoo.in; Mobile: +91 99636 25425

Bhavani R.

Professor,Civil Engineering Department, JNTUA, Ananthapuramu-515002, Andhra Pradesh, India.
Email: rbhavani77@yahoo.com

Abstract: *Estimation of stage of groundwaterdevelopment is essential for efficient groundwater resources management. Thepresent research entails the assessment of stage of groundwater development is estimated forHandri river basin, a tributary of Tungabhadra river in Andhra Pradesh, India. Variousdata is collected from various agencies. Stage of groundwater development is estimated forvarious watersheds which are fall under Handri river basin for both commandedand non-commanded areas for both monsoon and non-monsoon seasons. The componentstage of groundwaterdevelopment helps in assessment of groundwater sources. Groundwater EstimationCommittee (India) guidelines are followed in this assessment of stage of groundwaterdevelopment. The components net annual groundwater availability, annual grossgroundwater draft for all uses and net annual groundwater availability forfuture use are involved in the computation of stage of groundwater development.*

Key Words: *Groundwater; Assessment; Stage; Development; River; Draft.*

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 (Nagaraj 2012). The main scientific concern is the correct understanding of the changes in quality and quantity of groundwater caused by human activities and climate change.

Present methodology is based on recommendations of Groundwater Estimation Committee which is formed by government of India. For computation of stage of groundwater development various data is required. Data includes watershed area, canal particulars, well particulars, depth to water level bgl (m), rainfall, recharge, water bodies, area irrigated under groundwater and under surface water. The groundwater draft is used for recharge calculations by different methods such as Water Table Fluctuation Method and Rainfall Infiltration Factor method. This groundwater draft may be computed for command area, non-command area and poor groundwater quality area for both monsoon season and non-monsoon season.

Recharge from non-rain sources along with recharge from rain helps in assessment of groundwater sources. Non-rain sources are taken as seepage from canals, irrigation water applied by surface water and groundwater, tanks, ponds, water conservation structures like percolation tanks, check dams, dugout ponds/form ponds. All uses is considered as irrigation, domestic and industrial supply (GREM 2009).

2. STUDY AREA

The study area 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 (Fig. 1). 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.

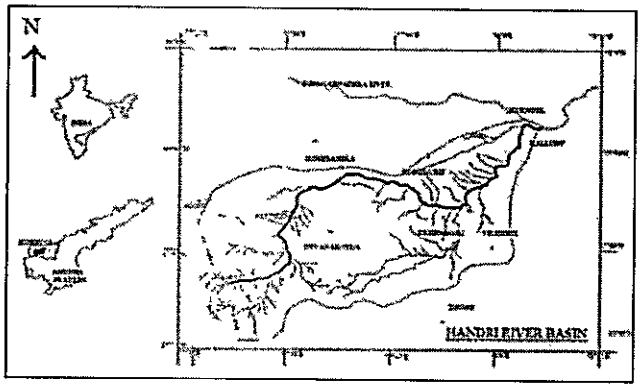

Fig. 1: Study area Map

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JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)

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Assessment of domestic water quality supplied from Annamaiah Project to Rajampet town

Mrs. N R Gowthami[1] , Mr K Ajaya Kumar Reddy[2]

[1]Assistant Professor, Department of Civil Engineering, Annamacharya Institute of Technology and Sciences, Rajampet–516126, Kadapa-District, Andhra Pradesh, India.

ORCID: https://orcid.org/0000-0001-5606-8002.

nrgowthamireddy@hmail.com,

[2]Assistant Professor, Department of Civil Engineering, Annamacharya Institute of Technology and Sciences, Rajampet–516126, Kadapa-District, Andhra Pradesh, India.

[1]*E-mail: nrgowthamireddy@gmail.com,

[2]**E-mail: kakr.me@gmail.com,**

Abstract- Drinking water supply and sanitation in India continue to be inadequate, despite longstanding efforts by the various levels of government and communities at improving coverage. Though Water is the basic need for the human race, quality water must be ensured before the water is supplied to the households. Hence in this current paper, the domestic water quality is assessed which were supplied to Rajampet town from Annamaiah dam. The total region of Rajampet town is divided in to 5 zones. Further in these zones the water samples are collected and tested for P^H value, Alkalinity, hardness, turbidity, chlorine, acidity, electrical conductivity, dissolved oxygen, total solids, and chlorides. It is interpreted that hardness is high in zone-IV & V and remaining were in permissible limits.

Keywords: P^H value, Alkalinity, hardness, turbidity, chlorine, acidity, electrical conductivity, dissolved oxygen, total solids, and chlorides.

1.Introduction

It is a proved fact that dominant role is played by water on life of earth in terms of human, flora and fauna. Hence in India like countries with rapid urbanization leads to greater necessity for both water supply and sanitation. Where proper care has to be taken for municipal water supply, in this direction in order to access the municipal water supplied to the Rajampet town from Annamaiah project(dam). In order to take up the assessment, usually radial system is adopted for the water supply and the entire rajampet town is divided in to five zones. The five zones are namely Mannuru, Municipal office park site, RDO office, Ramnagar, Park site. These zone divisions are collected from municipality office, Rajampet. Further ten water samples are collected in each zone and these samples are assessed for its quality.

2. Water Distribution Network

The water stored in the Annamaiah project were collected through intake wells and are supplied through pipes to the water treatment plant located near the dam. After that the water is treated and stored in a overhead tank by applying few chlorine based disinfectants and then further they were supplied through municipal taps to the dwelling units for drinking and domestic purpose as shown in

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Articles

An empirical implementation model of total quality management in construction: Southern India

N. R. Gowthami, C. N. V. Sridhar & N. Venkata Ramana

Pages 3023-3033 | Published online: 14 Dec 2020

Cite this article | https://doi.org/10.1080/15623599.2020.1839703 | Check for updates

Abstract

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Although Indian construction companies are facing serious problem of not accomplishing quality level due to ineffective quality management systems. An appropriate mechanism is required for supporting the construction management (CM) as the initial phase of the project is vital in terms of available resources, time, quality and cost. Achieved by executing Total Quality Management (TQM) in construction. Of course, broad research has taken place in exploring the levels of implementation model of TQM in construction at different countries and relating states that suits their respective region (geographical location). Similarly, in the current research, an empirical implementation model of TQM is required to be developed which suits the local scenario (Southern India – Andhra Pradesh, Hyderabad and Bangalore) in order to meet construction requirements in terms of customer satisfaction, cost, quality and time. Initially, critical success factors (CSFs) are identified as top management (TM), customer satisfaction (CS), Teamwork, training and employee empowerment (TTE), continuous improvement (CI), process (PM), design (DM), supplier (SM) and quality management (QM). Further key factors are identified under each CSF to conduct questionnaire survey at different regions of Andhra Pradesh, Hyderabad and Bangalore. The survey report is interpreted by descriptive and statistic reliability tools, to develop an empirical model of executing TQM in construction. It is outlined that CSFs considered are important for the successful implementation of TQM and the order of significance of CSF as follows TTE, TM, SM, QM, CI, PM, CS and DM.

Keywords: Construction total quality management (TQM) critical success factors (CSFs) key factor (KF)

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Introduction

In India, construction industry is the second leading industry after agriculture. As per Ministry of Commerce and Industry (2019), '9% of India's GDP is spent on infrastructure service, Also, infrastructure is solely responsible for improving the growth of other sectors'. 'India has become a large market for infrastructure and construction works with the contribution of 738.5 billion $ in FY-2017 and is aimed to be the third largest market in world by 2025' (KPMG Infrastructure Report 2017; Economic Survey 2018–19) 'Government of India invests a worth of 50 trillion on infrastructure by 2022 to enrich the investments for the coming years'. 'Quality management (QM) is currently a very important issue responsible for organizational growth and the success of a company in national and international markets' (Belle 2000; Sui Pheng and Ann Teo 2004) in spite of the problems, TQM cuddles the ideology, principles, methods and practices required to satisfy the customer by attaining productivity and business

In this article

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JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)

An International Scholarly Open Access, Peer-reviewed, Refereed Journal

Analysis of Water Quality Characteristics at Annamayya Project , Rajampet, Kadapa.

S.Venkata vara Prasad[1] ,Dr.T.Velayutham[2] ,Dr.T.Naresh Kumar[3]

[1]Research Scholar , Annamalai University , Chidambaram , Tamil Nadu.

[2]Associate Professor, Annamalai University, Chidambaram , Tamil Nadu.

[3]Associate Professor , H.O.D., A.I.T.S. Rajampet , Kadapa , Andhra Pradesh.

Abstract:

Annamayya Project (Cheyyeru) is a completed Medium Irrigation Project constructed across Cheyyeru, a tributary to Penna River located near Badanagadda (V), Rajampet Mandal, Kadapa District. The water pollution that raise problems for existence of life on the earth. The people using river water from long time after river water contaminated suddenly moves on utilization of ground water and everyone are depends on ground water and fulfill their needs. Surface water ground water are connected with hydrological interaction with surface water pollution causes ground water pollution. Ground water contaminations will strongly impact on global water cycle. The quality of water depends on the location of source and state of environment protection in a given area. High content of total dissolved solids (salinity), fluorides, iron and manganese are the special characteristics of some groundwater. The present work confines in testing the water samples for drinking and construction purpose collected from Annamayya Dam.

Keywords: Annamayya Project, ground water, water samples

1. INTRODUCTION

India's National Water Policy is meant to provide a definite course of action on water management, ensuring the country's population of nearly 1.3 billion and industries have access to adequate water for various uses. Safe Water for drinking and sanitation should be considered as pre-emptive needs, followed by high priority allocation for other basic domestic needs (including needs of animals), achieving food security, supporting sustenance agriculture and minimum eco-system needs.

Water is necessary for all forms of life as well as industries on which humans are reliant, like technology development and agriculture. This global need for clean water access necessitates water resource policy to determine the means of supplying and protecting water resources. In the allocation of water, first priority should be given for drinking water, followed by irrigation, hydro-power, ecology, agro-industries and non-agricultural industries, navigation and other uses, in that order.

The Annamayya Project was constructed across the Cheyyeru river which is a tributary to the Pennar river. The project is located near the Badanagadda village, Rajampet Mandal, Kadapa District. Annamacharya Dam which has previously named as Cheyeru Dam. nnamayya is located near Badanagadda in Rajampet mandal. It was taken up in 1981 and completed in 2001 with total ayacut of 22,500 acres.

The project has only a right canal of 23.63 km. This project is useful for Agriculture and drinking water for 140 habitations under Rajampet Mandal. The places which are getting benefitted from the project are Akepadu,Hastavaram,Mandapalle,Rajampet,PullampetMandals:Utukur,Bramhanapalle,Mittampalle,Puttanavaripalli,Devasamudram,Seshamambapuram,Balrajupalli,Mannuru,Anantharajugaripalli etc.,

Sampling devices:

Depending on the type of sample collection, sample apparatus or specialised equipment (pumps, automatic samplers) are employed. Further, auxiliary equipment such as cool boxes, tubes, ropes, cables, plastic bags, spades or gas burners to ensure sterile bottling of samples for bacteriological testes are not further mentioned here. The choice of sample container is of prime importance in most cases, containers of polythene or glass are employed. Materials which are not suitable for use with water containing substances should be noted. Samples having non polar organic contaminants should not be placed in plastic containers, whereas glass containers are unsuitable for use with water in which low concentration of sodium potassium, boron or silicic acid are to be determined.

Preservation, transport and storage of samples:

Water is dynamic system during sampling, the water is removed from its natural environmental due to this change the chemical composition of water may not remain same, but may tend to adjust itself according to its new environment

Novel approach to stability analysis of DC drive with parameter uncertainty and perturbation in feedback system

Pasala Gopi

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Abstract

Purpose

The purpose of this study is to analyze direct current (DC) drive stability, including parameter uncertainty and perturbation in the feedback loop, by computing disk margins.

Design/methodology/approach

Although the closed-loop stability analysis of a DC drive has been presented well in the referenced papers, the effect of parameter uncertainty and perturbation in the feedback loop has not yet been discussed well. In this study, the conventional and disk-based stability margins were measured and compared for the nominal parameters of the DC drive. Subsequently, the smallest disk-based margins that destabilize the feedback loop for a given perturbation are computed and compared with normal disk margins.

Findings

The disk-based margin offered by the DC drive controlled by the JAYA-PID controller is disk gain margins (DGM) = 8.41 dB and disk phase margin (DPM) = 48.410 and the smallest disk-based margin offered is DGM = 1.51 dB and DPM = 9.950. In addition, the effect of the modeled uncertainty on the disk stability margins was analyzed, and it was observed that the maximum allowable parameter uncertainty with the JAYA controller was 73% of its nominal parameters. The simulation results were validated using an

Comparative Switching and Conduction Loss Analysis of a SVPWM and DPWM based DTC of Open-End Winding Induction Motor Drive

Siliveru Sarada *, Dr.N.Ravisankara Reddy **‡

*Department of EEE, Research Scholar, JNTUA, Anantapuramu.

**Department of EEE, Associate Professor, G.Pulla Reddy Engineering College, Kurnool

(saradasasi@gmail.com, netapallyravi@gmail.com)

‡Corresponding Author; Siliveru Sarada, Department of EEE, Research Scholar, JNTUA, Anantapuramu,

Tel: +918498969629, saradasasi@gmail.com

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Abstract- Multi Level Inverter (MLI) fed Direct Torque Control (DTC) exhibit superior dynamic performance. MLIs offers low stress on switching devices and allow devices with low voltage rating against high dc link voltage for a medium and high voltage drives. Dual inverter based MLI topology has gained popularity as each inverter operated as a two-level inverter. An improvised loss analysis is carried out for a DTC control based three level dual inverter fed Open End Winding Induction Motor (OEWIM) drive is implemented in this paper. Switching and conduction losses are the measure of conversion efficiency of an inverter. These losses are also causing high junction temperature and consequent device failure. Higher the switching and conduction losses lower will be the conversion efficiency. So, it is necessary to quantify these losses for the safe operation of the switching devices is concerned. These losses are depending mainly on type of Pulse Width Modulation (PWM) scheme used for the generation of pulse pattern. Comparative loss analysis as a function of modulation index for Decoupled and Alternate Inverter Switching (AIS) based Space Vector PWM (SVPWM) and Discontinuous PWM (DPWM) schemes. So based on the operating conditions, a particular PWM scheme can be selected.

Keywords DTC, SVPWM, DPWM, Switching and Conduction Losses.

1. Introduction

Most of the industrial applications require variable speed drives in order to obtain saving in energy. In classical days, induction motors are employed in constant speed drives only because, power semiconductor devices available on those days at the early stage of development. After invent of IGBT (Insulated Gate Bipolar Transistor), the drives technology has been stepped into new era. As the semiconductor device technology progresses, parallel development has been occurred in induction motor drives. Now a days, induction motor drives extensively used in variable speed applications owing to IGBT based Voltage Source Inverter (VSI)s. Added to this, induction motors are rigid in construction, easy adoption into various types of industrial loads.

The variable speed drives can be realized either by scalar control or vector control schemes. Volts/Hz control falls under the category of scalar control. In which voltage magnitude is changed based on the operating frequency. The main disadvantage of scalar control scheme is that poor dynamic response, sensitive to parameter variation etc. These disadvantages can be overcome in vector control scheme, in which magnitude as well as angle of the voltage vector is taken into account. In vector control there are two variants such as, Field Oriented Control (FOC) and Direct Torque Control (DTC). FOC is difficult to implement as it involves coordinated transformation and other complex mathematical manipulations. DTC scheme was developed in [1] is the most widely used control scheme as it offers fast dynamic response. But classical DTC suffers from high torque and flux ripple, as it employs hysteresis controllers in torque and

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Body Sensor 5G Networks Utilising Deep Learning Architectures for Emotion Detection Based On EEG Signal Processing

S. Vairachilai [a], Ali Bostani [b], Abolfazl Mehbodniya [c], Julian L. Webber [c], O. Hemakesavulu [d], P. Vijayakumar [e]

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Abstract

Emotion recognition is an automatic detection of a person's emotional state through non-physiological or physiological signals. The EEG (Electroencephalogram) techniques are typically employed for recognizing feelings in real time and Artificial Intelligence (AI) could constitute a bridge between technology and its implementation in solving real-time issues in healthcare domain. This study develops a new deep learning based emotion detection based on EEG signal processing, named DLED-EEGSP (Direct LED-Electroencephalogram signal processing) technique for identifying the distinct kinds of emotions based on EEG signals by exploiting multi-head attention based long short-term memory (MHA-LSTM) method for emotion recognition. It recognizes the emotion states based on the higher order cross feature samples. The experimental result analysis reveals the supremacy of the DLED-EEGSP technique over other existing models with increased accuracy of 71.66%.

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Design of μ – controller for quarter electric vehicle with actuator uncertainties

Pasala Gopi [a], S. Venkat Rao [b], Ali Kimiyaghalam [c]

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Abstract

This research paper deals with the design of a robust controller for a quarter Electric Vehicle based active suspension system. When the vehicle hits the bump on the road, the active suspension system and the hydraulic actuator of the vehicle will inject the forces into the system to tune the performance. But, unfortunately, the injected force is not sufficient for fine-tuning performance. Here two control methods are proposed for controller design. Initially, H – infinity controller is designed for the nominal plant model for guarantee performance, and then an uncertain model is developed based on actuator uncertainty and designed a robust controller using μ-synthesis. The time-domain simulations using MATLAB (version 2021a) are carried out for nominal and uncertain models and results show that the μ-controller shows superior performance for balanced profile compared with passive and H – infinity controller. Finally, a quarter electric vehicle test rig is developed, experimental results are presented and discussed.

Introduction

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

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< Previous Next >

Abstract

Scheduling jobs and tools is a significant problem for manufacturing systems. Inefficient job scheduling and tool loading planning may result in under utilization of capital intensive machines and a high level of machine idle time. Therefore, efficient scheduling of jobs and tools enables a manufacturing system to increase machines' utilization and decrease their idle times. This paper addresses machines' and tools' joint scheduling with alternate machines in a multimachine flexible manufacturing system (FMS) to minimize makespan (MSN). Only one copy of each type of tool is made available in FMS where tools are expensive. The tools are stored in the central tool magazine (CTM), which shares and serves them to several machines in order to reduce the cost of duplicating the tools in every machine. The problem is to select machines from alternate machines for job-operations, allocation of tools to the job-operations and job-operations' sequencing on machines for MSN minimization. This paper presents nonlinear mixed integer programming (MIP) formulation to model this simultaneous scheduling problem and crow search algorithm (CSA) built on the crows' intelligent behavior for solving this problem. The results show that CSA is providing better solutions than Jaya algorithm and the usage of alternate machines for the operations can reduce MSN.

Design and Analysis of Fuzzy-Based Hybrid PV-Wind Power Quality Improvement for Local Nonlinear Loads Using MLMS

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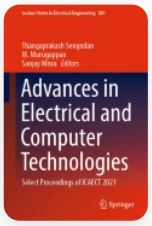

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Abstract

IoB: Sensors for Wearable Monitoring and Enhancing Health Care Systems

R. Saravanakumar, Pradeep Bedi, O. Hemakesavulu, N. Thangadurai, E. Poornima, Lakshmi Thangavelu, and D. Jayadevappa

The health care industry is very rapidly embracing the Internet of Bodies (IoB). The reason for this trend is that IoB features are widely integrated into medical devices that improve efficiency and quality of service. Ongoing surveillance is needed for seniors and patients with chronic diseases. The IoB health care spending solution will reach an astounding US $1 trillion by 2025 for some estimates. It sets the stage for accessible, highly personalized and timely health services for all. The sensors will be integrated into the environment or worn by the user to collect a wealth of information about mental and physical health. Such information, when exploited and aggregated on a continuous and effective basis, can lead to positive changes in the health care landscape. The patient's physiological state is monitored clinically using IoB sensors. By analyzing the collected information, the data will be sent to the processing centers for appropriate action in the cloud environment. The data will check the condition of normal people as well as the sensors. This paper focuses on an IoB application for health care using sensors like KY-039, LM35 and DB1820 and implementing Python middleware for data scripting.

Introduction

Internet of Things (IoT) interfaces with the body and their outcome data comprise the IoB. It is an expansion of the IoT and fundamentally interfaces the humans with an organization through devices that are ingested, embedded, or associated with the body somehow or another. Once associated, the information is traded, and the body and devices can be distantly observed and controlled [1]. IoB may invoke a couple of considerations that have nothing to do with the real essence of the term. However, it is tied in with utilizing the human body as the most recent informational stage. From the start, the idea appears to be very frightening, yet then when you understand the potential outcomes it makes, it turns out to be very energizing. This paper investigates that the IoB and discusses a few models used today and a couple of the difficulties they present. As the IoB advances, numerous individuals are now associated with it through wearable devices. The smart watch developed into a US $13 billion market by 2018 and is projected to build another 32% to US $18 billion by 2021. Smart toothbrushes and even hairbrushes are being considered as instruments to measure individuals' condition and behavior. [2].

For wellbeing professionals, the IoB opens the entryway to another period of powerful observation and treatment. In 2017, the U.S. Government Drug Administration supported the primary utilization of computerized pills in the United States. Advanced pills contain minuscule, ingestible sensors that are consumed just as medication [3]. When taken, the sensor is actuated in the patient's stomach and sends information to their cell phone or different devices. In 2018, Kaiser Permanente, a medical care supplier in California, began a virtual recovery program for patients recuperating from coronary failures. The patients imparted their information to their suppliers for consideration through a smart watch, taking into account better checking and a nearer, more persistent connection between patient and specialist [4].

Internet-associated devices like smart indoor regulators, voice-actuated partners, and web-empowered appliances have become omnipresent in American homes. These advancements are essential for the IoT, which has thrived as of late as customers and organizations are attracted to these devices for accommodation, productivity, and, by and large, fun. IoB innovations fall under the more extensive IoT umbrella. Yet, as the name suggests, IoB devices present a significantly more personal interchange among people and the devices. IoB devices screen the human body, gather measurements and other individual data, and send that information over the web. Numerous devices, like wellness trackers, are now being used [5].

IoT's sheer size of 30 billion (and then some) web-associated devices is amazing, and now we acknowledge that portion of devices that are associated with or at some point inside the human body. This developing industry of devices that screen the human body and send the information gathered using the web is growing each year. IoB alludes to devices put or embedded in the human body that keep a constant exchange between an assortment of contact focuses through the internet. This innovation utilizes the body as a data platform [6].

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DESIGN OF COLLABORATIVE ROBOTS FOR ARC WELDING APPLICATIONS BY USING "MOTOSIM SOFTWARE"

P.VEERA SANJEEVA KUMAR[1], A.HEMANTHA KUMAR[2], D.VISHNUVARDHAN REDDY[3], L.RAMAMOHAN REDDY[4].

[1, 2, 3,] Annamacharya Institute of Technology and Sciences, Rajampet-516126, (A.P), INDIA;

[4]Rajiv Gandhi University of Knowledge Technologies, Ongole - 523001, (A.P), INDIA:

Email: sanjeevpalagiri@gmail.com

ABSTRACT

The use of industrial robots or mechanized equipment for high-volume productivity has become increasingly common, with the general use of robotic gas metal arc welding (GMAW). The collaborative robots plays a vital role in the industrial applications. More widespread use of robotic welding required greater ability to control welding parameters and robotic motion, and improved detection and correction of faults. This work describes various aspects of robotic welding, the programming of robotic welding systems and the problems associated with this technique. It also discusses commercially available seam-tracking and seam-finding sensors and presents practical case-by-case application of sensors for semi-autonomous robotic welding. This study increases the familiarity with robotic welding and the role of sensors in robotic welding and the associated problems. With the help of dedicated simulation software called MotoSIM, we can design an arc welding simulation environment using Yaskawa arc welding robots. Moto SIM software uses inform III, the proprietary programming language of Yaskawa INC, which makes programming much easier compared to old generation programming languages such as variable assembly languages.

Key words: Industrial Robot, GMAW, MotoSIM, Seam Tracking Sensor, Seam finding Sensor.

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1. INTRODUCTION.

The era of robotics is completely reforms the world lifestyle .The manufacturing industry is most benefited one with usage of robots in the processing activities. The robots are performing the several tasks such as welding, casting, assembling, cutting etc. in manufacturing industry. The present research work is focused on the development of collaborative robot for arc welding applications. A Moto-SIM software is used for developing this robot.

Mikkel Knudsen1 Jari and Kaivo-Oja, [1] have discussed about Collaborative Robots: Frontiers of Current Literature. Marcos Vido et al. [2] have studied the impact of the collaborative robot on competitive priorities: case study of an automotive supplier.Ali ahmad malic and Arne Bilberg, [3] have submitted a research paper on Collaborative robots in assembly: A practical approach for tasks distribution. R. Perez-Ubeda et al. [4] have given a report on Study of the application of a collaborative robot for machining tasks.Yuvethieka Sri G V et al. [5] are investigated abot the Balancing Assembly Line Using Collaborative Robots in Modern Manufacturing Industry under Improvements of Efficiency and Ergonomics Study. Andrea Maria Zanchettin et al. [6] have presented a report of their research on Collaborative Robots in the Workplace. Alena Paulikova et al. [7] have investigated

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FABRICATION OF SOLAR INVERTERS FOR HOUSEHOLD APPLICATIONS

T. Mani Mohan[1], G. Eswar Balachandar[2], A. Hemantha Kumar[3]

1 & 2 Assistant Professors, Department of Mechanical Engineering, Annamacharya Institute of Technology and sciences, Rajampet, Annamayya Dist. Andhra Pradesh, India

aits.med.tmm@gmail.com, gebalachandar@gmail.com

3 Asst. Professor, Department of Mechanical Engineering, Annamacharya Institute of Technology and sciences, Rajampet, Annamayya Dist. Andhra Pradesh, India

ahkaits@gmail.com

Abstract:

Solar energy has incredible potential to power our daily lives. Solar power system is one of the best renewable energy technologies which is not only cost effective but environment friendly as well. The growing interest in the use of solar energy to mitigate climate change, reduction in the cost of Photovoltaic (PV) system and other favourable factors have increased the penetration of the PV systems in the domestic market and increase in the worldwide energy supply. The main component in a distribution of AC is a smart inverter which serves as a direct interface between the Renewable Energy System (RES) and the domestic power supply or power distribution grid. This paper work presents a fabrication of inverter with power control capabilities for renewable energy sources (RES) and Distributed Generators (DG). The type of the inverter to be designed is a Voltage Source Inverter (VSI). The VSI is capable of supplying energy to the utility grid with a well-regulated DC link at its input.

1.INTRODUCTION

1.1 INTRODUCTION:

Solar power charge controller is applicable in many sectors such as solar home system, hybrid systems, solar water pump system etc. solar panel converts sun light energy into electrical energy through an electrochemical process also known as photovoltaic process. Energy stored in the battery with the help of charging circuit through a diode and a fuse. This energy will be used in case of main power failure. In the battery chemical energy is converted into electrical energy which in turn illuminates electrical appliances or helps in pumping water from the ground. Therefore, we need to protect battery from over charge, deep discharging mode while DC loads are used or in under voltage as it is the main component in a solar power charge controller. Solar panel produce direct currents (DC) to convert into AC output at a certain required voltage level and frequency connect these panels to the electricity grid. Direct currents (DC) from solar panels are converted into alternating currents (AC) at a specific voltage and frequency when they are connected to the electrical grid.

The main component of the system, the DC-AC inverter, essentially performs the conversion from DC to AC. The output of the solar panels, however, is dependent on the ambient temperature and the intensity of the sun's rays at any given moment. This work focuses on the design and construction of a solar PV-based home with an uninterrupted power supply in an

MHD FLOW PAST A VERTICAL PLATE OF CASSON FLUID WITH HEAT AND MASS TRANSFER EFFECTS

P. Veera Sanjeeva Kumar
Department of Mechanical Engineering, Annamacharya Institute of Technology and Sciences, Rajampet, Kadapa - 516126, Andhra Pradesh, INDIA

L. Rama Mohan Reddy
Department of Mathematics, Rajiv Gandhi University of Knowledge Technologies, Ongole Campus, Ongole - 523001, Andhra Pradesh, INDIA

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Keywords: Casson fluid, thermal radiation, Grashof Number, Porous Medium, MHD.

Abstract

The mode of heat transfer will play an important role in the heat engineering applications. The present work is focused on analytical investigation of unsteady heat and mass transfer rate through porous medium in the presence of uniform transverse magnetic field along with radiation/absorption, heat generation/ absorption and homogeneous chemical reaction effects. The coupled nonlinear partial equations into ordinary differential equations by perturbation method. The effects of various parameters on flow characteristics are investigated .The results are presented through various graphs which are plotted for the effect of different parameters on fluid flow. Impact of Casson parameter leads to decrease the fluid velocity. The heavier species with low conductivity reduces the flow within the boundary layer.The Casson parameter is taken due to the significance of nonNewtonian fluids in real time applications in chemical industries and petroleum refineries.

Study on MHD Free Convection flow of a Casson Fluid Flow Past a Vertical Porous Plate With Uniform Boundaries

L. Rama Mohan Reddy [1] , P. Veera Sanjeeva Kumar [2] , K. Mohana Babu [3] and P. Chandra Reddy [4]

[1]*Department of Mathematics,*
Rajiv Gandhi University of Knowledge Technologies, IIIT-Ongole,
ONGOLE 523225 India
duggireddy.lingari@gmail.com

[2]*Department of Mechanical Engineering,*
Annamacharya Institute of Technology and sciences,
Rajampet 516115 , A.P, INDIA.,
sanjeevpalagiri@gmail.com

[3]*Department of Mathematics,*
Rajiv Gandhi University of Knowledge Technologies, IIIT-Ongole,
ONGOLE 523225 India
mohanababukumara@gmail.com

[4]*Department of Mathematics,*
Annamacharya Institute of Technology and sciences,
Rajampet 516115 , A.P, INDIA.
chandramsc01@gmail.com

Abstract

The current work focuses on the analysis of unsteady heat and mass transfer rates through porous media in the presence of a uniform transverse magnetic field, as well as radiation/absorption, heat generation/absorption, and homogeneous chemical reaction effects. Perturbation method is used to solve the coupled non-linear partial equations. Various parameters effects on flow characteristics are investigated. The results are presented in the form of graphs that show the effect of various parameters on fluid flow. The Casson parameter has an effect on fluid velocity. The flow within the boundary layer is reduced by the heavier species with low conductivity. Because of the importance of non-Newtonian fluids in real-time applications in chemical industries and petroleum refineries, the Casson parameter is used.

Subject Classification:[2020]76S05,35Q35,35Q40,80A21,80A30.
Keywords: Casson fluid, thermal radiation, Grashof Number, Porous Medium, MHD.

1 Introduction

The present investigation has been focused on how the influence of such foreign mater on the heat and mass transfer characteristics of the chemical fluid flows.The present essential need for various chemical industries and manufacturing firms is how to reduce or completely eliminate the adverse effects or hazards happened in different chemical reactions takes place during the processing of products. The main cause of this is due to presence of any foreign elements or unexpected agents in the processing. Faruk Abdullahi et al. [1] have investigated the Casson fluid effects on magneto-hydrodynamics (MHD) unsteady heat and mass transfer free convective past an infinite vertical plate. Haroon ur Rasheed et al. [2-3] have done the computer analysis to investigate the effect of mathematical abstractions on velocity, energy, concentration and the influence of skin-friction and Nusselt number. Also the effects of Joule heating and viscous

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Retraction

Retracted: Influences of Aqueous Nanofluid Emulsion on Diesel Engine Performance, Combustion, and Emission: IoT (Emission Monitoring System)

Advances in Materials Science and Engineering

Received 8 January 2024; Accepted 8 January 2024; Published 9 January 2024

This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

(1) Discrepancies in scope

(2) Discrepancies in the description of the research reported

(3) Discrepancies between the availability of data and the research described

(4) Inappropriate citations

(5) Incoherent, meaningless and/or irrelevant content included in the article

(6) Manipulated or compromised peer review

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

[1] B. Venkatesh, J. C. Babu, S. K. Mathivanan, P. Jayagopal, S. Prasanna, and M. S. Uddin, "Influences of Aqueous Nanofluid Emulsion on Diesel Engine Performance, Combustion, and Emission: IoT (Emission Monitoring System)," *Advances in Materials Science and Engineering*, vol. 2022, Article ID 8470743, 9 pages, 2022.

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Research paper UGC CARE Listed (Group -I) Journal Volume 11, Iss 4, 2022

Examination of Factors Impacting Numerical Simulation of Transverse Jet in Supersonic Flow

Mrs.K.Nagamani

Assistant Professor, Dept. Of Mechanical Engineering, Annamacharya Institute of Technology and Science, Rajampet, AP. India

Email: aits.med.knm@gmail.cim

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Abstract

Numerical simulation has emerged as a crucial research methodology in the realm of supersonic flow, with its precision and dependability remaining pivotal for its continued application and a focal point of ongoing investigations. This study conducts a series of numerical simulations concerning the transverse supersonic jet in a supersonic free flow, utilizing a Reynolds-averaged (RANS) solver. Initially, an examination of the flow field structures obtained from various computational cases is undertaken, elucidating the mechanisms underlying the differences in these structures. Subsequently, by varying the accuracy of the difference scheme for the convection term and the turbulence model, the resulting simulation outcomes are compared against experimental data. A comprehensive analysis of the deviations between numerical simulations and experiments is conducted to elucidate the critical factors influencing calculation reliability. The findings indicate that enhancing the accuracy of the scheme does not significantly improve calculation results, whereas the selection of an appropriate turbulence model proves beneficial in enhancing accuracy. The conclusions drawn from this study, particularly regarding the influence of numerical model methods and error analysis, can serve as valuable guidance for conducting numerical simulations of jet flow mixing in supersonic flow fields.

Keywords: RANS simulation, jet in supersonic cross flow, calculation accuracy analysis.

Introduction

Hypersonic aircraft powered by scramjet can reach all places in the world within 2 h, attracting countries to compete for research and development. The scheme of using wall normal fuel injection in scramjet combustor has become one of the simplest and most effective fuel mixing enhancement methods,[1] which has the characteristics of simple configuration and high mixing efficiency. In its flow field, jet/boundary layer interaction, large-scale shear vortex, shock/wake interference and other issues are hot topics in the study of turbulent flow and mixing mechanism under supersonic conditions.2–4 At the

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"Minimization of Total cost in CMS Design with Production Cost, Subcontracting Cost, and Machine Cost using PSO"

C Thirupathaiah[1], K Nagamani[2], S M Saleemuddin[3],P Suresh Babu[4]

[1,2,3]Assistant Professor, Dept of ME, AITS, Rajampet, AP.
4 Assistant Professor, Dept. of EEE,AITS, Rajampet, AP.
cblthiru@gmail.com,saleem324@gmail.com
Corresponding Author: S M Saleemuddin

Abstract

The objective function for the mathematical model represents the goal of optimizing the design of a CMS based various parameters. The objective is to minimize the total cost while considering factors such as sequence of operations, workload balancing among cells, operation cost and cost of subcontracting. The objective function is composed of three man components: production cost, sub-contracting cost and machine cost. The production cost accounts for the cost of processing of each part on specific machines within the cells. The subcontracting cost considers the cost associated with outsourcing parts for processing. The machine cost reflects the cost of using the machines within the cells.

By minimizing the objective function, the model aims to find an optimal configuration of the CMS that achieves efficient production, balances the workload among cells and minimize the costs. The model considers various constraints to ensure the feasibility and practicality of the solution.

Keywords: Processing time, Sub-contracting cost, Production Cost.

Introduction

Cellular manufacturing is a production system that organizes the manufacturing process into self- and reducing waiting times. This leads to improved productivity and shorter lead contained work cells, each dedicated to producing a specific set of products or components. It is a lean manufacturing concept aimed at improving productivity, efficiency, and flexibility in the production process.

In a cellular manufacturing system, the traditional functional layout of a factory is replaced by a layout that groups together machines, equipment, and personnel according to the products or families of products they produce. Each cell operates as a mini-factory within the larger manufacturing facility, capable of completing a specific part of the production process independently.

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PERFORMANCE ANALYSIS OF CI ENGINE BY USING DIESEL AND DISTILLED WATER

Suresh Babu G[1], Ramanjaneyulu C[2]

[1,2]Assistant Professor, Department of Mechanical Engineering, Annamacharya Institute of Technology and Sciences, Rajampet, A.P., India.

Email: **sureshbabuhere@gmail.com[1], aits.med.crmnl@gmail.com[2]**

Abstract

The ubiquitous challenge of achieving a harmonious balance between the growing energy demands and the imperatives of environmental sustainability remains formidable. The exploration of alternative fuels and fuel-blending techniques for CI engines emerges as a pivotal strategy to ameliorate emissions without compromising engine performance. This research elucidates the experimental investigation into the performance and emission characteristics of a CI engine when operated on diesel and a formulated blend of diesel and distilled water.

A meticulous examination of the engine's thermal efficiency, brake specific fuel consumption (BSFC), brake thermal efficiency (BTE), and emissions (such as NOx, CO, CO2, and particulate matter) across a spectrum of load conditions was undertaken. A series of tests were conducted by employing neat diesel and diesel-water emulsions in varied volume fractions, ensuring a comprehensive analysis under identical operational conditions. Emulsified fuels were prepared using a surfactant to stabilize the water in diesel to prevent phase separation and ensure a homogeneous mixture.

Intriguingly, the results manifest that the incorporation of distilled water into diesel resulted in discernible alterations in the performance and emission traits of the CI engine. Notably, a reduction in NOx and particulate matter emissions was observed with the use of water-diesel emulsions, primarily attributed to the water's latent heat, which curtailed peak combustion temperatures. However, a meticulous evaluation of the impact on BSFC, BTE, and other performance metrics was imperative to ascertain the viability of diesel-water blends.

Moreover, the water inclusion subtly mitigated the calorific value of the blend, demanding an analytical scrutiny of the engine's durability and long-term performance. The encompassing findings of this research pave the way for a nuanced understanding of the potentials and challenges imbued in utilizing diesel-water emulsions as a viable fuel alternative for CI engines, prompting further research into optimization strategies and comprehensive engine testing to propel this innovative approach to sustainable fuel use into pragmatic applications.

Keywords: CI Engine, Diesel-Water Emulsion, Emission Characteristics, Engine Performance, Alternative Fuels, Sustainable Energy, Environmental Impact, Thermal Efficiency.

I. INTRODUCTION

The integration of water into diesel intends to leverage the inherent properties of water to moderate combustion temperatures and thereby, potentially curtail NOx emissions – a phenomenon substantiated by the Jelalian water effect. The induction of water either by direct injection or by forming stable emulsions with diesel tends to mitigate peak combustion temperatures, which, in theory, should consequently reduce the formation of thermal NOx during combustion.

Concurrently, the mitigation of combustion temperatures and alterations in the combustion dynamics, typically associated with water incorporation, evoke a necessity to thoroughly investigate and understand its pervasive impacts on engine performance, efficiency, and other emissions, to ascertain the practicability and efficacy of diesel-water emulsions as an alternative fuel.

Objectives of the Study:

This research pivots on empirically investigating the multi-faceted impacts of utilizing diesel-water emulsions in a CI engine, examining:

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Formulation of a Predictive Model for Flash Temperature in Single Asperity Contact between TC4 Titanium and Q235 Steel

N Jaya Krishna, N Bhaskar

aits.med.njk@gmail.com bhaskar5212@gmail.com

Annamacharya Institute of Technology and Sciences, Rajampet, A.P, India

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Abstract

The primary potential ignition source for explosive atmospheres in low-speed metal friction is the friction-induced hot surfaces. Interestingly, the friction flash temperature tends to surpass the bulk temperature under identical conditions. Consequently, understanding whether it is the bulk temperature of the hot surface or the flash temperature of the asperity contact that first reaches the ignition temperature of the combustible gas becomes a pertinent area of investigation. This study addresses this concern by establishing a friction model, delving into the flash temperature of the asperities' contact between TC4 titanium alloy and Q235 steel under low-speed and low-load friction conditions. Leveraging the Hertz contact theory, the contact process of a single pair of asperities and the methodology for calculating the maximum flash temperature are analyzed. Two assumptions are considered in calculating the maximum flash temperature, and through regression analysis, a mathematical model for the flash temperature concerning load and relative velocity is derived. The study then computes the maximum bulk temperature and flash temperature under identical conditions, aiming to discern the true effective ignition source of gas under low-speed and low-load friction conditions.

Keywords Friction hot surfaces, friction flash temperature, asperity contact, explosive atmosphere, titanium alloy

Introduction

The frictional impact hot surfaces and sparks of light alloy materials are the main potential ignition source for explosive atmosphere. The main factors that make frictional impact sparks an effective ignition source of explosive gas are the properties of the material and the relative velocity of frictional impact.1–4 Generally, when the relative speed of friction impact is below 1 m/s, sparks are basically not generated, but the frictional hot surface can still detonate combustible gas even under the friction condition of relative speed below 1 m/s.5,6 Meyer5 used the rotary friction experiment to study the ignition of various combustible gases by the friction hot surface of stainless steel, and found that the maximum temperature of the friction hot surface

Journal of Optoelectronics Laser

Flexural And Impact Characterization Of Polymer Laminated Composites Reinforced With Bi-Woven Glass Fibers

P.Veera Sanjeeva Kumar, A.Hemantha Kumar, G.Venkata Subbaiah, L.Harikrishna, Nallamothu Ramesh Babu

Keywords: Bi-woven Glass Fibers, Epoxy,Hand layup Technique, Flexural strength, Impact strength,Number of layers.

Abstract

The flexible, low weight and efficient materials are the latest requirement in the fabrication engineering. The aircraft, naval and aerospace applications are the highest demand for such materials in their fabrication. The laminated composites are the best one to fulfill the needs. The virtual characteristics of the composite are high strength to weight and stiffness. The present work is associated with the fabrication and characterization of polymer laminated composites reinforced with Bi-woven glass fibers.The epoxy material and Bi-woven glass fibers are used as matrix and reinforcement. The make of composite plate is done by hand layup process. The experiments are conducted to determine the flexural strength and impact strength. The failure is analyzed with respect to the variation of number of reinforcement layers in the composite plate. It is investigated that both the strength are appreciably increased up to optimum number of layers.

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COORDINATION OF MOBILE SENSOR FOR TARGET TRACKING BY USING KALMAN FILTER

Y.SUNANDA[1], Y PAVAN KUMAR REDDY[2], DR.K.SHANKAR[3], M.RAVI KISHORE[4]

[1,2,4] Assistant Professor, Department of Electronics and Communication Engineering
[3] Associate Professor, Department of Electronics and Communication Engineering
[4]Annamacharya Institute of Technology and Sciences, Rajampet

[1]sunanada.bujji@gmail.com, [2]ratnasena.reddy@gmail.com, [3]shan87.maddy@gmail.com, [4]ravi.mvrm@gmail.com

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ABSTRACT

The target tracking problem is investigated for a tracking system with mobile range sensors. Being different from most previous studies, both additive and multiplicative noises in measurements are taken into consideration. An optimal coordination strategy, including sensor selection and sensor motion is proposed to maximize the tracking accuracy. A wireless sensor network by combining maximum likelihood estimation and Kalman filtering using the distance measurements. The maximum likelihood estimator is used for prelocalization of the target and measurement conversion to remove the measurement nonlinearity. The converted measurement and its associated noise statistics are then used in a standard Kalman filter for recursive update of the target state. In particular, by fully utilizing the properties of objective function, the search space and variables of the original optimization problem can be significantly reduced. Based on this reduction, three algorithms are designed respectively for the following 1) Efficient selection of task sensors 2) Reduction on combinations of task sensors and 3) Efficient search of optimal sensor motion. Applying K-means clustering algorithm in order to make the target tracking process more accurate and efficient by reducing the motion distance of mobile node during data collection.

Keywords: Fisher Information Matrix, Multiplicative Noise, Sensor motion, Sensor Selection, Target Tracking.

1.INTRODUCTION

A Wireless Sensor Network (WSN) of spatially distributed autonomous sensors to monitor physical or environmental conditions such as temperature, sound pressure, etc. and to cooperatively pass their data through the network to a main location. The more modern networks are bi-directional also enabling control of sensor activity. The development of wireless sensor networks was motivated by military applications such as battlefield surveillance. Today such networks are used in many industrial and consumer applications mostly in industrial process monitoring and control machine health monitoring and so on. The WSN is built of nodes from a few to several hundreds or even thousands where each node is connected to one (or sometimes several) sensors.

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Enhancing Lung Cancer Detection: A Comprehensive Methodology Integrating Deep Learning and Image Processing

K.Murali Babu[1], V.Sai Anusha[1*], T.Ravindra[1], K.Syed Asma[1]
[1]Annamacharya Institute of Technology and Sciences, Rajampet
anushachowdary966@gmail.com

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Abstract
This investigation meets the urgent demand for efficient early diagnosis by presenting a thorough methodology for automated lung cancer categorization utilizing CT scans. The approach starts with the collection of a wide range of CT image databases and uses sophisticated image processing to improve visibility, such as pixel value normalization and Contrast Limited Adaptive Histogram Equalization (CLAHE). The process begins with the Histogram of Oriented Gradients (HoG) for feature extraction. Next, a Convolutional Neural Network (CNN)—more precisely, VGG Net—is fine-tuned to respond to the features of lung cancer. The optimized model is applied in the classification step, and strong generalization is guaranteed by performance assessment measures. Extensive research on the effects of different pre-processing processes complements the results. By providing insights into interpretability and reproducibility and advancing automated lung cancer detection, the research has potential uses for early diagnosis in clinical settings. This multidisciplinary strategy emphasizes how cutting-edge technologies can help solve difficult healthcare problems.
Keywords: Lung Cancer, CLAHE,HoG,Deep Learning,Detection,CNN,VGG Net.

1. Introduction

Since lung cancer causes a sizable number of cancer-related deaths annually, it is a major worldwide health concern. Since prompt intervention and therapy can greatly boost survival rates, early and precise detection of lung cancer is essential to improving patient outcomes. Because it provides precise anatomical information, computed tomography (CT) imaging has emerged as a key tool in the diagnosis and surveillance of lung disorders. However, it takes time and is prone to human error to manually analyse CT scans for the purpose of detecting lung cancer. Combining deep learning approaches with sophisticated image processing techniques presents a viable way to improve the effectiveness and precision of lung cancer detection using CT images [1].

The goal of this research is to create a solid approach for automated CT image-based lung cancer categorization. The suggested approach is a multi-step procedure that begins with the collection of a broad CT image database that has areas of interest (ROIs) tagged to show whether lung cancer is present or absent [2]. The CT scans are preprocessed using Contrast Limited Adaptive Histogram Equalization (CLAHE) to enhance the visibility of lung features and anomalies. Consistency in the characteristics retrieved from the photos is further ensured by normalizing the pixel values.

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Optimizing MRI Image Analysis for Brain Tumor Detection: A GLCM-Enabled U-Net Approach

CH.Nagaraju[1*], M.Tejaswi[1], S.Md.Fayaz Basha[1], B.Rakesh Babu[1]

[1]Annamacharya Institute of Technology and Sciences, Rajampet

chrajuaits@gmail.com

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Abstract: This study presents a thorough methodology for precisely identifying and segmenting brain tumors from magnetic resonance imaging (MRI) data. The study starts with the collection of a heterogeneous database of MRI images, which includes different tumor sizes, locations, and types. Using sophisticated image processing methods like normalization and noise reduction improves the quality of MRI pictures. For effective data representation, the methodology combines a patch-based extraction technique with Gray-Level Co-occurrence Matrix (GLCM) feature extraction. With deep learning-based segmentation using a U-Net architecture, the system exhibits reliable and precise automated brain tumor detection. The efficacy of the suggested methodology is demonstrated by thorough performance evaluations that include quantitative metrics and qualitative assessments on training and testing datasets. This research advances medical imaging and computer-aided diagnosis, giving medical personnel an important tool for brain tumor early detection and treatment planning.

Keywords: Brain Tumor, GLCM (Gray Level Co-occurrence Matrix), U – Net, Deep Learning, Detection, Segmentation

I. Introduction

For early medical intervention and treatment planning, brain tumor detection and segmentation using magnetic resonance imaging (MRI) images are essential. This study proposes an approach that combines deep learning and sophisticated image processing techniques to accurately and efficiently identify brain tumors [1], addressing the challenges in this field.

Brain tumors are emphasized as serious health hazards in the background, highlighting the significance of early identification. Complex MRI pictures [2] and the heterogeneity of tumor properties require sophisticated computational techniques. Robust and automated solutions are needed since modern imaging and machine learning approaches show promise in resolving these problems.

The need for trustworthy instruments to help medical practitioners diagnose brain tumors is what spurred this research. The necessity for automated methods is highlighted by the time-consuming and error-prone nature of manual segmentation. By utilizing cutting-edge techniques, this study aims to forward the creation of a brain tumor segmentation approach that can be used in clinical settings.

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Integrating Haralick Texture Features and Multiclass SVM for Accurate Brain Tumor Diagnosis in MRI Images

S.Vasanthaswaminathan[1], S.Javeed Basha[1*], K.Naveen Kumar Raju[1], S.Jabeena[1]

[1]Annamacharya Institute of Technology and Sciences, Rajampet

syedjaveed221@gmail.com

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Abstract: This research work uses modern computational algorithms and magnetic resonance imaging (MRI) to address the crucial problem of brain tumor categorization. The methodology that has been suggested includes the acquisition of databases, preprocessing, feature extraction, classification based on machine learning, and a comprehensive assessment of performance. The technology improves tumor visibility and refines image features by obtaining a diversified MRI image collection and implementing a sequence of preprocessing operations, such as Otsu Binarization, Gray Level Thresholding, Morphological Operations, and Independent Component Analysis (ICA). Then, in order to describe the textural patterns in the photos, Haralick texture characteristics are retrieved. Using a multiclass Support Vector Machine (SVM) to accurately classify tumors forms the basis of the methodology. Performance evaluation shows the resilience and efficacy of the created classification system through data splitting, metric computation, ROC curve development, cross-validation, and comparisons with current approaches. The findings highlight the methodology's possible practical applicability and advance the field of computational methods and medical imaging intersections for brain tumor identification.

Keywords: *Independent Component Analysis (ICA), Machine Learning, Haralick texture Features, Otsu, Multiclass Support vector Machine.*

I. Introduction:

Brain tumors are a significant medical problem that requires precise diagnostic instruments for efficient treatment strategizing. Because of its excellent spatial resolution, magnetic resonance imaging (MRI) has become a potent tool for the detection of brain tumors. However, sophisticated computational methods are frequently needed for an accurate interpretation of MRI images [1]. In order to overcome this difficulty, the research suggests a thorough approach for classifying brain tumors that combines sophisticated image processing with machine learning. The approach of the system is intended to manage a variety of brain tumor situations, such as differences in tumor kinds, sizes, and locations, which enhances clinical decision-making.

The initial step in the research is to create a library of MRI scans that includes both normal brain imaging and images showing various cases of brain tumors. Thorough curation guarantees heterogeneity in tumor features, which improves the generalizability of the model. Otsu Binarization, Gray Level Thresholding, Morphological Operations, and Independent Component Analysis (ICA) are used in the preprocessing stage to improve discriminative characteristics in the MRI images and get them ready for further analysis.

Haralick texture features are used in feature extraction to extract unique textural patterns and attributes from the preprocessed photos. These characteristics function as distinguishing indicators for further categorization. The utilization of a multiclass Support Vector Machine

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Detection of lung cancer in CT scans using grey wolf optimization algorithm and recurrent neural network

Vinit Kumar Gunjan, Ninni Singh, Fahimudin Shaik & Sudipta Roy

Health and Technology **12**, 1197–1210 (2022)

Abstract

Purpose

For radiologists, identifying and assessing thelung nodules of cancerous form from CT scans is a difficult and laborious task. As a result, early lung growing prediction is required for the investigation technique, and hence it increases the chances of a successful treatment. To ease this problem, computer-aided diagnostic (CAD) solutions have been deployed. The main purpose of the work is to detect the nodules are malignant or not and to provide the results with better accuracy.

Methods

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Optimizing Ophthalmic Diagnostics: A Robust Approach to Retinal Boundary Segmentation in OCT Imaging

V.Gajendra Kumar[1], P.Vijaya Kumar[1], V.Hymavathi[1*], T.Praveen[351]
[1]Annamacharya Institute of Technology and Sciences, Rajampet

hymavalluru@gmail.com

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Abstract:

OCT has completely changed ocular imaging by providing fine-grained cross-sectional views of the retinal layers. However, because to noise, inconsistent image quality, and pathological characteristics, it is still difficult to accurately segment retinal borders in OCT images. This study provides a thorough approach to improve retinal boundary segmentation accuracy andconsistency. The method comprises layer-wise color division representation postprocessing, thresholding with edge detection, enhanced filtering, database collection, and performance assessment. To ensure adaptation across patient demographics and eye diseases, a broad OCT dataset is obtained. Preprocessing removes noise and artifacts from images by standardizing their format and resolution. Visibility is improved by enhanced filtering using Gaussian filters and adaptive histogram processing, which is followed by Sobel edge detection and Kapur thresholding. Mean thresholding and interpolation approaches are examples of postprocessing. Interpretability of the results is improved by layer-wise color splitting. Through cross-validation and hand annotations, performance is thoroughly assessed. This work advances ophthalmic image analysis by providing a thorough method for segmenting the retinal boundaries in OCT pictures.

Keywords: OCT, retinal Segmentation, Gaussian Filter, Adaptive Histogram, Spline & lagrange interpolations

I. Introduction:

Optical coherence tomography (OCT), which provides detailed high-resolution cross-sectional views of the retinal layers, has emerged as a major player in ocular imaging [1]. Even with its non-invasiveness and microscopic accuracy, diseased abnormalities, intrinsic noise, and varying picture quality make correct segmentation of retinal borders in OCT images a difficult task. This study offers a comprehensive methodology designed to improve the accuracy and consistency of retinal boundary segmentation in OCT images in response to these difficulties. The method includes layer-wise color division representation, postprocessing, thresholding with edge detection, enhanced filtering, database acquisition, and performance assessment.

The gathering of a varied OCT picture set from a reliable medical database forms the basis of the process. This dataset guarantees the segmentation algorithm's flexibility and resilience in a range of scenarios by incorporating different patient demographics, eye diseases, and image quality. After acquiring the database, a preprocessing step is carried out that standardizes the image format and resolution and uses fundamental techniques to remove noise and artifacts, guaranteeing a constant input quality for the processing steps that come after.

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Automated Glaucoma Detection Using Advanced Retinal Imaging and Deep Learning Feature-Driven Classification

G.Ramprabhu[1], S.Mastanaiah[1], B.Suresh Kumar[1], B.Prasanthi[1*]
[1]Annamacharya Institute of Technology and Sciences, Rajampet
basiviprasanthi@gmail.com

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Abstract. This research describes an integrated methodology for automated glaucoma identification that makes use of retinal fundus imaging and advanced computational algorithms. The research begins with the diligent collection of a diversified Retinal Fundus Image Database, which includes both normal and glaucomatous cases. Image quality is improved by pre-processing techniques such as Median Filtering and pixel normalization, which are then followed by feature extraction utilizing Local Binary Pattern (LBP) to capture key glaucoma patterns. The use of a Long Short-Term Memory Convolutional Neural Network (LSTM CNN) refines the analysis even further by incorporating spatial and temporal data. Based on learning characteristics, a Support Vector Machine (SVM) classifier improves classification precision. The model's efficacy is evaluated using performance metrics such as accuracy and sensitivity, with segmentation algorithms refining the analysis and concluding in a glaucoma-detected image. This strategy appears to be promising for effective glaucoma screening, early intervention, and vision preservation in at-risk groups.

Keywords: Glaucoma detection • Retinal Fundus Images • LSTM • LBP • SVM • Medical Image Analysis •

1 Introduction

Glaucoma, a progressive optic neuropathy, remains a leading cause of irreversible blindness globally. Early detection and timely intervention are imperative for mitigating vision loss associated with this ocular disorder. Retinal fundus imaging, offering a non-invasive and efficient means of capturing detailed structures of the retina, has emerged as a pivotal tool in the diagnosis of glaucoma [1]. This research endeavors to develop an automated glaucoma detection system using a multi-step methodology integrating image processing, deep learning, and machine learning techniques.

Retinal fundus images, acquired through advanced imaging technologies, provide a comprehensive view of the retina, including critical structures like the optic disc and cup. The optic disc and cup exhibit distinct morphological changes in glaucomatous eyes, such as alterations in cup-to-disc ratio. Leveraging this information, our methodology employs a series of systematic steps to enhance, extract features, and classify retinal fundus images for the early identification of glaucoma [3].

The first stage involves the acquisition of a diverse Retinal Fundus Image [2] Database, ensuring a representative mix of normal and glaucomatous cases. The subsequent pre-processing step aims to improve image quality, reduce noise, and normalize pixel values, laying the foundation for robust feature extraction. Local Binary Pattern (LBP) is employed as a texture descriptor to capture intricate patterns within the images, providing discriminative features for glaucoma detection.

The integration of a Long Short-Term Memory Convolutional Neural Network (LSTM CNN) enriches the analysis by capturing both spatial and temporal features from the LBP features. The LSTM CNN is trained and fine-tuned on the extracted features, and its performance is validated to prevent over fitting. Following this, a Support Vector Machine (SVM) classifier refines the classification task based on the learned features, enhancing the precision of glaucoma detection.

Performance evaluation metrics, including accuracy, sensitivity, specificity, precision, and F1 score, are employed to comprehensively assess the model's efficacy. The segmentation of critical regions, such as the optic cup, further refines the analysis, leading to the generation of a glaucoma detected image. This final output encapsulates the culmination of the methodology, highlighting regions indicative of glaucomatous changes for clinical interpretation.

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Hindawi

Research Article

Influences of Aqueous Nanofluid Emulsion on Diesel Engine Performance, Combustion, and Emission: IoT (Emission Monitoring System)

B. Venkatesh,[1] **J. Chinna Babu**,[2] **Sandeep Kumar Mathivanan**,[3] **Prabhu Jayagopal**,[3] **S. Prasanna**,[3] **and Md Salah Uddin**[4]

[1]*Department of Mechanical Engineering, Annamacharya Institute of Technology & Sciences, Rajampet, Kadapa, Andhra Pradesh, India*
[2]*Department of Electronics and Communication Engineering, Annamacharya Institute of Technology and Sciences, Rajampet 516126, Andhra Pradesh, India*
[3]*School of Information Technology and Engineering, Vellore Institute of Technology, Vellore, Tamil Nadu, India*
[4]*Department of Multimedia and Creative Technology, Daffodil International University, Dhaka-1207, Bangladesh*

Correspondence should be addressed to B. Venkatesh; bvenkatesh.me.aits@annamacharyagroup.org and Md Salah Uddin; jahid.mct@diu.edu.bd

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Pollution is the primary ecological threat to nature and it also raises the temperature of the Earth. The primary cause of air pollution is exhaust emissions from the combustion chamber. This study aims to focus on controlling emissions using an aqueous nanoemulsion method and to analyze positive vibrations for the reduction of pollutants in diesel engines. In this study 3% NWED (nano-based water emulsion diesel), 7% NWED, and 12% NWED emulsion blended diesel were mixed with Tween-20 as a solvent. In addition, this work was accomplished with a multiuser remote control system for the continuous monitoring of emissions with IoT technology applied to diesel engines. Experimental results have been measured with an IoT kit and five gas analyzers and reported that emission of oxides of nitrogen and hydrocarbons can be reduced by using a 7% NWED blend when compared with diesel. In addition, the experimental result also shows that the brake-specific fuel consumption is reduced with an improvement in thermal efficiency at 7% NWED when compared with other blends.

1. Introduction

As the rate of fossil fuel depletion is increasing daily, there is a need to fulfill the energy demand for alternative fuels [1]. Since the 1970s, the use of energy resources such as oil, gas, coal, nuclear and hydro, has increased tremendously to meet energy demand [2]. The transport, industry, non-composted, and building sectors depend mainly on petroleum fuels [3]. Combustion emissions such as CO, CO2, HC, NOx, and smoke are released into the atmosphere through exhaust pipes [4]. These emissions generate chemical reactions in the atmosphere, creating a greenhouse effect [5]. Controlling pollution mixture formation in diesel engines has been the prime objective of many researchers, who have found alternative fuels that have not shown any modifications to the engine, by reducing emissions and improving engine performance [6]. Biodiesel has been studied worldwide as the dominant diesel fuel. To achieve better performance and lower pollution, researchers have selected different biodiesel feedstocks or varying engine parameters such as injecting opening pressures (IOPs), fuel injection timings, compression ratio (CR), and additives, such as diethylether and antioxidants [7]. As a result that biodiesel blends produced lower CO, HC, and smoke emissions than diesel fuel, while combustion exhaust gas temperature, CO2, and NOx emissions were higher [8]. Researchers based on

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An Improved Harmony Search Approach for Block Placement for VLSI Design Automation

Shaik Karimullah, D. Vishnuvardhan & Vidhyacharan Bhaskar

Wireless Personal Communications **127**, 3041–3059 (2022)

Abstract

Level of knowledge with the field for VLSI IC Design's Placement and Routing and in the area of Wireless Communication is rapidly evolving; Hence the process designing in the above fields is critical to assimilate a higher quantity of computation elements or nodes into a very compact size in VLSI Area and also the same is applicable in Wireless Communications to cover more number of nodes in a specific area. Prior to completing the placement, the physical and technical arranging of the computation elements or nodes in the chip area is

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Clustered Single-Board Devices with Docker Container Big Stream Processing Architecture

N. Penchalaiah[1], Abeer S. Al-Humaimeedy[2], Mashael Maashi[3], J. Chinna Babu[1,*], Osamah Ibrahim Khalaf[5] and Theyazn H. H. Aldhyani[6]

[1]Department of CSE, AITS, Rajampet, 516126, Andhra Pradesh, India
[2]Software Engineering Department, College of Computer and Information Sciences, King Saud University, P.O. Box 103786, Riyadh, 11616, Saudi Arabia
[3]Software Engineering Department, King Saud University, Riyadh, 11543, Saudi Arabia
[4]Department of Electronics and Communication Engineering, Annamacharya Institute of Technology and Sciences, Rajampet, 516126, Andhra Pradesh, India
[5]Al-Nahrain University, Al-Nahrain Nanorenewable Energy Research Center, Baghdad, 10072, Iraq
[6]Applied College in Abqaiq, King Faisal University, P.O. Box 400, Al-Ahsa, 31982, Saudi Arabia
*Corresponding Author: J. Chinna Babu. Email: jchinnababu@gmail.com
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Abstract: The expanding amounts of information created by Internet of Things (IoT) devices places a strain on cloud computing, which is often used for data analysis and storage. This paper investigates a different approach based on edge cloud applications, which involves data filtering and processing before being delivered to a backup cloud environment. This Paper suggest designing and implementing a low cost, low power cluster of Single Board Computers (SBC) for this purpose, reducing the amount of data that must be transmitted elsewhere, using Big Data ideas and technology. An Apache Hadoop and Spark Cluster that was used to run a test application was containerized and deployed using a Raspberry Pi cluster and Docker. To obtain system data and analyze the setup's performance a Prometheus-based stack monitoring and alerting solution in the cloud based market is employed. This Paper assesses the system's complexity and demonstrates how containerization can improve fault tolerance and maintenance ease, allowing the suggested solution to be used in industry. An evaluation of the overall performance is presented to highlight the capabilities and limitations of the suggested architecture, taking into consideration the suggested solution's resource use in respect to device restrictions.

Keywords: Big data; edge cloud; cluster architecture; performance engineering; Raspberry pi; dockers warm; container technology; data streaming

1 Introduction

Virtually everything on Internet of Things (IoT) generates data, and most of that data is stored or processed in the cloud. Furthermore, according to a study conducted by International Data

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A hybrid soft bit flipping decoder algorithm for effective signal transmission and reception

Shaik Asif Hussain[1], Jyothi Chinna Babu[2], Raza Hasan[3], Salman Mahmood[3]
[1]Centre for Research and Consultancy, Middle East College, Muscat, P.B. No. 79, Al Rusayl 124, Oman
[2]Department of Electronics and Communication Engineering, AITS, Rajampet, AP, India
[3]Department of Information Technology, School of Science and Engineering, Malaysia University of Science and Technology, Petaling Jaya 47810, Selangor, Malaysia

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ABSTRACT

The Euclidean geometry (EG) based low-density parity check (LDPC) codes are enciphered and deciphered in various modes. These algorithms have the back-and-forth between decoding delay, and power usage, device unpredictability resources, and error rate efficacy are all available with these methods. As a result, the goal of this paper is to develop a comprehensive method to describe both soft and burst error bits for optimal data transfer. As a result, for EG-LDPC codes, a hybrid soft bit flipping (HSBF) decoder is suggested, which decreases decoding complications while improving message data transfer. A simulation model is formed using Xilinx synthesis report to study decoding latency, hardware usage, and power usage. A HSBF decoder is used in this paper, which accepts a 64-bit coding sequence and assigns 64 Adjustable nodes to it. It checks all customizable cluster connections and quantifies adjustable node values and actions. As a consequence of the data collected, our simulation model demonstrates that the HSBF technique outperforms soft bit flipping (SBF) algorithms. As a result, the techniques are ideal for usage in intermediate applications and as well as in cyber security processing technologies, medical applications.

Corresponding Author:

Shaik Asif Hussain
Centre for Research and Consultancy, Middle East College, Muscat
P.B. No. 79, Al Rusayl 124, Oman
Email: shussain@mec.edu.om

1. INTRODUCTION

Euclidean geometry LDPC codes

The Euclidean geometry low-density parity check (LDPC) codes are a better-quality type of fault detection and pattern development codes, operating speed, error rate efficiency, which is assumed to be difficult to decode the codes. In this subject of cryptography, fast development is demonstrated in fields such as digital television streaming video, wireless local area network, health data storage, and third-generation mobile telephony using Euclidean geometry LDPC codes. As per the coding rates of LDPC codes, 5G LDPC codes are a data coding method that is meant to handle high throughput, variable code rate and length, and hybrid automated repeat requests, as well as strong error correction capabilities. LDPC codes are non-systematic codes by nature and are created at random. Using systematic rather than non-systematic codes help the decoder to acquire the decoded data without having to go through a time-consuming mapping process.

Illustration of LDPC codes

Euclidean geometry LDPC codes are better versions of linear block codes having independent sizes of equality-controlled matrices, which can have fewer ones, as indicated by the categorization. This patterned matrix is usually constructed using an unconstrained approach that is constrained by such strict constraints.

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Research Article

IoT-Based Intelligent System for Internal Crack Detection in Building Blocks

J. Chinna Babu,[1] M. Sandeep Kumar,[2] Prabhu Jayagopal,[2] V. E. Sathishkumar,[3] Sukumar Rajendran,[2] Sanjeev Kumar,[4] Alagar Karthick,[5] and Akter Meem Mahseena[6]

[1]*Department of Electronics and Communications Engineering, Annamacharya Institute of Technology and Sciences, Rajampet, 516126 Andhra Pradesh, India*
[2]*School of Information Technology and Engineering, Vellore Institute of Technology, Vellore, Tamil Nadu 632014, India*
[3]*Department of Industrial Engineering, Hanyang University, Seoul, Republic of Korea*
[4]*Department of Civil Engineering, Graphic Era (Deemed to Be University), Bell Road, Clement Town, 248002 Dehradun, Uttarakhand, India*
[5]*Renewable Energy Lab, Department of Electrical and Electronics Engineering, KPR Institute of Engineering and Technology, Coimbatore, 641407 Tamil Nadu, India*
[6]*Department of Electrical and Electronic Engineering, Daffodil International University, Ashulia, Savar, Dhaka 1207, Bangladesh*

Correspondence should be addressed to V. E. Sathishkumar; srisathishkumarve@gmail.com
and Akter Meem Mahseena; aktermeem.m@yahoo.com

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Cracks that are detected in concrete structures represent significant damage, and they can lead to a detrimental effect on the structure's durability. Their identification in a timely manner can help ensure structural safety and guide in-depth maintenance operation. Automatic detection of such cracks has been proposed using internal crack detection utilizing ultrasonic sensors in concrete. Cracks within the concrete can be detected using ultrasonic sensors. In this investigation, we introduced an intelligent method that is aimed at developing a crack detection scheme using ultrasonic sensors. These ultrasonic sensors are used for the detection of cracks in buildings which cannot be seen with our naked eyes; they are capable of alerting authorities via SMS message and providing the cracks' location via GSM and GPS modules. To monitor internal cracks in the concrete cubes and cylinders, the ultrasonic sensors can be fixed at the centre of the cube which will be used for interval crack monitoring based on crack detection technology. The grade of concrete used for testing is M_{25}, and it is well mixed with the ingredients of cement, fine aggregate, coarse aggregate, and water. The concrete is placed in the cube moulds having the dimensions 150 mm × 150 mm × 150 mm. The cylinders used in the case of the experimental analysis are of the dimensions of 150 mm diameter and 300 mm height. These specimens are cast and kept in the curing tank for 28 days to attain the maximum strength. After completion of the curing period, the specimens were taken out from the tank and weighed. After this weighing process, the cubes and cylinders are about 8.884 kg and 13.399 kg, respectively. The information about the cracks can be displayed on the LCD, and also, the transmitted short message about the cracks can be exchanged between the devices using IoT.

1. Introduction

Concrete is the most often utilized material in the world for numerous civil infrastructure projects such as bridges and buildings. They are safely constructed by superimposing the various loads to the foundation, but their structural integrity is compromised by a variety of operating environmental factors. As a result, their strength is critical in nature, maintaining a high level of safety structures and durability, and their efficiency factors are critical because civil

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A Neural Network and Optimization Based Lung Cancer Detection System in CT Images

Chapala Venkatesh[1], *Kadiyala Ramana*[2*], *Siva Yamini Lakkisetty*[1], *Shahab S. Band*[3*], *Shweta Agarwal*[4] *and Amir Mosavi*[5,6,7*]

[1] *Department of ECE, Annamacharya Institute of Technology and Sciences, Rajampet, India,* [2] *Department of IT, Chaitanya Bharathi Institute of Technology, Hyderabad, India,* [3] *Future Technology Research Center, College of Future, National Yunlin University of Science and Technology, Douliou, Taiwan,* [4] *SAGE University, Indore, India,* [5] *John von Neumann Faculty of Informatics, Obuda University, Budapest, Hungary,* [6] *Faculty of Civil Engineering, TU-Dresden, Dresden, Germany,* [7] *Institute of Information Engineering, Automation and Mathematics, Slovak University of Technology in Bratislava, Bratislava, Slovakia*

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Celestine Iwendi,
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Chennareddy Vijay Simha Reddy,
Middlesex University, United Kingdom
Venkata Subbaraju Dommaraju,
University of the Cumberlands, United States

****Correspondence:***
Shahab S. Band
shamshirbands@yuntech.edu.tw
Amir Mosavi
amir.mosavi@kvk.uni-obuda.hu
Kadiyala Ramana
ramana.it01@gmail.com

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One of the most common causes of death from cancer for both women and men is lung cancer. Lung nodules are critical for the screening of cancer and early recognition permits treatment and enhances the rate of rehabilitation in patients. Although a lot of work is being done in this area, an increase in accuracy is still required to swell patient persistence rate. However, traditional systems do not segment cancer cells of different forms accurately and no system attained greater reliability. An effective screening procedure is proposed in this work to not only identify lung cancer lesions rapidly but to increase accuracy. In this procedure, Otsu thresholding segmentation is utilized to accomplish perfect isolation of the selected area, and the cuckoo search algorithm is utilized to define the best characteristics for partitioning cancer nodules. By using a local binary pattern, the relevant features of the lesion are retrieved. The CNN classifier is designed to spot whether a lung lesion is malicious or non-malicious based on the retrieved features. The proposed framework achieves an accuracy of 96.97% percent. The recommended study reveals that accuracy is improved, and the results are compiled using Particle swarm optimization and genetic algorithms.

Keywords: cancer, lung cancer, machine learning, artificial intelligence, deep learning, cancer detection

INTRODUCTION

The most well-known reason for death because of malignant growth is lung cancer. The second most habitually analyzed type of malignancy is lung cancer. Pneumonic nodules are apparent in the lung to evaluate metastases from different malignancies (1, 2). Computed tomography (CT) is the most significant image mode for assessing progress/crumbling and for observation and decision-making malignant lung growths. As a result of the precocious presentation of lung malignancy by CT, doctors can be suggested more productive treatments (3, 4). Guess and recuperating components for scattered sickness with precise malignancy stages are required for orderly and consoling treatment (5). The early conclusion of the period of lung malignancy is firmly connected to the patient's continuance rate (6). In clinical terms, the disease is known to be strange hyperplasia and significantly beyond what 200 sorts can influence the individuals (7). According to the ACS (American Cancer Society), lung malignancy is the main cause of death in both men and women in the United States. about a total of 2,28,820 new lung malignancy cases were estimated, with 1,35,720 deaths (8). It causes a larger number of deaths than other malignant tumors. Early recognition of

RESEARCH-ARTICLE

Machine Learning Technique for Precision Agriculture Applications in 5G-Based Internet of Things

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C. Murugamani, S. Shitharth, S. Hemalatha,
Pravin R. Kshirsagar, K. Riyazuddin,
Quadri Noorulhasan Naveed, Saiful Islam, + 2
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Abstract

Monitoring systems based on artificial intelligence (AI) and wireless sensors are in

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Research Article

Perimeter Degree Technique for the Reduction of Routing Congestion during Placement in Physical Design of VLSI Circuits

Kuruva Lakshmanna[1], **Fahimuddin Shaik**[2], **Vinit Kumar Gunjan**,[3] **Ninni Singh**,[3] **Gautam Kumar**,[4] **and R. Mahammad Shafi**[5]

[1]*Department of Information Technology, Vellore Institute of Technology, Vellore, India*
[2]*Department of Electronics & Communications Engineering, Annamacharya Institute of Technology & Science, Rajampet, India*
[3]*Department of Computer Science & Engineering, CMR Institute of Technology, Hyderabad, India*
[4]*Department of Computer Science & Engineering, CMR Engineering College, Hyderabad, India*
[5]*Department of Electrical and Computer Engineering, College of Engineering and Technology, Tepi Campus, MIZAN-TEPI University, Tepi, Ethiopia*

Correspondence should be addressed to R. Mahammad Shafi; mahammadshafi.r@mtu.edu.et

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When used in conjunction with the current floorplan and the optimization technique in circuit design engineering, this research allows for the evaluation of design parameters that can be used to reduce congestion during integrated circuit fabrication. Testing the multiple alternative consequences of IC design will be extremely beneficial in this situation, as will be demonstrated further below. If the importance of placement and routing congestion concerns is underappreciated, the IC implementation may experience significant nonlinear problems throughout the process as a result of the underappreciation of placement and routing congestion concerns. The use of standard optimization techniques in integrated circuit design is not the most effective strategy when it comes to precisely estimating nonlinear aspects in the design of integrated circuits. To this end, advanced tools such as Xilinx VIVADO and the ICC2 have been developed, in addition to the ICC1 and VIRTUOSO, to explore for computations and recover the actual parameters that are required to design optimal placement and routing for well-organized and ordered physical design. Furthermore, this work employs the perimeter degree technique (PDT) to measure routing congestion in both horizontal and vertical directions for a silicon chip region and then applies the technique to lower the density of superfluous routing (DSR) (PDT). Recently, a metaheuristic approach to computation has increased in favor, particularly in the last two decades. It is a classic graph theory problem, and it is also a common topic in the field of optimization. However, it does not provide correct information about where and how nodes should be put, despite its popularity. Consequently, in conjunction with the optimized floorplan data, the optimized model created by the Improved Harmonic Search Optimization algorithm undergoes testing and investigation in order to estimate the amount of congestion that occurs during the routing process in VLSI circuit design and to minimize the amount of congestion that occurs.

1. Introduction

However, there are several limitations to Significant Level Synthesis that must be taken into consideration. Significant Level Synthesis is swiftly becoming the industry standard for the VLSI approach. One of the challenges that needs to be solved is congestion throughout the steering cycle of bespoke chips and FPGA-based designs. The steering block is not incorporated in the VLSI plan, despite the fact that it is an openly stated idea elsewhere. Even though it has been a concern in the past with normal HDL-based designs, it has reached a level of severity that is unprecedented [1] in an instance of Considerable-Level Synthesis. Because of this, the most effective course of action is to anticipate the block issue as early in the planning phase as is reasonably possible before it occurs. The implementation of a blocking method

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Research Article

An Improved Harmony Search Approach for Block Placement for VLSI Design Automation

Shaik Karimullah,[1] **D. Vishnuvardhan**,[1] **Muhammad Arif**,[2] **Vinit Kumar Gunjan**,[3] **Fahimuddin Shaik**,[4] **and Kazy Noor-e-alam Siddiquee**[5]

[1]*Department of Electronics and Communication Engineering, JNTUA-Ananthapuramu, Andhra Pradesh, India*
[2]*Department of Computer Science and Information Technology, University of Lahore, Pakistan*
[3]*Department of Computer Science and Engineering, CMR Institute of Technology Hyderabad, India*
[4]*Department of Electronics and Communication Engineering, Annamacharya Institute of Technology & Sciences, Rajampet, India*
[5]*Department of Computer Science and Engineering, University of Science and Technology, Chittagong, Bangladesh*

Correspondence should be addressed to Kazy Noor-e-alam Siddiquee; knas11@gmail.com

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The technology grows quickly in the area of the VLSI physical design; it is crucial to integrate the greater number of transistors and parts into a very small range. Before the placement is completed, the physical and technical positioning of the blocks in the chip area is planned, which is nothing but floor planning. In order to lessen the placement region in the physical layout, floor planning must be carried out effectively. This paper proposes a blended harmony search and particle swarm optimization (BHSPS) algorithm which is the deliberate blend of the harmony search (HS) algorithm, and the particle swarm optimization (PSO) algorithm is proposed to acquire the central goal of the VLSI placement strategy. The objective here is to lessen the field of plan. The MATLAB code for the blended harmony search and particle swarm optimization (BHSPS) algorithm is compiled, and investigations were carried out for better examination through the standard MCNC, i.e., North Carolina Microelectronics Center benchmark circuits.

1. Introduction

As the demand for the new technology is growing on the market, the IC design sector has conducted more study, which in turn makes the VLSI design established with more composite, more reliable, more compact, and better results. The IC architectural design has been much more complex as there are countless numbers of transistors in one chip. For hierarchical, building block design methodology, floor planning is a more complicated approach to the abovementioned problem, which is an important design phase. As the size of the circuit increases, the space of the solution also increases, rendering the global solution hard to understand [1]. After partitioning, in the next step, called floor planning, the complex circuit is split into smaller circuits.

The BHSPS algorithm is used to optimize the chip area and routing wirelength during the placement of macroblocks. The IHS algorithm was developed by integrating the best characteristics of the harmony search algorithm and the nature-inspired particle swarm optimization algorithm. The integration of the harmony search (HS) and particle swarm optimization (PSO) algorithms yields the BHSPS algorithm. The hybridization is accomplished by the use of a forward-cascading approach between the harmony search (HS) algorithm and the particle swarm optimization (PSO) algorithm. Because of their separate greatest performances, HS and PSO have been combined. HS is a highly fast algorithm that provides results quickly, but PSO has a sluggish convergence rate but can produce virtually superior answers. The improved harmony search (IHS) algorithm is presented

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A Dynamic Optimization and Deep Learning Technique for Detection of Lung Cancer in CT Images and Data Access Through Internet of Things

C. Venkatesh & Polaiah Bojja

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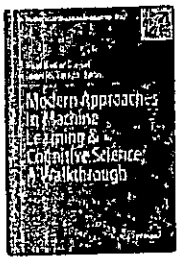
Abstract

Now-a-days the most common pretentious disease is the lung cancer, which has become more prevalent in the world that primarily infects the pulmonary nodules of the lungs. At present the most propitious way to increase survival rate in cancer patients is by early detection. Commonly the lung cancer is diagnosed by radiologists with an inclusive analysis of CT images, which proceeds comprehensively a longer time. The analysis of lung cancer in imaging modalities like CT images is crucial. Image processing itself act as a progressive diagnostic tool for analysis of medical imaging modalities. The existing procedures for detection of lung cancer like PSO with morphological yields poor accuracy. In this work the novelty is established by considering cuckoo-search optimization algorithm along with ostu threshold



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Design of Smart Classroom in Educational Institutes for Smart and a Sustainable Campus Based on Internet of Things

C. Venkatesh, D. Jayakrishna ✉ & L. Sivayamini

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Abstract

Smart campuses are built on the Internet of Things (IoT) technology and aim to achieve smart classroom administration and service. With the introduction of intelligent thermostats, medical wearable appliances connected marketing equipment, and soon, IoT will certainly facilitate our lives. Resource management systems (RMS) are a significant research direction in IoT. In the current state of RMS research, relatively few studies have been able to benefit from a highly useful interior

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Article

A Symmetric Novel 8T3R Non-Volatile SRAM Cell for Embedded Applications

Uma Maheshwar Janniekode [1], Rajendra Prasad Somineni [1], Osamah Ibrahim Khalaf [2], Malakeh Muhyiddeen Itani [3], J. Chinna Babu [4,*] and Ghaida Muttashar Abdulsahib [5]

[1] VNR Vignana Jyothi Institute of Engineering and Technology, JNTUH University, Hyderabad 500085, India; j.umamahesh21@gmail.com (U.M.J.); rajendraprasad_s@vnrvjiet.in (R.P.S.)
[2] Al-Nahrain Nanorenewable Energy Research Center, Al-Nahrain University, Baghdad 64074, Iraq; usama81818@nahrainuniv.edu.iq
[3] General Education Program, Dar Al-Hekma University, Jeddah 22246, Saudi Arabia; mitani@dah.edu.sa
[4] Department of ECE, Annamacharya Institute of Technology and Sciences, Rajampet 516126, India
[5] Department of Computer Engineering, University of Technology, Baghdad 19006, Iraq; 30834@uotechnology.edu.iq
* Correspondence: jchinnababu@gmail.com

Abstract: This paper proposes a symmetric eight transistor-three-memristor (8T3R) non-volatile static random-access memory (NVSRAM) cell. Non-volatile operation is achieved through the use of a memristor element, which stores data in the form of its resistive state and is referred to as RRAM. This cell is able to store the information after power-off mode and provides fast power-on/power-off speeds. The proposed symmetric 8T3R NVSRAM cell performs better instant-on operation compared to existing NVSRAMs at different technology nodes. The simulation results show that resistance of RAM-based 8T3R SRAM cell consumes less power in standby mode and has excellent switching performance during power on/off speed. It also has better read and write stability and significantly improves noise tolerance than the conventional asymmetrical 6T SRAM and other NVSRAM cells. The power dissipation is evaluated at different technology nodes. Hence, our proposed symmetric 8T3R NVSRAM cell is suitable to use at low power and embedded applications.

Keywords: non-volatile; symmetric NVSRAM; memristor; RRAM; instant-on; SRAM

Citation: Janniekode, U.M.; Somineni, R.P.; Khalaf, O.I.; Itani, M.M.; Chinna Babu, J.; Abdulsahib, G.M. A Symmetric Novel 8T3R Non-Volatile SRAM Cell for Embedded Applications. *Symmetry* 2022, *14*, 768. https://doi.org/10.3390/sym14040768

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1. Introduction

Over the past decades, metal oxide-based memories such as SRAM, DRAM, and flash memory have been generally used to meet the capacity prerequisites of any data handling unit [1]. The expanse of mobile devices has prompted the need to plan storage devices with fast switching characteristics longer and battery life [2]. Despite the fact that it is fast, the volatile nature of SRAM can cause stored data to be lost when the power supply is removed [3]. Moreover, under the deep submicron range, SRAM cells encounter high leakage power consumption [4]. The CMOS technology is also moving toward the fundamental limit of size scaling [5] because of the expanded short-channel effect, seriously weakening device performance [6]. Therefore, to address the issues of normally-off applications, non-volatile memory (NVM) is generally used to back up the information in the SRAM when the power is off [7]. It is recommended that non-volatile memory (NVM) devices can further suppress standby power consumption by turning off the power of infrequently used SRAMs without loss of information. Before turning off the power of the SRAM cell, first store the SRAM data in the NVM device. After power-up, the data are restored again. Hence, Such SRAM cells can be called non-volatile SRAM (NVSRAM). Compared with the use of high threshold voltage (High Vth) to maintain the latch, this design dissipates much less leakage power to hold the data of the SRAM cell [8]. Among the different types of NVM devices, memristors (also called resistive random-access memory,

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Pin density technique for congestion estimation and reduction of optimized design during placement and routing

Shaik Karimullah & D. Vishnuvardhan

Applied Nanoscience (2022)

Abstract

This work presents an estimation of design parameters for placement and routing in IC fabrication with the help of the existing Floorplan, done using the Optimization algorithm in Circuit Design Engineering. It will be extremely helpful in testing the outcome possibility of IC Design. Because of underestimation of Placement and Routing Congestion issues IC implementation can face exceptionally nonlinear issues during its operation. Regular Optimization calculations are not the best approaches for profoundly estimating nonlinear characteristics in IC Design. So advanced tools like ICC2, VIVADO, CADENCE, VIRTUOSO, etc. are made available to search for calculations and get the actual parameters to reach optimal Placement and Routing for efficient Physical Design. This paper presents an estimation of routing congestion in both horizontal and vertical

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Enhancement of Health System for Emergency Care Using IoT Technique

Dr.K.Lokeshwaran,

Associate Professor, Department of Computer Science & Engineering,C. Abdul Hakeem College of Engineering & Technology, Melvisharam, India. E-mail: k.lokeshwaran@gmail.com

Dr.K. Boopalan,

Associate Professor, Departmentof Computer Science & Engineering,Annamacharya Institute of Technology and Sciences,Rajampet, India. E-mail: kbp@aitsrajampet.ac.in

Dr.K. Abrar Ahmed,

Assistant Professor, Departmentof Computer Science & Engineering,C. Abdul Hakeem College of Engineering & Technology,Melvisharam, India. E-mail: kaa406@yahoo.co.in

Dr.S. Kishore Verma,

Associate Professor, Departmentof Computer Science & Engineering,Sri Indu College of Engineering, Hyderabad, India. E-mail: kishore.saj3@gmail.com

Abstract---Life is precious to everyone. Nowadays, accidents are occurring in different places. An estimated report says that a person who lost their lives in an accident is ata higher rate as the accident has not been noticed and the person dies as the medical need which has to be done to them is not received in the correct time. Accidents that are taking place are unavoidable in some situations. But if proper information about the accident reaches the hospital the concerned person's life would be saved. In an existing approach, Gyroscope detects the change of tilt imprecisely when the vehicle ride on the slope where it delivers a false alert to the emergency system. So that in the measure of ground clearance by the ultrasonic sensor, it does not send false alerts.To overcome this drawback,we proposeda new Emergency care system where our system uses an ultrasonic sensor, pressure sensor, and GPS which will be connected to the vehicle through OEM. As soon as the accident happens GSM will send an alert message with location to the emergency number about the severity of the accident. In such cases, actions would be taken as soon as possible and lives can be saved.

Keywords---Advanced Vehicle System, IoT, GlobalPositioning System(GPS), Sensing Technology, Emergency Care Application.

I. Introduction

Due to rapid growth of world population, the demand forvehicles has increased tremendously, resultantly problems of traffic congestion and road accidents have also increased. Thegeneral population's life is at high risk, if any accident occurs there's a long reaction time which increments the number of deaths, therefore an automatic accident detection system must exist to overcome this situation. Statistics show that the leading cause of death by injury is road accidents [1]. There can be multiple causes of road accidents, some of them are, driver negligence due to drowsiness [2], driving while intoxicated [3], overspeed [4], [5], etc. Some studies show that weather conditions can also contribute towards the severity of an accident such as fog, rain, high winds. High winds can directly influence the vehicle which may deviate the vehicle from the road, or indirectly due to obstruction dangers present on the roads such as trees, walls, etc., [6]. Road crashes can be seen as a collision between any on-road vehicles, obstacles, or pedestrians. The survival rate of the victim is highly reliant on how long an ambulance takes to reach the site of the accident and then carry the patient to the hospital. In most cases of road accidents, the injuries are not severe and the life of the victim can be rescued, however, due to the late arrival of the rescue teams, the injuries turn deadly. Thus, the main goal is to identify where the accident occurred, send the information to the rescue teams in considerably less time, so that they can take the necessary actions, to save the life of the victim [7]. Intelligent Transport Systems (ITS) based on the Internet of Things (IoT) are getting popular and can be seen as a solution to

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RESEARCH ARTICLE

Enabling security in MANETs using an efficient cluster based group key management with elliptical curve cryptography in consort with sail fish optimization algorithm

C. Shanmuganathan ✉, K. Boopalan, G. Elangovan, P.J. Sathish Kumar

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https://doi.org/10.1002/ett.4717
Citations: 1

Abstract

In MANET, group key management is a vital part of multicast security. But distribution of keys in an authenticated manner is a difficult task in group key management. The existing methods provide low security with high processing time during group key management resulting does not provide sufficient results. Therefore, enabling security in MANETs using an efficient cluster based group key management with elliptical curve cryptography in consort with sail fish optimization algorithm is proposed in this article for two-level security with reduced computational overhead. At first, all the nodes in the cluster are structured in hierarchy method. The key server creates public key utilizing private key of the group node. Here, elliptical curve cryptography based meta-heuristic sail fish optimization algorithm is used to select the optimal private key for better secure communication. After selecting this optimum private key, the key server creates the public key, and a common group key is created using this generated public keys. If the nodes joint or exit from the subgroup, the reset process is executed in group key management process. Finally, this process reduces the computational overhead of rekeying method. The proposed method is simulated by Python programming and network simulator-3. The proposed elliptical curve cryptography based sail fish optimization algorithm attains 10.9%, 22.21%, and 11.43% low computational overhead, 19.34%, 13.45%, and 42.13% low latency, 43.45%, 22.21%, and 12.22% high packet delivery rate, 11.23%, 13.41%, and 21.11% high network life time than the existing methods.

Open Research

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

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Article

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Clustered Single-Board Devices with Docker Container Big Stream Processing Architecture

N. Penchalaiah[1], Abeer S. Al-Humaimeedy[2], Mashael Maashi[3], J. Chinna Babu[4,*], Osamah Ibrahim Khalaf[5] and Theyazn H. H. Aldhyani[6]

[1]Department of CSE, AITS, Rajampet, 516126, Andhra Pradesh, India
[2]Software Engineering Department, College of Computer and Information Sciences, King Saud University, P.O. Box 103786, Riyadh, 11616, Saudi Arabia
[3]Software Engineering Department, King Saud University, Riyadh, 11543, Saudi Arabia
[4]Department of Electronics and Communication Engineering, Annamacharya Institute of Technology and Sciences, Rajampet, 516126, Andhra Pradesh, India
[5]Al-Nahrain University, Al-Nahrain Nanorenewable Energy Research Center, Baghdad, 10072, Iraq
[6]Applied College in Abqaiq, King Faisal University, P.O. Box 400, Al-Ahsa, 31982, Saudi Arabia
*Corresponding Author: J. Chinna Babu. Email: jchinnababu@gmail.com
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Abstract: The expanding amounts of information created by Internet of Things (IoT) devices places a strain on cloud computing, which is often used for data analysis and storage. This paper investigates a different approach based on edge cloud applications, which involves data filtering and processing before being delivered to a backup cloud environment. This Paper suggest designing and implementing a low cost, low power cluster of Single Board Computers (SBC) for this purpose, reducing the amount of data that must be transmitted elsewhere, using Big Data ideas and technology. An Apache Hadoop and Spark Cluster that was used to run a test application was containerized and deployed using a Raspberry Pi cluster and Docker. To obtain system data and analyze the setup's performance a Prometheus-based stack monitoring and alerting solution in the cloud based market is employed. This Paper assesses the system's complexity and demonstrates how containerization can improve fault tolerance and maintenance ease, allowing the suggested solution to be used in industry. An evaluation of the overall performance is presented to highlight the capabilities and limitations of the suggested architecture, taking into consideration the suggested solution's resource use in respect to device restrictions.

Keywords: Big data; edge cloud; cluster architecture; performance engineering; Raspberry pi; dockers warm; container technology; data streaming

1 Introduction

Virtually everything on Internet of Things (IoT) generates data, and most of that data is stored or processed in the cloud. Furthermore, according to a study conducted by International Data

ANALYSIS OF MEDICAL IMAGE DATA BY DEEP CONVOLUTION TECHNIQUES AND KERNEL DENSITY ESTIMATION

Dr.M. SubbaRao[1]
Professor in CSE
AITS, Rajampet,AP,India
msraoswap@gmail.com

Kethireddy Anusha[2]
MTech Student in CSE
AITS, Rajampet,
anushaajay11153@gmail.com

Dr.N. Penchalaiah[3]
Associate Professor in CSE
AP,IndiaAITS, Rajampet,AP,India
penchalaiah550@gmail.com

Abstract

Consider the data/datasets are everywhere to define. Time aware search using queries results the best understanding of temporal data. Time aware kernel Estimation describes about the word temporal predictor to characterize the word-level temporal relevance by fine-grained time-aware kernel density estimation over the datasets and to capture the temporal relevance of query word that was made. The Kernel density defines as it results the predicted data in the form of histograms that was a form of analysis which shows the predicted data of the EHR data search. It mainly consists the word level temporal prediction of past experiences with an incompletely known system to predict future behavior. The effectiveness and robustness proposed by the temporal predictors as time aware to analyze chronic diseases using EHR data. As the growth of chronic diseases, The health care growing parallel. This can elevate visualization, accuracy and effectiveness by considering the chronic disease data analysis time to time. It can be defined as word-level temporal relevance of data from the information and to make kernel density estimation for better effective and the accurate results.

Keywords— Medical image classication, pre-trained DCNN, convolution neural network, big data, image analysis, image enhancement, biomedical image processing, deep learning

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I. INTRODUCTION

Artificial Intelligence (AI) is an important field of computer science which thriving enormous research hotspots and applications. AI is an attempt of human intelligence and generates intelligent machines that process information. Its main agenda is to cultivate brain–like machines [1]. AI has been part of many fields like robotics, NLP (Natural Language Processing), Expert-System, Image Processing, etc. Machine Learning (ML) is act as a core for AI and comprises different kinds of disciplines like convex analysis, approximation, probability and complexity theory. Machine learning technology provides computers the capability to computations without any pre-programmed. In order to improve performance of a computer, Machine Learning utilizes induction as well as synthesis concepts [2]. Machine Learning technology implemented in different kinds of fields especially diagnosing diseases and bioinformatics. Machine and Deep learning technology plays a vital role in computer field and it act as an expert for predictions and making decisions. Deep learning technology is a kind of machine learning technology [3]. These technologies used to extract the data and process for as per requirements. The fundamental idea of Deep learning is to acquire data representations by improving abstraction levels. Different kinds of architectures for deep learning have proposed including Convolutional Neural Network (CNN), Deep Auto-Encoder, Deep Neural Network (DNN), etc. [4]. Image processing is the growing concept in medical field. Image processing delivers significant information on decision making. Different kinds of steps are followed on medical field before obtaining output [5]. Medical image is given as input to the deep learning and it is partitioned into segments in order to concentrate on important area. Next those segments are used to extract significant information with the help of information retrieval techniques[6]. Then the required features are obtained without noise by using noise removal techniques. The obtained data classified by using classifier and predictions are done by using classification. These steps are

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WOGRU-IDS — An intelligent intrusion detection system for IoT assisted Wireless Sensor Networks

Kadiyala Ramana [a], A. Revathi [b], A. Gayathri [c], Rutvij H. Jhaveri [d], C.V. Lakshmi Narayana [e], B. Naveen Kumar [e]

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Highlights

- A Novel and Hybrid Learning Model based WSN-IOT-IDS (WOGRU-WSN-IDS) has been proposed. The whale algorithm optimises GRU network hyperparameters, solving classification issues and high-speed detection.
- This paper employs WSN-DS datasets for experiments and a learning model-based IDS system for comparison.
- A scalable, high accurate, high speed WOGRU IDS System is introduced to handle the larger WSN datasets.

Abstract

One of the key mechanisms of the current electronic and wireless frameworks is the assistance of Wireless Sensor Networks (WSN) in Internet of Things (IoT) networks. A WSN typically consists of multipurpose sensor hubs for data sensing, processing, and communication. These networks are more suited to conveying medical data from various geographical regions and sending private medical data to the network owner. However, the worry about various attacks on health care data normally grows daily. These assaults could quickly have adverse impacts on the WSN-IoT (Internet of Things) nodes. Additionally, the low detection rate, significant processing overhead, and resource limitations of current intrusion detection systems all contribute to an increase in false alarm rates when trying to identify various attacks. The unique Whale Optimized Gate Recurrent Unit (WOGRU) Intrusion Detection System (IDS) for WSN-IoT networks is proposed in this research in light of the aforementioned issues in order to effectively identify various attacks. The whale algorithm was used in the proposed framework to tune the hyperparameters of the deep long short-term memory in order to achieve low computational overhead and great performance. Last but not least,

IMPROVEMENT OF NOISE REMOVAL AND QUALITY OF UNDERWATER IMAGES USING SUPER RESOLUTION METHOD

PDF (https://www.provinciajournal.com/index.php/telematique/article/view/691/577)

Dr.M. SubbaRao

Pola Nimagna

Pola Nikhila

Abstract

Enhancing underwater images in Epicontinental Sea is a challenging problem owing to the influence of ocean currents, the refraction, absorption and scattering of light by suspended particles, and the weak illumination intensity OCT (optical coherence tomography) images relies on interferometer, which explains images suffer from a high level of noise. Noise in image is any degradation in an image signal, caused by external disturbance while an image is being sent from one place to another place via satellite, wireless and network cable. Image noise is an undesirable by product of image capture the desired information. In existing system, a super resolution algorithm can be used to generate a high resolution image or image sequence .The algorithm has been proposed to estimate sparse co-efficient using joint MAP estimator. A non local sparse model-based Bayesian framework is proposed for OCT restoration. The laplacian distribution, normalized vector and GEV distribution is used for best good fit for modeling super resolution method is not fast as MAP solution. In proposed system, to overcome the existing drawback on single super resolution algorithm we are going to explore multi frame super resolution to gain more improvement in reconstruction quality. A multi frame super resolution produces a superior quality, high resolution image from multiple numbers of blurred noisy low resolution images

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Deep Learning Technique for Automatically Classifying Food Images

Dr.K. Uday Kumar Reddy[1]
Associate Professor in CSE M.Tech
AITS, Rajampet, AP, India
pranith.dwh@gmail.com

Sangaraju Swathi[2]
Student in CSE
AITS, Rajampet, AP, India
ssslmp16@gmail.com

Dr.M. Subba Rao[3]
Professor in CSE
AITS, Rajampet,AP, India
msraoswap@gmail.com

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Abstract

Because of its growing advantages in the health and medical domains, food image categorization is becoming a more popular study topic.Future diet monitoring systems, calorie estimates, and other projects will undoubtedly benefit from automated food identification techniques. This research presents automated systems for classifying foods using deep learning techniques.The classification of food images using Squeeze Net and VGG-16. These networks are suitable for usage in real-world scenarios in the medical and healthcare industries since it has been shown that employing data augmentation and fine-tuning the hyperparameters significantly improved their performance.Because Squeeze Net is a lightweight network, it is simpler to set up and frequently more appealing. VGG-16 can accomplish quite a decent accuracy even with less parameters. Extracting intricate elements from food photographs allows for even higher categorization accuracy. The suggested VGG-16 network considerably enhances the effectiveness of automated food image categorization. Squeeze Net was suggested as having significantly improved accuracy because of increased network depth.

Squeeze Net performs better in the categorization of food images than VGG-16, according to the results. The name of the food item is categorised with pictures that help you identify it.

With deep learning, larger datasets, and more readily available computer resources, image categorization has become less challenging. The most common and widely applied method for classifying images in the present is the convolution neural network. Various transfer learning algorithms are used to classify images from a broad variety of food datasets. Food is important to life since it gives us various nutrients, thus it's important for everyone to keep an eye on their eating patterns. To live a healthier lifestyle, categorising food is so vital. In this project, pre-trained models are employed rather than the more conventional approach of creating a model from scratch, which reduces computing time and costs while also producing superior outcomes.For training and validation purposes, the food dataset is utilised. It consists of several classes, each with many photos. These pre-trained models will be used to identify the provided food, and they will make predictions about its nutritional value based on the colour of the image.

Key words: Food 101 dataset, Food classification, Deep Learning, Transfer Learning, image processing, CNN, VGG-16, Squeeze Net.

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Efficient Intrusion Detection Using Deep Learning Approaches

V. Sathyendra Kumar[1], Dr. A. Muthukumaravel [2]

Submitted: 19/08/2022 **Accepted:** 22/11/2022

***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.

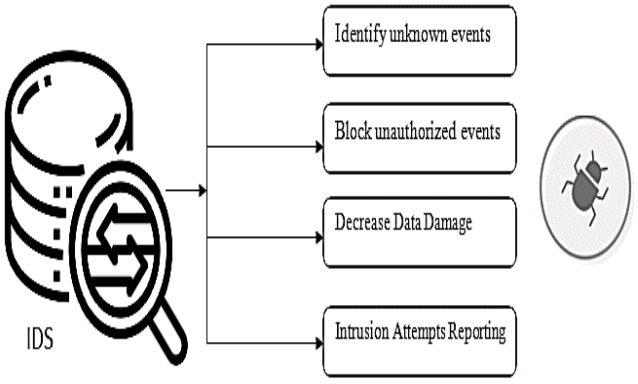

Figure 1: Purpose of IDS

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

[1]*Research Scholar, BIHER, Chennai & Assistant Professor, Department of MCA, Annamacharya Institute of Technology & Sciences (Autonomous), New Boyanapalli, Rajampet, Kadapa(Dt.), Phone: 09985666531,*
e-mail: vsk9985666531@gmail.com
[2] *Dean, Faculty of Arts & Science, Professor & HOD- MCA,BIHER, Chennai,*
e-mail: muthu14673@gmail.com

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Character Segmentation of Handwritten Text of Support Vector Machine(SVM)Using Machine Learning

B.Pandu RangaRaju[1] ,P.Ganesh Reddy[2] ,S.Sushanth Kumar Raju[3]
A.Pranathi[4] ,V.Siva Jyothi[5]

[12345] *Assistant Professor, Department of AI&DS, AITS-Rajampet, AP, INDIA*

ABSTRACT

The importance of handwritten documents in everyday transaction technologies like optical character recognition will be a valuable addition to the new set of technologies. This technology allows the translation of different documents and images into editable, analyzable, and searchable information. Researchers have successfully integrated technologies like machine learning and artificial intelligence to automatically analyze printed or handwritten documents for converting them into electronic formats. At the time of recognizing a text, one needs to process the input image, extraction functionality, and classification schemes. This is the training stage of the system for acknowledging specific text. In this phase, the system is trained to find out similarities and differences between handwritten sample documents. Technology makes use of images of hand transcription and then transforms these images into a digital copy. The primary aim of this research report is to understand and explain the procedure for the development of character recognition systems.

Index Terms: *Character Recognition, Image Processing, Recurrent Neural Network (RNN), CNN Character Segmentation, Machine Learning*

I. INTRODUCTION

Handwriting recognition technology allows interpreting handwritten documents from sources like documents, screens of other devices, or other digital formats [1]. A handwriting recognition system can handle formatting and also performs character segmentation. It is also capable of recognizing the most plausible words. The translation of handwritten characters into digital formats is becoming more and more popular. Over time, the hard copies may get spoiled, but anything that has been stored in the system will remain accessible [2]. However digital files can also get lost if deleted or gets corrupted. Storing handwritten documents in digital format is gaining immense popularity.Optical character recognition technology is a tool that can convert text into a machine-encoded form. At present, OCR technology is being used for the digitization of handwritten scripts [3]. It also facilitates the conversion of typewritten text into digital format. This has also simplified the retrieval of information from huge piles of documents. Organizations can now easily access historic data from digital files [4]. This technology is also being used in domains like academics, law, etc.

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Design and Evaluation of a Deep Learning Algorithm for Emotion Recognition Using Convolutional Neural Networks (CNN)

B.Pandu Ranga Raju[1], B.Naga Lakshmi[2] ,G.Naga Gayathri[3]
K.Sai Poojitha[4] , S.Mehataj[5]

[12345]*Assistant Professor, Department of AI&DS, AITS-Rajampet, AP, INDIA*

ABSTRACT

Facial emotion recognition is one of the most interesting research areas where many researchers are actively participating over the past few decades. This paper attempts to discuss about the application of emotion recognition where seven different emotions such as happy, sad, neutral, angry, surprise, fear and disgust are obtained. Humans can produce thousands of emotions in different situations which have different meanings, intensities and complexities. By using convolutional neural network (CNN) algorithm, an accuracy of about 89%has been achieved. It is the simplest way of all. For better results deep learning and neutral networks have been used. Our proposed deep learning model helps us in focusing important features in humans face to detect emotion using multiple datasets such as FER-2013 and image dataset.

Keywords: Emotion Recognition, Neural Networks, Dataset, Types of Emotions.

I.INTRODUCTION

Emotions are an important part of any interpersonal communication. In every human's life emotions plays an important role. Humans are efficient in producing lot of emotions during their daily life at different situations that hold disparate meanings and intensities. At several situations humans plays a different emotion based on their mood. They can be shown in disparate forms which may or may not be noticed visually. Therefore, with the help of accurate tools, the emotions are detected and recognized. For detecting emotions in face, facial emotion recognition process is used. Humans vary widely in their accuracy at finding others emotion. So, here are using technology to recognize the emotion. Emotion can be expressed through face, speech, electroencephalogram (EEG) and via text. Out of these, facial expressions are in favour as they are visible to human eye.

Emotion Recognition supports us in sensing emotions in humans at diverse situations. It is classified into 3 stages they are Face Detection, Feature Extractionand Emotion Classification. Face detection is a pre-processing stage which helps in detection emotions, During Feature extraction various features of the face is extracted, in the final stage it produces labels and model will be trained.However, with growing connections of humans with machines, researchers now aim at constructing deep learning models that can perfectly analyze affective content in conversations. This can help in creating empathetic facial emotion recognition systems, thus improving the overall human-machine interaction experience. This paper presents a deep learning-based algorithm i.e., Convolutional Neural Networks (CNN) to detect emotions in face

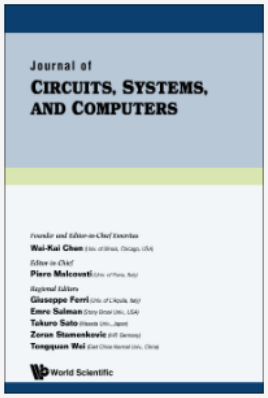
Leaf Disease Classification in Smart Agriculture Using Deep Neural Network Architecture and IoT

Kadiyala Ramana, Rajanikanth Aluvala, Madapuri Rudra Kumar, G. Nagaraja, Akula Vijaya Krishna, and Pidugu Nagendra

https://doi.org/10.1142/S0218126622400047 | **Cited by:** 10 **(Source: Crossref)**

Abstract

The Internet of Things (IoT) is bringing a new dimension to the smart farming market. This helps the user to collect the data from the agricultural fields in real time and move it to remote areas for processing. With the available sensor data and the image taken from the fields, automated disease prediction is possible. Deep neural network is used



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Sentiment classification with the BERT procedure based on deep learning

P. Susmitha
sushmita.pathipati@gmail.com
Annamacharya Institute of Technology and Sciences, Rajampet, Andhra Pradesh

V. Swetha
swethavalluru7654@gmail.com
Annamacharya Institute of Technology and Sciences, Rajampet, Andhra Pradesh

S. Udaya
udayasoftware70@gmail.com
Annamacharya Institute of Technology and Sciences, Rajampet, Andhra Pradesh

K. Anusha
anu.anusha.2208@gmail.com
Annamacharya Institute of Technology and Sciences, Rajampet, Andhra Pradesh

P. Nagendra
pnr2830@gmail.com
Annamacharya Institute of Technology and Sciences, Rajampet, Andhra Pradesh

ABSTRACT

The need for Sentiment classification is a critical step in determining how people feel about a product, service, or issue. To solve the sentiment categorization problem, many natural language processing models have been developed. The majority of them, however, have concentrated on binary sentiment categorization. In this study, we tackle the fine-grained sentiment categorization task using BERT, a powerful deep learning model. Experiments show that without complicated architecture, our model outperforms other popular models in this job. In the process, we also demonstrate the utility of transfer learning in natural language processing.

Keywords: *Sentiment Classification, Natural Language Processing, Deep Learning*

1. INTRODUCTION

The Sentiment classification is a type of text classification in which a piece of text is assigned to one of several predetermined sentiment categories. It's a challenge of supervised machine learning. Positive and negative sentiment are the two available classes in binary sentiment categorization. There are five classes in fine-grained sentiment classification (very negative, negative, neutral, positive, and very positive).

The input to the sentiment classification model, like any other machine learning model, must be a fixed-size vector of numbers. As a result, we must convert a text—a sequence of words encoded in ASCII or Unicode—into a fixedsized vector that contains the text's relevant information. For this purpose, many statistical and deep learning NLP models have been proposed. There has been a recent surge in the development of NLP and other deep learning architectures.

While transfer learning (pretraining and finetuning) has become the industry standard in computer vision, NLP has yet to completely embrace the concept. The transfer learning revolution in NLP has begun with neural language models like as word vectors [1], paragraph vectors [2], and GloVe [3]. BERT (Bidirectional Encoder Representations from Transformers) [4], a deep bidirectional language model based on the Transformer architecture [5], was recently published by Google researchers, and it enhanced the state-of-the-art in several popular NLP tasks.

2. RELATED WORK

Sentiment classification is one of the most prominent NLP problems, and as a result, there has been a lot of research and advancement in accurately handling this task. The majority of the algorithms have concentrated on binary sentiment classification, owing to the availability of huge public datasets such as the IMDb movie review dataset [6]. Only a few significant deep learning NLP methods used to sentiment categorization are discussed in this section.

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LOAN DEFAULT FORECASTING USING MACHINE LEARNING

P.Nagendra[1] , G.Sowmya[2] , T.Vamsi Kumar[3] , N.Veera Charan[4] , M.Thanusha[5]

[1]Assistant Professor ,Dept. of Artificial Intelligence & Data Science , AITS, Rajampet, AP

[2,3,4,5]UG Scholars ,Dept. of Computer Science and Engineering AITS, Rajampet, AP

ABSTRACT

Default appraisal, also known as loan appraisal, is a critical procedure, and banks should assist them in determining whether or not the potential borrower is just a defaulter at such a later stage thus that they might process their application and choose whether or not it will approve it. The conclusions drawn from such calculations will assist banks and insurance companies in reducing their losses and, as a response, increasing the amount of credits available. As a result, it's critical to develop a model that considers the many features of an applicant as well as the results in connection to a relevant applicant. In today's technology-based world, criminals use every means available to borrow the money from their unlawful activities.The rising amount of bad debts resulting from commercial bank loans illustrates the economy's difficulty in problematic banks. We used machine learning and data mining techniques to assess defaulters using a dataset of home loan application information, allowing banks to make good decisions.

Keywords :Loan, credit, prediction, and Data Mining are some of the terms used in this paper.

I.INTRODUCTION

Financial fraud has been recorded on a regular basis in India in recent years. Banking crimes have increased in frequency, complexity, diversity, and cost tremendously as compared to previous methods. As a result, regulators are quite concerned about such risks. The strength and sustainability of a national budget framework aid in determining whether the industry was worth spending in. It provides information on the citizens' health, safety, and living standards. As a result, if the financial system is plagued by high rates of Non Performing Assets, it is a serious problem, as it reflects the financial distress of borrower consumers. Such issues have a significant impact on the Indian economy. The key causes of the increase in stressed assets have been identified as aggressive lending practises, purposeful and conscious defaults, loan fraud cases in some situations, and economic stagnation. According to statistical inputs, 16 out of 60 banks (or 26.5 percentage of the market) are still unable to cover their predicted losses within their current framework. People apply for the loan in big numbers every day for a number of reasons. However, not all of the applications are genuine, and not all of them may be given credit. Analyzing the risk connected with the complainant's demographic data is quite significant.

II.RELATED WORK

[1]. Aditi Kacheria, Nitin Shivakumar, Archana Gupta, and Shreya Sawker [1] developed a model for loan approval authorities that would assist them in judging the authenticity of consumers who had filed for the loan, hence boosting the likelihood of their debts being paid back on time. Their strategy is made up of three parts: K-NN and Binning are used to perform pre-processing. The Nave Probabilistic technique is used to calculate

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Deep Learning for Monitoring Driver's Distraction from Physiological and Visual Signals

Dr.J. Krishna[1],O. Ganendra[2],S.K.Mahaboob Basha[3], K.Chandrika[4], K.Balaji Reddy[5]

[1]Associate Professor,Dept. of Artifical Intelligence & Machine Learning, AITS, Rajampet, AP, India
[2,3,4,5]UG Scholars,Dept. of Computer Science and Engineering, AITS, Rajampet,AP, India

ABSTRACT

The major cause of traffic collisions is driver indifference. Sluggishness is defined as a state of depletion, with a change in the appearance of the face. Face recognition and appearance identification are important elements in determining whether someone is lazy. To recognise faces and looks, several calculations are being developed. In any event, due to the climate's outside boundaries, these computations result in a poor result. The significant difficulties are lighting and camera placement. The display of face and tiredness identification was investigated in this work using a variety of designs. We've also presented novel identifying methods based on deep learning. To gauge the drivers' state, we use facial locales relating to the whole face. The calculations utilized for face location are i) Yolo V3 ii) Viola Jones iii) DLib. For the Classification, The CNN (Convolutional Neural Network) design utilized in the sluggishness location is changed LeNet.

KEY WORDS: Face detection, Convolutional Neural Network (CNN), Drowsiness detection, Multi-modalanalysis Viola Jones algorithm, dlib, YoloV3, LeNet, Deep Learning.

I.INTRODUCTION

Individuals now rely on automobiles as their primary mode of mobility. According to'statista' global automotive insights, car sales increased by 95 million units from 2017 to 2019. In 2018, the selling rate was 1 billion. The global car sales rate was 60.5 million units until March 2020. As the number of vehicles on the road grows, so does the risk of traffic and accidents. Car accidents routinely result in a high number of fatalities. In all states, the National Crime Record Bureau (NCRB) records 497,760 street-related car accidents. According to the World Health Organization (WHO), around 1.35 million people have died as a result of street traffic injuries globally. Exhaustion driving accounts for approximately 20% to 30% of these mishaps. The most dangerous aspect of street mishaps is sloppy driving.Language identification algorithms are classified using abstract and objective discovery processes. Drivers receive no criticism during objective discovery, and discovery is based on their physical viewpoints, whereas emotional location is based on their bodily parts. Contact and non-contact identification are the two types of actual identification. The suggested framework favours non-contact technique over contact strategy since it is less expensive.

The major purpose of this study is to figure out if a driver is tired. The analytical pipeline looks at each outline picture of the video transfer to see if the drivers are tired. The proposed framework employs a non-touch technique since it is less expensive than a contact strategy. The driver receives an alarm warning when the location is determined, allowing him to execute a critical manoeuvre. A deep learning strategy is applied here with the help of a Convolutional Neural Network (CNN).

PBC - Paddy Crop Blast Disease Prediction Using Superior Machine Learning Algorithms

[1]BATHINA VENKATESU GOUD [2]SWARNA SUREKHA
[1]Assistant Professor, Department of AI&DS, Annamacharya Institute of Technology & Sciences, Rajampet. Email: venkatesugoud@gmail.com
[2]Assistant Professor, Department of AI&ML, Annamacharya Institute of Technology & Sciences, Rajampet. Email: swarnas.623@gmail.com

Abstract: *The majority noteworthy crop for India's main foods is rice. On the other hand, it is one of the crops that recurrently suffers from disease-causing mediator.. Crop diseases are one of the main dangers to food protection, in spite of the fact that a number of factors, including pests, environmental factors, and natural illnesses, affect the growth of the crops. The diseases can harm the crop at any stage and are bring on by bacteria or fungi. The most extensively consumed primary staple food worldwide is rice, which is the second largest cereal crop after wheat. The the largest part detrimental of all rice illnesses, rice blast (caused by Pyricularia oryzae, a teleomorph of Magnaporthe grisea), consequences in annual wounded of more than a few million dollars. The finest way for administration rice blast disease is still chemical control. There have been abundant attempts to create models that can predict rice blast. For the purposes of training and testing the Machine Learning model, a dataset consisting of 2800 positive samples and 2500 negative samples is established. When compared to other existing approaches in conditions of accuracy, the suggested Machine Learning models is different and of itself and model for discovering outcomes with high precision.*

Keywords*: Paddy Blast Crop, Artificial Neural Network, K-Nearest Network, Support Vector Machine, Convolutional Neural Network.*

INTRODUCTION:

considerate how to use machine hallucination to recognize plant diseases and pests is an vigorous topic of study. It's a method that uses machine vision equipment to analyses images of plants for signs of pests and diseases. Some of the older ways of visually identifying plant diseases and pests have been supplanted by machine vision-based detection systems. Most machine vision-based approaches for plant disease and pest detection [1] [2] rely on either conventional image processing algorithms or human feature development in combination with classifiers. To make the imaging scheme and prefer the right light source and shooting angle, this technology regularly draws on the abundant characteristics of plant diseases and pests. If you want your photographs to all have the same amount of light, this is a good way to accomplish that. Although well-thought-out imaging methods might make algorithm creation simpler, they also increase the price of the programme. Conventional techniques designed to completely

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AI-ENABLED SECURED TRANSPORTATION SYSTEM

Dr.J.Krishna[1], P.ReddiSri[2], P.Poorna[2], S.Furqhan[2], M.Sai Mohan Reddy[2]

[1]Associate Professor in Department of AI&ML, Annamacharya Institute of Technology and Sciences (Autonomous), Rajampet, Andhra Pradesh, India-516126.

[2]Department of Computer Science and Engineering, Annamacharya Institute of Technology and Sciences (Autonomous), Rajampet, Andhra Pradesh, India-516126.

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ABSTRACT: The impact of the Internet of Things on transportation will be significant. Automated vehicles (AVs) are designed to make regular activities easier, such as shipping, vehicle traffic, and freight transit. A broad variety of applications are served by AVs, which can even be airborne or underwater in addition to being transport vehicles. An assortment of AVs makeup the Internet of Transportation, a subset of IoT systems. In addition to managing a lot of sensor data, these IoT devices send a lot of sensor data to the cloud for processing. Although AVs have great promise and can dramatically enhance transportation, worries about safety and confidentiality there will be new issues that need to be resolved. In order for these IoT systems to effectively control AVs, AI-based approaches are becoming increasingly important. For virtualized Network of Things devices, this article tackles access control and AI.

***Keywords*:** Artificial intelligence, cloud computing, and the internet of transportation.

I. INTRODUCTION

The quantity of AVs has grown recently. Organizations are investing a lot of money in AVs. AVs employ a variety of sensors to examine their environment. Regardless of the capabilities of AVs and the advantages that could offer the industrial issues with privacy, security, and the industry bring new problems that require to be solved. It is possible to intentionally manipulate the sensors. Devices should verify frequency response validity while acting on it [1].

The methods of IoT comprised with group of AVs are referred to as the Network of Transport systems. The Network of Transport Systems might be attacked (like any cyber-physical system). These technologies, like driverless cars in the future, as well as autonomous vehicles, are gathering streaming data. The switch to electric transportation systems necessitates energy saving. Assaults on energy management might seriously affect security of these systems, resulting, among other things, in collisions, fatalities, and being stopped on deserted highways. The objective seems to be to employ data science/ML tools to analyse AV data in addition to utilizing broadcast data analysis and learning approaches on transportation information.

So, for example ML algorithms can be used to analyse the enormous volumes of telemetry information that AVs are producing? [2]. The Network of Transport Systems will likewise

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RESEARCH ARTICLE

HEAT TRANSFER WILEY

Numerical study on the parabolic flow of MHD fluid past a vertical plate in a porous medium

Poli Chandra Reddy[1] | **Mummadisetty Umamheswar**[1] | **S. Harinath Reddy**[1] | **A. B. Madhumohana Raju**[2] | **M. C. Raju**[3]

[1]Department of Mathematics, Annamacharya Institute of Technology and Sciences (Autonomous), Rajampet, Andhra Pradesh, India

[2]Department of Mathematics, New Horizon College of Engineering, Bangalore, Karnataka, India

[3]Department Mathematics, JNTUCEP, Pulivendula, Andhra Pradesh, India

Correspondence
Poli Chandra Reddy, Department of Mathematics, Annamacharya Institute of Technology and Sciences (Autonomous), Rajampet, Andhra Pradesh 516126, India.
Email: chandramsc01@gmail.com

Abstract

A numerical investigation on MHD fluid flow in parabolic mode has been performed to point out its significant properties. Thermal radiation, porous medium, heat generation, chemical reaction, and thermal diffusion along with variable temperature and concentration are taken into consideration in the analysis. The novelty of the work is the inclusion of heat generation and thermal diffusion along with exponentially varying temperature and concentration. The constituent governing equations are solved by using finite difference schemes in explicit form. The fluctuations in velocity, concentration, and temperature are observed and discussed with the help of graphs as well as numerical data. Their gradients are also calculated and analyzed the flow properties by using numerical tables. The existence of heat generation, as well as viscous dissipation, creates an increment in the temperature. The gradient of heat transfer rises with the impact of Prandtl number and decay in it is examined under the existence of a source of heat and viscous dissipation.

KEYWORDS

chemical reaction, finite difference scheme, heat generation, parabolic motion, thermal radiation

Study on MHD Free Convection flow of a Casson Fluid Flow Past a Vertical Porous Plate With Uniform Boundaries

L. Rama Mohan Reddy [1] , P. Veera Sanjeeva Kumar [2] , K. Mohana Babu [3] and P. Chandra Reddy [4]

[1]*Department of Mathematics,*
Rajiv Gandhi University of Knowledge Technologies, IIIT-Ongole,
ONGOLE 523225 India
duggireddy.lingari@gmail.com

[2]*Department of Mechanical Engineering,*
Annamacharya Institute of Technology and sciences,
Rajampet 516115 , A.P, INDIA.,
sanjeevpalagiri@gmail.com

[3]*Department of Mathematics,*
Rajiv Gandhi University of Knowledge Technologies, IIIT-Ongole,
ONGOLE 523225 India
mohanababukumara@gmail.com

[4]*Department of Mathematics,*
Annamacharya Institute of Technology and sciences,
Rajampet 516115 , A.P, INDIA.
chandramsc01@gmail.com

Abstract

The current work focuses on the analysis of unsteady heat and mass transfer rates through porous media in the presence of a uniform transverse magnetic field, as well as radiation/absorption, heat generation/absorption, and homogeneous chemical reaction effects. Perturbation method is used to solve the coupled non-linear partial equations. Various parameters effects on flow characteristics are investigated. The results are presented in the form of graphs that show the effect of various parameters on fluid flow. The Casson parameter has an effect on fluid velocity. The flow within the boundary layer is reduced by the heavier species with low conductivity. Because of the importance of non-Newtonian fluids in real-time applications in chemical industries and petroleum refineries, the Casson parameter is used.

Subject Classification:[2020]76S05,35Q35,35Q40,80A21,80A30.
Keywords: Casson fluid, thermal radiation, Grashof Number, Porous Medium, MHD.

1 Introduction

The present investigation has been focused on how the influence of such foreign mater on the heat and mass transfer characteristics of the chemical fluid flows.The present essential need for various chemical industries and manufacturing firms is how to reduce or completely eliminate the adverse effects or hazards happened in different chemical reactions takes place during the processing of products. The main cause of this is due to presence of any foreign elements or unexpected agents in the processing. Faruk Abdullahi et al. [1] have investigated the Casson fluid effects on magneto-hydrodynamics (MHD) unsteady heat and mass transfer free convective past an infinite vertical plate. Haroon ur Rasheed et al. [2-3] have done the computer analysis to investigate the effect of mathematical abstractions on velocity, energy, concentration and the influence of skin-friction and Nusselt number. Also the effects of Joule heating and viscous

Acquisition of English Language through Language Laboratories- A paradigm shift in Language Learning

M.Nagaraja Kumar, Assistant Professor of English, Annamacharya Institute of Technology and Sciences, Rajampet, email: rajkumarmeruva@gmail.com

Dr.B. Bala Nagendra Prasad, Head, Humanities and Sciences Department, Annamacharya Institute of Technology and Sciences, Rajampet, email: prasadbbn@gmail.com

Abstract

In this world of gizmos, technology is fast growing and the world is witnessing many Innovative explorations. Today's world doesn't need people who confined themselves to their own territory, but the people who can excel globally well. To do so one must have gained expertise in the language predominantly spoken in the world. It is a well-known fact that English is the language which is chiefly spoken throughout the world and the fact of the matter is one who gains mastery over English language can conquer the world. The need of the hour is to have a system of Education where students of the nation should be provided with the opportunity of learning English language irrespective of the part of the Nation that he/she hails from. Meeting unending demands of people the Educational Boards have refurbished the whole systems and have embarked upon the idea of introducing the Language Labs in Schools and Colleges. The advent of such language Laboratories has yielded tremendous results in making the students learn English Language very effectively. A Language laboratory is commonly christened "Lab" is destined for the purpose of dealing with the aspects language learning. A Lab is a setting with a particular set-up and runs under the supervision of trained language experts. A language dealing institution which is dearth of lab facilities provide boredom and monotony to the learners and deprive them the opportunity of Language Learning situations. In the absence of such labs the learners will find themselves detached from the world of interest and creativity. In a language laboratory the students have the access to audio, video, multi-media and Internet facilities. For students attending a language lab is retreat from traditional class rooms, Hence the students find it interesting. This paper explains how a Language Laboratory helps in enhancing English language skills and the methodologies adopted to give further impetus in making a student more proficient in speaking English Language.

Key Words: **Language Laboratory, Technology, Audio and Video, Multi-media**

EFFICACY OF VISUAL AIDS AS INSTRUCTION MATERIALS IN ESL CLASSROOMS

M. Naga Raja Kumar
Assistant Professor of English
Annamacharya Institute of Technology and Sciences
Rajampet, Andhrapradesh

Dr. B. Bala Nagendra Prasad
Head, Department of Humanities and Sciences
Annamacharya Institute of Technology and Sciences
Rajampet, Andhrapradesh

Abstract

The importance of English language has assumed greater significance than ever before. In fact the acquisition of English language has paved way many a people to have umpteen numbers of opportunities in various fields. Learning of English language seems to appear a mandatory practice for a learner to excel in his or her career. With the advent of new technologies, new innovative methods can be introduced into English language lab to have the visual feast of witnessing visual aids in the form of pictures, visual clips and also films. The impact of such practices in the language lab is so profound and very soon it has attracted the attention of educational institutions across the globe. Though it appears like a new concept still it grabs the attention of the learner to a great extent. It has the capacity to visually mesmerize the learner and enables him learn the language very efficiently and effectively. Professional colleges such as engineering, Pharmacy and other colleges can create such kind of visually wonderful atmosphere to grab the attention of the learner and to enhance the acquisition of the language. This article tries to explain how language learning is a kind of fun activity that indulges the learner to deeply engross in the activity with happier mood to acquire the language using visual aids. This paper also explains how the conduct of such activities help escalate the critical thinking of the learner to learn the intricacies of the language which in turn gives him further fillip to participate in seminars, debates and group discussions. may also enhance imagination of the students and that may lead to skills like critical thinking, debates and Group Discussions. Use of visual aids also promotes active listening of the learner. Apart from listening skill, watching of visual aids also accelerate speaking and writing skills of a learner.

Key words: *Visual aids, ESL Classroom, authentic source, learner, English lab, language activities.*

Introduction

English is a widely recognized example of a global language. According to Wikipedia, English is recognized as an official language in 67 sovereign nations and 27 non-sovereign governments. The younger generation has more access to multi-media technology and the internet to a large extent in today's world of gadgets.

In the sphere of education, the use of visual aids and cutting-edge technology has grown in importance. It has been noted recently that communicative language instruction has gained greater traction than traditional grammar instruction. It was once thought that grammar instruction and reading literary works were both necessary for language acquisition. There was little focus placed on the use of visual aids or developing effective listening skills.

The need to learn a new language is now a must for communication. People pick up new languages in order to communicate and do business more effectively. Because English is a world language, it is required of everyone to acquire it in order to communicate with a vast number of people. Given the popularity of the English language, it is urgent to investigate the potential for creating new technologies that students may use to get familiar with the language.

Language instructors are always looking into the potential of developing fresh approaches and using them in their ESL classes. The introduction of visual aids into the classroom not only heightens students' curiosity and interest to the hilt but also relieves tension. As a result, language teachers frequently develop novel concepts and teaching techniques to use in the classroom. Language teachers have shifted to employing new teaching visual

Effects of soret and chemical reaction on a casson fluid through a vertical plate in conducting field with variable boundary

T.RAMANJANEYULU[1*], L.HARI KRISHNA[2]

[1]Department of Mathematics, JNT University Anantapur, Ananthapuramu, Andhra Pradesh, India
e-mail: ramanujan02@gmail.com

[2]Department of Mathematics, Annamachrya Institute of Technology and Sciences, Rajmpeta, Andhra Pradesh, India. e-mail: lhkmaths@gmail.com

* Corresponding author

ABSTRACT

The paper presented here reveals a clear logical focus with regard to demonstrate how the Casson fluid streams with brand name characteristics of intensity and mass trade in a flimsy convective magnetohydrodynamic environment are impacted by warm spread and substance reaction. The fluid streams past over an influencing vertical plate with the mentioned characteristics.

Mostly applicable mostly differential circumstances settled mathematically using the irritation technique and numerically using MATLAB programming. With the help of speed, temperature, and concentration, skin contact, Nusselt number, and Sherwood number are gained and tended into a structure. One of the significant disclosures of this examination recollects that the elevating of the Newtonian warming effect causes a continuous loss in the speed of hotness Transat the plates and the gathering of the fluid downfalls under the impact of a compound reaction. There physicochemical highlights have been overseen protoundly. This fluid stream model has a couple of present-day applications in the fields of engineered materials, polymers, and clinical sciences.

KEYWORDS: Casson liquid, Chemical Reaction, Magnetic Field, MHD, Thermal Dispersion

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INTRODUCTION

Substance and remedial organizations, for instance, in the making of gas, paint, oil, juice, syrup, cleaning specialist, and a couple of manufactured compounds. In a Newtonian fluid, the thick nerves are arising out of its stream, at each point it is comparative with the close by strain rate and their applications are limited, of which various truths are seen for the fluids in mechanical and present-day applications, for instance, chemical, blood, paints, and certain oils are indefinable [1]-[3]. Mathematicians, physicists, and architects face a remarkable test with the mechanics of non-Newtonian fluids, as the properties of such fluids can't depict by Navier-Works' conditions. Additionally, no condition shows the properties of the overall huge number of fluids. A couple of non-Newtonian fluid models have been proposed like Bingham plastic, power guideline, Walter-B, viscoelastic, Brinkman type, Old Royd-B models, and Casson fluid due to the perplexing approach to acting of fluids [[4]-[7] Nanofluids are outlined by combing different nanoparticles into the base fluid. Such fluids expect a basic part in the organizations and substance-producing plants because of their fascinating physical and compound characteristics. These fluids are more involved by industrialists considering their increased level of warm conductivity when diverged from various fluids.

a movement of alluring fields. In the New Year, various examiners have added to focus on the effects of electrically driving [4] thick fluid. An overview of convective hotness move improvement with nanofluids was given by Kakas and Pramuanjaroenkij [8] investigated a wobbly MHD independent convective movement of nanofluid past a vertical vulnerable level plate with a

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PARABOLIC MOTION EFFECTS ON CONVECTIVE HEAT AND MASS TRANSFER FLOW OVER A VERTICAL PLATE WITH CROSS DIFFUSION

K. JANARDHAN and S. VENKATA RAMI REDDY

Department of Mathematics
Annamacharya Institute of Technology
and Sciences, Rajampet
Kadapa (Dist.), Andhra Pradesh, India

Department of Mathematics
Sanskrithi School of Engineering
Puttaparthi (Dist.), Andhra Pradesh, India

Abstract

The present studied of the problem is scientific investigation of parabolic motion effects on heat and mass flow temperature changes done with a perpendicular to the horizontal plate with cross diffusion and taking an account of the so ret and du four effects. Against the gravitational field the plate is started parabolic with a velocity in its own plane, the plate temperature and concentration is raised up homogeneously with time. The dimensionless prevailing calculations are explained by explicit finite difference technique. Now discussion about the characteristics of the fluid flows through graphically.

Introduction

In situation, there happen flows which are created the temperature variances in addition to the concentration variances. The pace of heat transfer disaffected the rate of mass transfer variances. In trades, several air

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ORIGINAL ARTICLE

HEAT TRANSFER WILEY

MHD flow pattern in a parabolic mode based on the angle of inclination under cross-diffusion

Singamala Harinath Reddy[1] | **Mummadisetty Umamaheswar**[1] | **Poli Chandra Reddy**[1] | **Kolla Kumaraswamy Naidu**[2] | **Dondu Harish Babu**[2] | **Malaraju Chengal Raju**[3] | **Eddula Keshava Reddy**[4]

[1]Department of Mathematics, Annamacharya Institute of Technology and Science, Rajampet, Andhra Pradesh, India

[2]Department of Mathematics, Sree Vidyanikethan Engineering College, A. Rangampet, Tirupati, Andhra Pradesh, India

[3]Department of Mathematics, JNTUCE, Pulivendula, Andhra Pradesh, India

[4]Department of Mathematics, JNTUA, Ananthapuram, Andhra Pradesh, India

Correspondence
Poli Chandra Reddy, Department of Mathematics, Annamacharya Institute of Technology and Science, Rajampet, Andhra Pradesh 516126, India.
Email: chandramsc01@gmail.com

Abstract

A considerable effort has been made to draw out the flow properties of the magnetohydrodynamic fluid in parabolic movement with several parameters under cross-diffusion. The novelty in the examination is the angle of inclination with a permeable vertical plate. The purpose of the work is to analyze the impact of some parameters on the flow in two cases, namely, obtuse angle and acute angle. The solution of the flow-governed equations is attained by the utilization of the finite divergence technique in explicit type. The nature of the fluid velocity is observed in the cases of acute angle and obtuse angle and described accordingly with the use of graphs and tables. The validation of the method is checked with the published outcomes and pointed out a fine agreement with it. One of the major findings is that for increasing values of porosity the velocity enhances in the case of an acute angle and falls in the case of an obtuse angle.

KEYWORDS

angle of inclination, chemical reaction, cross diffusion, MHD, parabolic motion, radiation absorption

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ORIGINAL ARTICLE

HEAT TRANSFER WILEY

Characteristics of MHD three-dimensional flow of nanofluid over a permeable stretching porous sheet

Parvathi Meruva[1] | **Poli Chandra Reddy**[1] | **Parakapali Roja**[1] | **Appikatla Leela Ratnam**[2]

[1]Department of Mathematics, Annamacharya Institute of Technology and Sciences, Rajampet, Andhra Pradesh, India

[2]Department of Applied Mathematics, Sri Padmavathi Mahila Viswa Vidyalayam, Tirupati, Andhra Pradesh, India

Correspondence
Poli Chandra Reddy, Department of Mathematics, Annamacharya Institute of Technology and Sciences, Rajampet, A.P. 516126, India.
Email: chandramsc01@gmail.com

Abstract

The aim of the present work is to focus on heat and mass transfer characteristics of the magnetohydrodynamic three-dimensional flow of nanofluid over a permeable stretching porous sheet. The significance of this study is the consideration of copper-based and aluminum oxide-based nanofluids. The physical parameters like a chemical reaction, Soret effect, radiation, and heat generation, and radiation absorption being involved in this examination are novel. The nonlinear partial differential equations are transformed into ordinary differential equations by adopting suitable similarity transformations. The numerical solutions are obtained by applying the Runge–Kutta method of fourth-order with the Shooting technique using MATLAB. The results obtained are presented through graphs and tables for various parameters. A comparison with published results has been done to validate the methodology and found good coincidence. It is claimed that the increase in heat generation parameters results in increasing the temperature. With an increase in the Soret effect, the skin friction coefficient along x-axis increases and skin friction coefficient along the y-axis, Nusselt number and Sherwood number decrease.

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Flexural And Impact Characterization Of Polymer Laminated Composites Reinforced With Bi-Woven Glass Fibers

P.Veera Sanjeeva Kumar[1], A.Hemantha Kumar[2], G.Venkata Subbaiah[3], L.Harikrishna[4], Nallamothu Ramesh Babu[5]
[1, 2,4]Annamacharya Institute of Technology and Sciences, Rajampet, (A.P), INDIA;
[3]GMR Polytechnique, Madanapalli,(A.P), INDIA:
[5]Associate Professor, Mechanical Engineering Department, Adama Science and Technology University, Adama, Ethiopia.

ABSTRACT The flexible, low weight and efficient materials are the latest requirement in the fabrication engineering. The aircraft, naval and aerospace applications are the highest demand for such materials in their fabrication. The laminated composites are the best one to fulfill the needs. The virtual characteristics of the composite are high strength to weight and stiffness. The present work is associated with the fabrication and characterization of polymer laminated composites reinforced with Bi-woven glass fibers.The epoxy material and Bi-woven glass fibers are used as matrix and reinforcement. The make of composite plate is done by hand layup process. The experiments are conducted to determine the flexural strength and impact strength. The failure is analyzed with respect to the variation of number of reinforcement layers in the composite plate. It is investigated that both the strength are appreciably increased up to optimum number of layers.

Keywords: Bi-woven Glass Fibers, Epoxy,Hand layup Technique, Flexural strength, Impact strength,Number of layers.

I. INTRODUCTION

The era of composite materials is completely reforms the material science applications in particular the fabrication engineering. The aircraft and space vehicle structures are highly needed the low weight and high strength materials. The structural composites are very well fulfils the desired demand in such applications. The present research work is focused on the development of polymer based composite structures reinforced with the Bi-woven glass fibers. The hand layup method is used for fabrication and the mechanical characterization is done by using the UTM and Impact Testing machine.

G.R.Reddy et.al, [1] are estimated the compression and impact strength of clay epoxy based composites reinforced with the glass reel. They chose the hand layup method for making of the composite plate.Murali.k. et.al [2] are performed experiments to assess the mechanical properties of bio composites in pursue of investigation .Udayasankar.R. et.al [3] are investigated to examine the thermal and metallurgical properties of composites which are reinforced with the coconut shell particles.P.V.Sanjeeva Kumar and Dr.B.Chandramohana Reddy [4]are fabricated and tested the laminatedcarbonbi-wovenfibers 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. Ranganathan .N et.al [5] are determined the toughness and fatigue properties for hybrid bio composites. They used jute and viscose are as reinforcement in the polypropylene matrix. The various investigations [6-10] are fabricated the polymer based composites and finds its mechanical characteristics such as tensile strength, compressivestrength, flexural and impact strength.Other researchers [11-15] are fabricated and investigated characteristics of the polymer based composites in order to assess their performance under mechanical loading.

II. MATERIALS

The materials used for fabricating the composites for present work are epoxy and bi-woven glass fiber. The epoxy material acts as base materialwhereasbi-woven glass fiber is the reinforcement.

2.1 Epoxy

The epoxy is comes under the class of thermosetting plastic resin material. For the present work it acts as the main base material.Recent days, the epoxies are mixed with different agents such as curing agent, hardeners, amides, anhydrides etc. in order to improve the faster curing rate. The amine based hardeners are most popular among the other competitive. The general ratio of epoxy to hardener is either 1:2 or 2:1. This ratio is the best one compared with the polyester resins or vinyl ester resins.

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ORIGINAL ARTICLE

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Aspects of parabolic motion of MHD fluid flow past a vertical porous plate with cross-diffusion effects

Mummadisetty Umamaheswar[1] | **Poli Chandra Reddy**[1] | **S. Harinath Reddy**[1] | **Obulesu Mopuri**[2] | **Charan Kumar Ganteda**[3]

[1]Department of Mathematics, Annamacharya Institute of Technology and Sciences Rajampet (Autonomous), Cuddapah, Andhra Pradesh, India

[2]Department of Mathematics, Siddharth Institute of Engineering and Technology, Putturu, Andhra Pradesh, India

[3]Department of Mathematics, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, Andhra Pradesh, India

Correspondence
Mummadisetty Umamaheswar, Department of Mathematics, Annamacharya Institute of Technology and Sciences Rajampet (Autonomous), Cuddapah - 516126, Andhra Pradesh, India.
Email: umasvu8@gmail.com

Abstract

In the presence of Soret and Dufour effects, a numerical analysis is performed for an unstable magnetohydrodynamics convective flow of parabolic motion with variable temperature and concentration. The finite-difference method is used to solve the set of nondimensional governing equations with boundary conditions numerically. Graphs are used to investigate the effect of various physical characteristics on flow quantities. Variations in skin friction, Nusselt number, and Sherwood number are also examined using tables for physical curiosity. This study is unique in that it takes into account changeable temperature as well as concentration with Soret and Dufour effects. The magnetic parameter, Prandtl number, heat source, radiation parameter, Schmidt number, and chemical reaction parameter show a significant increase in skin friction, whereas the Grashof number, modified Grashof number, permeability parameter, radiation absorption parameter, Dufour number, and Soret number show the opposite trend. As the Soret number rises, the concentration rises as well, whereas the opposite is true for the Schmidt number and the chemical reaction parameter. The current study is highly supported by previously published data that have been verified.

Impact of Technical advancements in acquiring English language in current scenario

P. Vijaya Kumar
Assistant Professor of English,
Annamacharya Institute of Technology and Sciences, Rajampet,
email: sendtopatlegar@gmail.com

Dr.B. Bala Nagendra Prasad
Head, Humanities and Sciences Department,
Annamacharya Institute of Technology and Sciences, Rajampet,
email: prasadbbn@gmail.com

Abstract

Language is procedural end of communication to attain the socio-cultural means. In this cut-throat competitive world the acquisition of foreign languages, English language in particular has become mandatory. The acquisition of English language is continuous process which actually facilitates the learners to have the prowess of grasping the etiquettes and tenets of language. This paper deals with the methods by which English language can be learnt and acquired using technology to meet the growing demands of the competitive world. Such learning methods enhance the English Language learners to use vocabulary and frame sentences in an exact manner to that of a native speaker and enable them to manifest their thought process in the most effective fashion. We are living in the arena where the technology is growing by leaps and bounds therefore, grabbing the methods of technology, one can implement umpteen number of innovative methodologies in a class room and also in a language laboratory to escalate the English language learning skills. The attempt of gaining language skills are mastery over the English Language becomes higher only when the stress free or conducive atmosphere is created in a class room or Laboratory. This methodology ensures the learners to learn English Language in a more interesting manner. In a school or college speaking skills are required for all students regard less of their courses and aspirations. The role of technology helps in learning supra-segmental skills such as Stress, Rhythm and Intonation. Some of the resources like speaking practice activities, voice recording, Pronunciation Practice, online presentations, video chats and mobile apps including Voki, Vocaroo, Audiopal and others play instrumental role in learning English Language thoroughly. This paper explains how technology can be effectively used in the class room and Laboratory in schools and colleges to promote higher level Language learning skills in students.

Key words: Technology, English language learning, audio-visual aids, multi-media apps

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Photoluminescence characteristics of Ln^{3+}-doped phosphors derived from sustainable resources for solid state lightning applications

R. Reddappa [a], L. Lakshmi Devi [a,b], Ch. Basavapoornima [c], Shobha Rani Depuru [c], J. Kaewkhao [d], Wisanu Pecharapa [e], C.K. Jayasankar [a,*]

[a] Department of Physics, Sri Venkateswara University, Tirupati 517 502, India
[b] Department of H&S, Annamacharya Institute of Technology and Sciences, Rajampet 516126, India
[c] Institute of Aeronautical Engineering, Hyderabad 500 043, India
[d] Center of Excellence in Glass Technology and Materials Science (CEGM), Nakhon Pathom Rajabhat University, Nakhon Pathom 73000, Thailand
[e] College of Materials Innovation and Technology, King Mongkut's Institute of Technology Ladkrabang, Ladkrabang, Bangkok, Thailand

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Rice husk ash
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ABSTRACT

Di-calcium silicate (Ca_2SiO_4) phosphors doped with series of Ln^{3+} ions have been prepared by using high temperature solid-state reaction technique. The required raw chemicals of CaO from egg shell and SiO_2 from rice husk powders have been used instead of chemicals which were derived from non-renewable minerals. The structural, morphological and photoluminescence characteristics were studied through XRD, SEM and FLS 980 spectrometer measurements, respectively. The XRD patterns of all the phosphors are fit well with the established ICDD card No.01–083–0464 with monoclinic crystal structure. Photoluminescence spectra of Ce^{3+}, Pr^{3+}, Sm^{3+}, Eu^{3+}, Tb^{3+}, Dy^{3+} and Er^{3+}-doped phosphors exhibit characteristic sharp intense emission peaks at 385 (d-f), 606 ($^1D_2 \rightarrow {}^3H_4$), 600 ($^4G_{5/2} \rightarrow {}^6H_{7/2}$), 703 ($^5D_0 \rightarrow {}^7F_4$), 544 ($^5D_4 \rightarrow {}^7F_5$), 573 ($^4F_{9/2} \rightarrow {}^6H_{13/2}$) and 545 nm ($^4S_{3/2} \rightarrow {}^4I_{15/2}$), respectively. Emission characteristics of developed phosphors such as CIE co-ordinates, correlated colour temperature, colour purity, lifetimes of fluorescent level, etc., of Ln^{3+} have been quantified. The decay curves for lower concentrations of Ln^{3+} ion exhibit single exponential behaviour and turns into bi-exponential behaviour accompanied with shortening in lifetime for higher concentrations. These results have been discussed with reported values and found to be better than many of the reported phosphors derived from non-renewable minerals. Therefore, Ca_2SiO_4:Ln^{3+} phosphors could also be useful to design and develop low-cost solid state lightning devices besides effective utilization of renewable agricultural and food waste materials.

1. Introduction

Photoluminescence (PL) is very useful process for the production of light emission. Mostly, the light emission is a nature of association with energy through matter overriding the acts of absorption/excitation and emission. PL is an impulsive form of unsympathetic emission by selective constituents once they are giving up a visible light at room temperature without generating thermal

* Corresponding author.
E-mail address: ckjaya@yahoo.com (C.K. Jayasankar).

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A multi-residue methodology is proposed to reduce drug toxicity to benthic organisms

O Akbar Basha[1],Asheera Banu Sangli[2], Vivekanand B. Jadhav[3],M E Paramasivam[4], Vipin Yadav[5],
1.Assistant Professor, Department of H&S ,Annamacharya Institute of Technology and Science, Rajampeta,Andhra Pradesh 516126
2.Assistant Professor, Department of Zoology, MES College of Arts Commerce and Science, Malleswaram, Bengaluru, Karnataka 560003.
3.Assistant Professor in Chemistry, Shri Muktanand College, Gangapur, Tq.-Gangapur, Dist.-Aurangabad. Pin-431109, Maharashtra.
4.Associate Professor,Department of Electronics and Communication Engineering,Sona College of Technology, Salem-5.
5. Teaching Assistant,Department of Forensic Science,Faculty of Science,SGT University, Gurugram.
Correspondence e-mail:,othuru.akbar@gmail.com

ABSTRACT
Pharmaceutical and illicit narcotics are emerging as new pollutants in the atmosphere worldwide. Most of them seem to be chiral; therefore stereochemistry influences their ecological destiny & impacts. Nevertheless, research at the enantiomeric layer is restricted, especially in complicated particle materials like sediments. However, research on the enantiomer layer is limited, especially in complex particulate materials such as sediments. As a result, a new enantio selective approach for 15 pharmaceutical products in sediment is presented in this paper. During the following enantio selective ruptures, sample pretreatment with rapid solvent extraction and vacuum evaporation was crucial. Chiral-V enantio selective columns allowed multi-residue detachment of antidepressants. Beta-blockers, beta-agonists, antihistamines, and boosters using liquid chromatography tandem mass spectrometry. Most enantiomers had a technical accuracy of 86-121 percent, and technical quantification restrictions, which were less than 3 mg g1 dry weight. This appears to be important because the cyto-toxicity of medicines in coastal creatures could be enantio specific.
Keywords: *Pharmaceutical, Chiral-V enantio selective, multi residue method, Drug toxicity*

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INTRODUCTION

Pharmaceutical & illicit narcotics constitute emergent pollutants because the route and consequences of these environmental contaminants remain unknown. An outflow of runoff through centralized wastewater treatment plants is the primary source of medicines in the ecosystem [1-2]. Septics systems, on the other hand, could play a large role, with a Septics system or comparable system serving 20% of US houses [3]. In Scotland, it is believed that 7% of the community uses a septics system. Despite this, the influence of septics systems on neighboring aquatic systems in terms of drugs contamination has received minimal consideration [4].

Regarding activated sludge used as fertilizer and soils, multi-residue enantio-selective techniques are available. For sediment samples, though, no such technologies exist. Techniques for sedimentation that have earlier been established are confined to a specific medicinal medication category [5]. Several additional chiral medicines have already been found in sedimentary, but no data on specific enantio selectivity makeup has been provided [6].

Signals suppressing all through electro-spray ionization could cause analyze losses, and extracting losses [7]. As a result, enhanced signals suppressing could offset better extracting at higher temperatures [8]. This might be the situation since samples extracted at 120 °C appeared to be 'dirtier' than many other extracting temperatures. The components of several water-methanol extractants were examined [9-11]. Methanol is chosen as the organic liquid since it outperformed other solutions like acrylonitrile. The best concurrent recovery is obtained with a 50:50 mixture of water and methanol. Crewmates recovery varied from 22±3% for R chlorpheniramine 93 ±5% for acebutolol under similar extraction processes [12]. For sediments, that span of recovery was equivalent to multi-residue achiral techniques.

Language Competency – Promoting Communicative Approach For Engineering students.

Mr. Billa Jaheer,
Assistant Professor of English,
Dept. of Humanities and Sciences,
Annamacharya Institute of Technology and Sciences, Rajampet. Kadapa (Dist.) A.P, India.
Email:zahoob@gmail.com

Abstract

In this world of gizmos, particularly with the cut-throat competition existing in the global arena, Communication skills play a key role for global communications. To face the impending future encounters at the workplace and to meet the demands of the organizations the engineering graduates got to be equipped with excellent communication skills. Name any organization which is considered to be highly reputed is in fact looking for professionals who possess the gift of gab, garrulous and tackle the bottle-necks in the organization with their exceptionally phenomenal communication and inter-personal skills. The companies like Google and Microsoft are today looking for engineering graduates who not only have technical knowledge and but have immense talent of communicating with the people for official transactions. So the need of the hour is to create the methods and techniques which would meet the communicative requirements of the engineering graduates. In this paper I am trying to explore the methods which can be implemented and imparted among engineering students to make them viably competent and effective communicators.

Key words

Communication skills, Engineering students, Language lab, Teacher, Competence and Presentation

Introduction

'The Earth is revolving round the Sun' is the known fact alongside 'the globe is revolving round the English language'. The English language, inter nationally a language of the asset, as it is used in business, technology, media etc. and intranationally a lingua franca leads us to globalization. 'Think logically and speak clearly' is the living slogan in this educational arena. Now-a-days, engineering education is given priority at this juncture communicative competence is playing a crucial role in competing the requirements of this competitive world. Engineering students in rural areas are suffering from the low level of communicative competence. For developing language proficiency of graduates, they require higher levels of speaking skills to serve the need of the purpose like examinations and placements. Engineering students are presumed to work for industries in India and abroad to get the ability to communicate in different situations.

The need of Communication Skills

Most of the intellectual engineering graduates fail to make an impact on the global market mainly because they lack the required communicative competence. It is a high time for every engineering student to realize that

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Synthesis, structural, band gap, and optical properties of $Ba_3(PO_4)_2$ hierarchical structural materials

Lavuluri Obulapathi[1,*], Seelam Harinath Babu[1], Boggala Sreenivasulu[1], Jaesool Shim[2], and P. C. Nagajyothi[2,*]

[1] *Department of Humanities and Sciences, Annamacharya Institute of Technology and Sciences, Rajampet, Andhra Pradesh, India*
[2] *School of Mechanical Engineering, Yeungnam University, Gyeongsan 384541, Republic of Korea*

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ABSTRACT

$Ba_3(PO_4)_2$ structure with Rhombohedral phase was prepared by a facile wet chemical method. In this experiment, NaOH is used as a surfactant for various pH values. The prepared samples were analyzed using several analytical techniques such as XRD, SEM, EDX, UV–Visible absorption, and photoluminescence spectroscopy. Orthorhombic ($BaHPO_4$) phase appeared at pH7 and rhombohedral $Ba_3(PO_4)_2$ phase formed at pH13 show that the pH value was very important factor for the final product formation and morphology. The phase changes have been monitored through the XRD data analysis. EDX analysis confirms the Ba:P ratios as 3:2. Band gap energy of synthesized microstructure was found to be 3.60 eV for rhombohedral phase (pH13) and 4.89 eV for orthorhombic phase (pH7), respectively. Significantly, the prepared sample at pH13, an intense blue light, emitted a narrow band in the broad band emission spectra, which have been explained from the transition of $^3T_1 \rightarrow {}^1A_1$ in PO_4^{3-} ions. In the meantime, an apparent red shift was observed while changing the excitation wavelengths.

1 Introduction

Phosphates of metals evolve as a promising photo material because of their advantages of ecofriendly, cost-effective, and abundance [1, 2]. Since the 1970's, among the several metal phosphates, consideration of ions $Ba_3(PO_4)_2$ microcrystals is increasing due to their optical and electrical characteristics for potential application in optical, optoelectronic, and mechanical devices, selective with effective magnetic absorbent dyes with doping of various lanthanides [3–5] and transition metal ions [6, 7], respectively. All of these selected applications require the nano-sized to have suitable good phase of host matrices.

To-date, various synthesis approaches such as coprecipitation, sol–gel, hydrothermal, decomposition, and electrochemical strategy have been extensively applied to prepare the micro/nano-structured metal phosphates i.e., $Ba_3(PO_4)_2$, $BaHPO_4$, and $Ba_5(PO_4)_3OH$, nanocrystal (including nanowire, nanorods and hierarchical structures) have attracted widespread attention [8–10]. In contrast, several

Address correspondence to E-mail: obulapathi.vlsi@gmail.com; pcnnagajyothi@gmail.com

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Agricultural waste for the development of low cost $Ca_2SiO_4:Pr^{3+}$ phosphors

L. Lakshmi Devi [a,b], Ch Basavapoornima [c], Shobha Rani Depuru [c], V. Venkatramu [d,e], C.K. Jayasankar [a,*]

[a] Department of Physics, Sri Venkateswara University, Tirupati, 517 502, India
[b] Department of Humanities and Sciences, Annamacharya Institute of Technology and Sciences, New Boyanapalli, Rajampet, 516126, India
[c] Institute of Aeronautical Engineering, Hyderabad, 500 043, India
[d] Department of Physics, Krishna University Dr MRAR College of Post Graduate Studies, Nuzvid, 521 201, India
[e] Department of Physics, Yogi Vemana University, Kadapa, 516 005, India

ARTICLE INFO

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Solid state lighting

ABSTRACT

Rice husk (RH) and egg shells (ES) are agricultural waste products which are converted into SiO_2 (RH ash (RHA)) and CaO (ES ash (ESA)) powders, respectively, through firing and annealing at optimised temperature and time duration. By using these derived SiO_2 and CaO raw chemicals, obtained from renewable sources, prepared Ca_2SiO_4 phosphors doped with Pr^{3+} ions through solid state reaction method. XRD reveals that the RHA contains SiO_2 crystal nature with standard data and tridymite phase. ESA patterns confirm the purity of CaO with cubic phase. $Ca_2SiO_4:Pr^{3+}$ (0.05 mol%) phosphor was confirmed with structure of ICDD card No. 01-083-0464 with particles are of irregular sizes and shapes. Excitation spectra of $Ca_2SiO_4:Pr^{3+}$ phosphors exhibit highest intensity at 447 nm due to $^3H_4 \rightarrow {}^3P_2$ transition. Emission spectra of Pr^{3+}-doped phosphors reveal more intense band at 606 nm which is attributed to $^1D_2 \rightarrow {}^3H_4$ transition with reddish-orange emission. CIE co-ordinates of the present phosphors are shifted from reddish-orange to yellow region with increase in Pr^{3+} ion concentration. Decay curves of the synthesized phosphors exhibit nearly mono-exponential nature for 0.01 mol% concentration and then changes to the bi-exponential nature for $\geq$0.05 mol% concentrations of Pr^{3+} ions owing to energy transfer via cross-relaxation channels confirming dipole-dipole interaction type. All the observed results recommend that the synthesized phosphors can be suitable for solid state lighting applications.

1. Introduction

Globally, rice and its related products are the most important and essential food for human beings. However, rice husk (RH) is an agricultural waste material amply exist in many countries. In the present era, RHA (burn out residue of rice husk) having many applications in the field of research, such as land site, building streamers, highway indicators, exit signs, garnishes, glassware, etc. [1–4]. RHA generally contains above 60% of silica, remaining 10–40% of carbon and other minor metal compositions [5,6]. Most of the researchers supervene interested to use the waste materials, because RHA is accessible freely and sufficiently besides almost no commercial value. Further, the burning of rice husk produces high air pollution along with risk for travellers/motorists owing nearly worsening visibility. Hence, alternative useful applications of rice husk are desirable to reduce this problem. If it is used efficiently, RH can be validating from cheap or costless biomass material towards synthesis of silica (SiO_2) [7]. Stroeven et al. [8] work showed that the experimental ratio of silicon dioxide to rice husk was encouraging and also can be dispersed under the external exterior of the husk [8].

Egg shells naturally consist of ceramic resources constituted via three-layered construction, which is cuticle on top of the exterior, a springy layer and finally internal mammillary layer. The springy and mammillary layers form environment self-possessed of protein fibers bonded to calcite crystal [9]. The two layers exist as well as produced in such a method that those have abundant circular openings. The external surface of egg shell is enclosed with a mucin protein which acts while an emulsifiable bung used for the pores within the shell [10]. The cuticle is also porous and acts as gas communication. The composition of chemicals of by-product egg shell has been reported as calcium oxide (94%), remaining percentage of carbon being evaporated while burning. Especially, the by-product egg shell produced from food dispensation and industrialized plants is certainly composed of calcium oxide (egg shell) [11–13].

* Corresponding author.
E-mail address: ckjaya@yahoo.com (C.K. Jayasankar).

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Consciousness in Toni Morrison's Novel the Bluest Eye

Dr. S. Satyam, M.A., B.Ed., Ph.D.,Asst. Professor of English, Humanities and sciences, AITS, Rajampet, Kadapa (Dist). A P., India. Sagili.satya@gmail.com

Dr.B. Bala Nagendra Prasad, Head, Humanities and Sciences Department, Annamacharya Institute of Technology and Sciences, Rajampet, email: prasadbbn@gmail.com

Abstract:

Toni Morrison is the most well-known sophisticated novelist in the history of African American literature. She has been recognised as a strident voice for exploited black people as well as master craftsman of the dominant artistic form. The Bluest Eye is a tragic tale about a young, black girl Pecola and her desire for the bluest eyes, the symbol for her of what it means to be beautiful and therefore worthy in society. It clarifies the damaging impacts of white standards and the importance on the lives of black people. It represents very sad feeling in terms of tragic conditions of blacks in racist America. She investigates the devastating effects of the beauty standards of the dominant culture of the self-image of the African female adolescent. Exploring the complexity of black female experience in white America, Toni Morrison attempts to resolve the contradiction inherent in her African American identity as a black women writer. In the novel The Bluest Eye it shows the terrible consequences for black internalising the values of a white culture that both directly & indirectly rejects them. A close study of the interrelationship of race, gender, and class in the novels of Toni Morrison reveals the emergence of a revolutionary pattern. This paper attempts to find out the trial of the blacks women in search of self-identity in the novel of Toni Morrison.

Keywords: sophisticated, strident, exploited, investigate, contradiction, gender, etc.

INTRODUCTION:

Toni Morrison attempts to resolve the contradiction inherent in her African American identity as a black women writer. The Bluest Eye (1970) basically concern for racial issues and the Black identity has been made. Toni Morrison presents the nonlinear African American socio –historical reality, fragmented by a historical past of disconnection and rupture. Her novels show the victimization of black people within the context of a racist social order. In the New York Times „The Bluest Eye" is an enquiry into the reason why beauty gets wasted in this country .The beauty in this case is black: The wasting is done by a cultural engine that seems to have been designed to murder possibilities and she does it with a prose so precise. The more emphasis in Toni Morrison's first novel is on racism. She investigates the devastating effects of the beauty standards of the dominant culture of the self-image of the African female adolescent.

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CONVECTIVE FLOW OF PRANDTL HYBRID NANOFLUID (SWCNT-MWCNT/EG) OVER AN EXPONENTIALLY ELONGATED SHEET WITH SECOND-ORDER SLIP

K. Kumaraswamy Naidu,[1] D. Harish Babu,[1] P.V. Satya Narayana,[2,*] S. Harinath Reddy,[3] & T. Chalapathi[1]

[1]*Department of Mathematics, Sree Vidyanikethan Engineering College, Tirupati-517 102, A.P, India*

[2]*Department of Mathematics, School of Advanced Sciences, Vellore Institute Technology, Vellore – 632 014, T.N., India*

[3]*Department of Mathematics, Annamacharya Institute of Technology and Sciences, Rajampet, A.P., India*

*Address all correspondence to: P.V. Satya Narayana, Dept. of Mathematics, School of Advanced Sciences, Vellore Institute Technology, Vellore – 632 014, T.N., India, E-mail: pvsatya8@yahoo.co.in

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The study of hybrid nanofluid flow plays an important role in many scientific and industrial claims, i.e., engineering (power generation, biosensors) and industrial (oil refineries, medical equipment) systems, and has diverse properties to advance the competence of their energies and cooling techniques. Motivated by this research idea, the main objective of this work is to formulate and analyze the new mathematical model of non-Newtonian Prandtl hybrid nanoliquid flow over an exponentially permeable elongated surface with second-order slip and thermal radiation. Carbon nanotubes (CNTs) are considered as nanoparticles and ethylene glycol (EG) as a base fluid in this study. By using similarity transformations, the governing equations of the current study are turned into a highly nonlinear system of ordinary differential equations (ODEs) and are solved numerically by using an integrated shooting scheme. The effects of selected parameters on velocity, fluid temperature, heat transfer rate, and skin friction factor are discussed graphically for both nanoparticles. It is established that the heat transfer rate enhances with an increase in the Biot number and Prandtl number. Also, the fluid momentum with the first-order slip condition is more than that of the second-order slip. Further, hybrid nanoliquid (SWCNT-MWCNT/EG) showed 1%–3% enlargement in the rate of heat transfer when compared to viscous liquid for different values of Prandtl number.

KEY WORDS: *SWCNT-MWCNT nanoparticles, Prandtl fluid, Biot number, inclined magnetic field, second-order slip*

1. INTRODUCTION

A nanofluid is made by the integration of tiny nanoparticles (carbon nanotubes or non-metallic alloys, metallic alloys) with a base liquid (ethylene glycol or water, oils). Most of theoretical and experimental works (Al-Waeli, 2019a,b; Harish Babu et al., 2022; Ahmed et al., 2022) on nanoliquids have reported that the nanofluids have a higher heat transfer rate and better thermal conductivity. With the progress of nanotechnology, a new form of liquid is essential to provide the high heat transmission demanded by a wide range of mechanized industries. With this in mind, a new type of liquid, hybrid nanofluid, was developed. A hybrid nanofluid is a form of nanofluid made by the composition of

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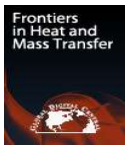

THERMOPHORESIS IMPACT ON A MICROPOLAR FLUID UNDER CHANGEABLE HEAT FLUX IN CONDUCTING FIELD

P. Chandra Reddy[a], B. Hari Babu[b,*], K. Sreenivasulu[c]

[a]*Department of Mathematics, Annamacharya Institute of Technology & Sciences (Autonomous), Rajampet-516126, Andhra Pradesh., India.*
[b,c]*Department of Mathematics, PACE Institute of Technology & Sciences (Autonomous), Ongole-523272, Andhra Pradesh, India.*

ABSTRACT

This examination carried out on thermophoresis impact on a micropolar fluid under heat flux which is not changeable in conducting field. The flow past a vertical porous plate is taken with the influence of thermal radiation and diffusion simultaneously. The flow governed non linear partial differential equations in this model are distorted to a structure of non-linear ordinary ones through fitting corresponding transformations and later solved by Runge–Kutta Fourth order with shooting technique method. The effects of selected corporal parameters on the dimensionless velocity, microrotation and temperature profiles are examined and handled graphically. Lastly, numerical table values of the extended quantities, such as the local skin friction, the couple stress coefficient and the local Nusselt numeral are framed and analyzed.

Keywords: Thermal Radiation, Thermophoresis, MHD, Micro-polar fluid, Heat flux.

1. INTRODUCTION

Thermophoresis is an admirable physical phenomenon by which temperature decay is possible when mini-sized elements floating in an unisothermal gas. The created velocity is named as thermopharetic velocity and the force skilled by the hovering particles is known as thermopharetic force. The analyses on these models are popular in many chemical and petroleum industries. Because of its substantial applications in engineering, aerodynamics, geophysics, and aeronautics, MHD fluids with a range of geometries have gained great impetus on engineering scientists and applied mathematics. Solar concentrators are used to accelerate the disappearance of waste water, as well as in food distribution and the generation of drinking water from brackish and salt water. These flows past the plates defining the angles of inclination have recently gained attention due to their usefulness in liquid purification and underground water operations.

Many articles was published which are related to shared effects of thermophoresis and thermal energy on stable MHD liberated convection flow of micropolar fluids. Chen (2008) establishes the influences of convected heat transport on non-Newtonian and power-law fluids past an expanded piece in conducting field. Reddy (2013) explained heat creative and radiative impacts on MHD natural flow of micro-polar liquid past an affecting shell. Talbot et al. (2013) reported thermophoresis of particles in a heated boundary layer. Noor et al. (2015) considered and analyzed slip conditions effects on stagnation flow of a natural convective micro-polar nanofluid along a vertically surface. The influence of nano fluid through inclined widen surface under slip condition and convective border effect is portrayed by Rashad et al. (2017). Rehman et al. (2018) projected that an inclined cylinder surface will create and cause joule heating on thermally stratified mixed convective powel fluid stagnation point flow of in conducting field. The influence of Eyring-Powell fluid over dual stratified mixed convection flow with inclined stretched cylinder was studied by Khalil et al. (2016). Under the existence of Hall current, Rajput and Kumar (2016) considered and investigated the reaction influence on unsteady mode of MHD flow past an impetuously started inclined plate. Chandra Reddy et al. (2015, 2018) carried out the analyzation on thermal as well as solutal optimism impacts on MHD flow nature under unreliable suction with variety of parameters. Hall and rotational effects were induced on MHD flow via an accelerated permeable plate with a cross diffusion effect by Paul et al. (2022). Chandra Reddy et al. (2016, 2018) examined radiation and Dufour effects on free convective magneto-nanofluid flow past a moving vertical plate. Further we have gone through the articles (2021) published in recent years related to this work. More recently Hari Babu et al. (2021, 2022) analyzed the flows of non-Newtonian fluids with different geometries.

Most of previous works are not studied heat transfer MHD free convective flow of micropolar fluid through a porous medium with heat flux in the presence of the thermophoresis. In view of these published results, we have acted upon a numerical inquiry on the shared effects of thermal thermophoresis and radiation on balanced magnetohydrodynamic free of charge convected heat transfer on micropolar fluid flows pasta perpendicular leaky plate under heat flux border line conditions.

* Corresponding author Email: haribaddela@gmail.com

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MHD CASSON FLUID FLOW PAST AN UPRIGHT PLATE UNDER THE IMPACT OF HEAT SINK AND CHEMICAL REACTION

L. RAMA MOHAN REDDY, P. RAMA KRISHNA REDDY, P. CHANDRA REDDY and M. C. RAJU

Department of Mathematics
Rajiv Gandhi University of Knowledge Technologies
IIIT-Ongole, A.P., India

Department of Mathematics
PBR Visvodaya Institute of Technology and Science
Kavali, Nellore, A.P., India

Department of Mathematics
Annamacharya Institute of technology and Science
Rajampeta, Kadapa, A.P., India

Department of Mathematics
JNTUA College of Engineering
Pulivendula, A.P., India
E-mail: duggireddy.lingari@gmail.com

Abstract

The present study considers an analytical investigation of unsteady MHD free convection flow of a Casson fluid past a vertical porous plate through a porous medium with time dependent oscillatory permeability and suction in presence of a uniform transverse magnetic field. Then effects of radiation, heat absorption, radiation absorption and homogeneous chemical reaction are considered. The coupled nonlinear partial differential 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. Impact of Casson parameter leads to decrease the fluid velocity. The heavier species with low conductivity reduces the flow within the boundary layer.

2020 Mathematics Subject Classification: 74F10, 76G25, 65E05, 76A02.
Keywords: Casson fluid, porous plate, thermal radiation, chemical reaction, perturbation method.
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English Language competency Skills for Indian Technocrats and Pharmacists

Billa Jaheer & Dr. B. Bala Nagendra Prasad

Department of Humanities and Sciences, Annamacharya Institute of Technology and Sciences, New Boyanapalle, Rajampet, Annamayya (D), AP, India

Abstract

Human beings have been acquiring worldly knowledge through language. In all of their endeavors throughout life, he mainly depends on his native language to acquire knowledge. As the world is molding itself into a Global village, human beings started searching for a unique language that helps them in understanding the world and they found that language is 'English'. In this 21st-century modern world, since the birth of a child, it has been acquiring knowledge of society, knowledge of relations, culture, traditions, and even knowledge of various subjects through the English language only. For a few nations, only English stands first before their native language and for most countries, it is a second language. Especially in countries like India, we find many regional languages which are the modes of communication. Though they learn academic subjects in English, the maximum way of communication is in their mother tongue. This paper especially deals with the study of engineering aspirants for whom English language skills are mandatory in learning their academic and technical subjects and even their personal and professional growth. Engineering students are failing in reaching the expectations of MNC companies and global industries, because of their inefficiency in English language skills. In the case of the Indian context, an Engineering student's success in on-campus recruitment purely depends on their demonstration of communication skills. According to NASSCOM (National Association of Software and Services Company) president Karnik, "only 25 percent of technical graduates are suitable for employment in the outsourcing industry because of their lack of abilities to speak or write well in English." According to the National Communication Association, "The urgent need to improve technical students' communication skills has been emphasized by educationists as well as employers." Narayanan, vice chairman of Cognizant Technology Solutions and chairman of the NASSCOM, in an interview (Warrier- 2007) answered a question regarding the demand and supply gap of talent and the role of the NASSCOM in helping the industry to bridge the gap: "The current situation is that, in terms of availability of talent, the numbers are good. The

COLLABORATIVE LEARNING: A METHOD FOR ENHANCING ENGLISH LANGUAGE SKILLS FOR STUDENTS PURSUING ENGINEERING PROGRAMME

Mr. Billa Jaheer
Assistant Professor of English, Deparment of Humanities and Sciences
Annamacharya Institute of Technology and Sciences
Rajampet, Annamayya (D), Andhra Pradesh

Abstract

Collaborative learning is the approach of engaging a group of students together to work on a specific task or activity. This approach enhances the learning process and makes the task accomplished by group work. In today's competitive world where there is advancement in all fields' students, overall development is essential to cope with and sustain in the job market. This paper highlights some important collaborative learning techniques for engineering students. The Language lab has become a part of the syllabus in many universities for B.Tech. Students. Language lab familiarizes the students with how to use English in both formal and informal contexts in everyday situations. It focuses on Listening, Speaking, Reading, and Writing (LSRW) skills. The main aim of the Language lab is to develop effective communication among students and make them ready for the Job industry. Language lab plays an important role in the overall development of students by engaging them in various activities. Introducing collaborative learning in Language labs makes the students work together to solve problems, complete the given tasks, learn new concepts. The main focus of this paper is to show how collaborative learning is helpful in improving the language skills of B. Tech pursuing students under Jawaharlal Nehru Technological University, Hyderabad. This technique helps the students to bypass the old method of memorizing things, rather improves them in sharing the ideas together and working as a group to solve problems. These activities make them to understand the concepts in a deeper sense.

Keywords: *Collaborative learning, familiarize, formal, informal, LSRW skills.*

Introduction

English Language Communication Skills Laboratory, a course for B.Tech First-year students plays a significant role in enhancing the skills of engineering students. It familiarizes the students with the use of English in everyday situations both in formal and informal contexts. This course focuses on Listening, Speaking, Reading, and Writing (LSRW) skills. The main aim of the Language lab is to develop effective communication skills and make the students ready for the industry. Students come from different backgrounds and this lab helps them to learn the proper pronunciation, neutralize their mother tongue influence and improve their communication with continuous practice sessions. Students are involved in many activities like introducing themselves, introducing others, describing objects and persons, Just A Minute sessions, oral presentations, role plays, conversations, active listening tasks, Group Discussions, Mock Interviews, etc. The main aim of the language lab is to make learning student-centric so that they feel comfortable in picking up the knowledge and language and utilize it in their overall development.

Collaborative Learning

According to Vygotsky (1978), students are capable of performing at higher intellectual levels when asked to work in collaborative situations than when asked to work individually.

"... A coordinated, synchronous activity that is the result of a continued attempt to construct and maintain a shared conception of a problem" Roschelle & Teasley (1995).

Collaborative learning (CL) can be defined as a set of teaching and learning strategies promoting student collaboration in small groups (two to five students) in order to optimize their own and each other's learning (Johnson & Johnson, 1999)

"Collaborative learning has as its main feature a structure that allows for student talk: students are supposed to talk with each other....and it is in this talking that much of the learning occurs." (Jeff Golub, 1988)

THE TRUE NATURE OF THE SOCIETY FROM MULTI LEVEL ASPECTS IN CHARLES DICKENS NOVEL-DAVID COPPER FIELD

Dr. Sagili Satyam
Assistant Professor of English
Deparment of Humanities and Sciences
Annamacharya Institute of Technology and Sciences
Rajampet, Andhra Pradesh

Dr. B. Bala Nagendra Prasad
Head, Department of Humanities and Sciences
Annamacharya Institute of Technology and Sciences
Rajampet, Andhra Pradesh

Abstract

Charles Dickens *was the first author who had written of the poor with fidelity and sympathy and particularly famous for his vivid comic characterizations and social criticism. His works were also famous during Victorian age and among the great classics in all fictions. Charles Dickens was English Victorian era author wrote numerous highly acclaimed novels including his most autobiographical, David Copper Field. Dickens himself attached a special place to this Novel. He learned short hand and began his career as a journalist. He worked as a parliamentary reporter for two London newspapers. As a prolific in 19th century author of short stories, plays, novels, fiction and non-fiction during his life time Dickens became known the world over for his remarkable characters, his mastery of prose in the telling of their lives, and his depictions of social classes, mores and values of his times.*

Keywords: *Humanity, Victorian,, Harmonious, Spiritual Civilization, Confrontation, Imagination*

Introduction

Charles Dickens, a great English writer after Shakespeare, is the most achieved representative of the English critical realism literature of the 19th century. Dickens is immortal, and his works vividly reproduce the social conditions of Victorian England. The hero David's grief at separation and joy in union in David Copperfield reveals the true Nature of the society from multi-level aspects. This typically shows the corrosion of money on marriage, family and society and exposes the evils of money. To expose and criticize the social problems in the mid of nineteenth century Queen Victoria era, we reveal the hidden Victoria beauty of the curtain Society to find out the real social appearance in the works.

He wrote many works about the society in the 19th century, among which **David Copperfield** was one of the most important novels and his favorite. The novel implied the author's unusual life experience. Meanwhile, **David Copperfield** destiny symbolized the middle-class intelligentsia questing for development in the 19th century in British society.

Child's education problem is not only the quality of labor force and an educational problem, but also social problems.

Discussion and Interpretation

Charles Dickens, the most popular Victorian novelist, was born in Portsmouth on February 7, 1812. His father, a clerk in the Navy Office, was extravagant and irresponsible with money and consequently life was difficult for the large Dickens family. In 1822 they moved to a poor suburb of London, where Charles's father hoped to find better opportunities when Charles was just twelve years old, his father was imprisoned for debt. Charles was sent to work in appalling conditions in a factory. Memories of the traumatic period inspired much of his later writing, in particular his most autobiographical work David Copperfield (1849-1850). During this unsettled period. Charles's education was almost entirely neglected.

After his father's release from prison, Charles returned briefly to school and then found a job as an office boy. He quickly rose through the ranks, studied short-hand and became a reporter of debates in the Houses of

RADIATION EFFECT ON MHD FREE CONVECTIVE HEAT ABSORBING NEWTONIAN FLUID WITH VARIABLE TEMPERATURE

K. Ramesh Babu[1], D. Chenna Kesavaiah[2], B. Devika[3], Dr. Nookala Venu[4]

[1]Department of Mathematics, Annamacharya Institute of Technology and Science (Autonomous), Rajampet, Kadapa (Dist), Andhra Pradesh-516 126, India
Email: rameshmaths01@gmail.com

[2]Department of Basic Sciences & Humanities, Vignan Institute of Technology and Science, Deshmukhi (V), Pochampally (M), Yadadri-Bhuvanagiri (Dist), T.S-508284, India
Email: chennakesavaiah@gmail.com

[3]Department of Mathematics, GITAM School of Science, GITAM (Deemed to be University), Bengaluru- 562163, Karnataka, India
dbalanna@gitam.edu
[4]Department of Electronics and Communication Engineering,
Balaji Institute of Technology and Science (Autonomous), Narsampet, Warangal,
TS -506331, India
Email: venunookala@gmail.com

Abstract

This paper presents a comprehensive analysis of the radiation effect on MHD free convective heat absorbing Newtonian fluid with the consideration of variable temperature. The governing equations related to the problem are solved for velocity and temperature by using perturbation method. The variations in velocity, temperature, local skin friction and rate of heat transfer under the effects of several parameters are studied and represented with the use of graphs.

Keywords: MHD, Heat Source/Sink, Porous Medium, Variable Temperature

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INTRODUCTION

Free convection flow of magnetohydrodynamic fluid has attracted many researchers in view of its numerous applications in geophysics, astrophysics, meteorology, aerodynamics, magnetohydrodynamic power generators and pumps, boundary layer control energy generators, accelerators, aerodynamics heating, polymer technology, petroleum industry, purification of crude oil, and in material processing such as extrusion, metal forming, continuous casting wire, and glass fiber drawing. (Pohlhausen, 1921) has been invited Der Warmeaustrausch Zwischen fasten know and Flussigkeiten mit, (Chenna Kesavaiah et. al., 2022) studied the radiation and mass transfer effects on MHD mixed convective flow from a vertical surface with heat source and chemical reaction, (Ostrach, 1953) described an analysis of laminar free convection flow and heat transfer along a flat plate parallel to the direction of the generating body force, (Mallikarjuna Reddy et. al., 2019) explained the radiation and diffusion thermo effects of viscoelastic fluid past a porous surface in the presence of

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An inexpensive Ni-doped Co_3O_4 electrocatalyst for urea oxidation

P.C. Nagajyothi [a], R. Ramaraghavulu [b], K. Yoo [a], K. Pavani [c], J. Shim [a]

[a] School of Mechanical Engineering, Yeungnam University, Gyeongsan 38541, South Korea
[b] Department of Humanities and Sciences, Annamacharya Institute of Technology and Sciences, Rajampet Kadapa 516126, India
[c] I3N - Department of Physics, University of Aveiro, 3810-193 Aveiro, Portugal

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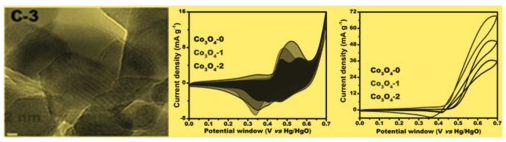
Abstract

Ni-doped Co_3O_4 catalysts with various Ni concentrations (0.01, and 0.015M) were synthesized using a simple, cost-effective hydrothermal route. The synthesized samples are denoted as Co_3O_4-1 and Co_3O_4-2. Structural and morphological properties of as-prepared samples were characterized by XRD, FTIR, XPS, SEM, and HR-TEM techniques. The electrochemical characteristics for the urea oxidation (UOR) on Ni-doped Co_3O_4 catalyst were examined by cyclic voltammetry (CV), linear sweep voltammetry (LSV), electrochemical impendence spectroscopy (EIS), and chronoamperometry (CA). The Ni-doped Co_3O_4 with the lower Ni percentage (Co_3O_4-1) exhibited higher electrocatalytic activity toward the UOR than Co_3O_4-2. Co_3O_4-1 had a high surface area and pore size, which influence the UOR. Co_3O_4-1 showed high stability up to 10,000s. Overall, Co_3O_4-1 has significant potential in energy consumption and wastewater treatment.

Graphical Abstract



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Introduction

Urea is also known as carbamide (H_2NCONH_2) and is highly abundant on earth [1]. Urea is used mainly as a fertilizer and feed supplement for cattle and as a starting material for the manufacturing of drugs and plastics [2]. Huge amounts of urea waste products are released from industrial and anthropogenic activities. As a result, urea-rich effluent has toxic effects on the environment. Urea itself is not toxic, but it can undergo natural conversion to ammonia (NH_3) and be released to the atmosphere, generating NO_3^-, NO_2^-, and NO pollutants. In addition, NH_3 is a potential hazard for groundwater, the environment, and health [3], [4]. Urea is removed/decomposition from wastewater by various methods, including thermal hydrolysis [5], enzymatic hydrolysis [6], hydrolysis [7], [8], catalytic decomposition [9], adsorption [10], and electrochemical oxidation [11]. Among these methods, the electrocatalytic-urea oxidation reaction (UOR) is the well-controlled method; urea is electrochemically oxidized to produce N_2, H_2O, and CO_2 at the anode are not toxic to the environment generated, and hydrogen is produced at the cathode [8], [12], [13]. Urea is a non-toxic, inexpensive, readily available, stable, and non-flammable compound recently considered as a promising H_2 carrier for long-term sustainable energy because of its natural abundance [14]. In this way, electrooxidation of urea allows the remediation of a potentially toxic anthropogenic or environmental waste and the generation of a valuable fuel [15]. Usually, noble metal-based catalysts, such as Pt, Rh, Ir, RuO_2, and IrO_2 show efficient electrocatalytic performance for the UOR, but they suffer from high oxidation potentials, high cost, and scarcity, which greatly limit their large-scale applications [1], [16]. Hence, the development of earth-abundant, non-precious, long-term stability electrocatalysts for UOR is in strong demand.

Recently, various inexpensive catalysts, such as metals [12], metal oxides [17], metal hydroxides [18], nitrides [19], carbides [20], phosphides [21], and LDHs [22], have been studied widely over the past decades for electrochemical urea oxidation applications. Among transition metal oxides, spinel tricobalt tetraoxide (Co_3O_4) is an earth-abundant, p-type semiconductor and antiferromagnetic material with outstanding catalytic, gas-sensing, and electrochemical properties [23], [24], [25], [26]. The material has been studied widely as catalyst [27], sensors [28], and energy and environmental applications, such as lithium-ion batteries [29], zinc-air batteries [30], supercapacitors [31], bifunctional electrocatalyst (OER/HER) [32], [33] OER [34], HER [35], ORR [36], MOR [37], UOR [38], and low-temperature CO oxidation [39]. Recently, several methods have been used to fabricate cobalt oxide nanostructures with adjustable chemical-physical properties for wide-ranging applications. Of these, transition metal doping is a promising way to improve electrical behavior and optical absorption of cobalt oxide [40]. Recently

Facile One-Pot Decoration of SnO_2 Quantum Dots on the Surface of the Iron Phosphate Nanosheets for Enhanced Catalytic Decolorization of Methylene Blue Dye in the Presence of $NaBH_4$

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Journal of Cluster Science

Aims and scope

Submit manuscript

T. V. M. Sreekanth, R. Ramaraghavulu, K.Yoo & J. Kim

Abstract

Herein, a SnO_2 quantum dots (SQDs) @ $FePO_4$ nanosheets (FPNSs) was prepared by a simple procedure without additional instruments and characterized using XRD, FTIR, SEM, and TEM. SQD@FPNSs nanocomposite (FP-Sn) exhibited improved catalytic activity for the degradation of methylene blue (MB). Approximately 92% of the MB was successfully decolorized within 6 min using FP-Sn in the presence of $NaBH_4$.

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Hydrothermal fabrication of MoS_2/reduced graphene oxide nanohybrid composite for the electrochemical sensing of Hg(II) in green tea

Viswadevarayalu Annavaram [a b], Adinarayana Reddy Somala [c], Quansheng Chen [a], Felix Y.H. Kutsanedzie [a], Akwasi A. Agyekum [a], Muhammad Zareef [a], Md. Mehadi Hassan [a]

[a] School of Food and Biological Engineering, Jiangsu University, Zhenjiang, Jiangsu 212013, PR China
[b] Department of Chemistry, Annamacharya Institute of Technology and Sciences (Autonomous), Rajampet, Kadapa 516126, India
[c] Department of Materials Science and Nanotechnology, Yogi Vemana University, Vemanapuramu, Kadapa 516005, India

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Highlights

- Synthesis of MoS_2/MoS_2@RGO for electrochemical detection of Hg(II).
- An effective Nanosensor towards Hg(II) shown good selectivity and sensitivity.
- The detection limit of Hg(II) was calculated as low as 1.21×10^{-9} µg/mL for MoS_2@RGO.
- In real samples, developed Nanosensor is applied for the real sample to detect Hg(II).

Abstract

Heavy metal contamination is a standout among the most genuine ecological issues: toxicity, persistence, bioaccumulation, and biomagnification through food chains. The present work aims at the synthesis of abundant, fast-sensing electrochemical sensors MoS_2 and MoS_2@rGO composite by the hydrothermal method to develop electrochemical sensors for the detection of Mercury (Hg-II). The synthesized material was characterized and conformed to a hierarchical spherical sponge-like structure with a high surface-to-volume ratio. The electrochemical sensor conditions were observed at ambient conditions to detect Hg (II) (0.5, 1, 1.5, 2, 2.5, 3, 3.5µm L^{-1} was used) and the results showed very promisingly. The limit of detection (LOD) was found to be 2.0×10^{-7} µg/mL for MoS_2, 1.22×10^{-8} µg/mL for composite. The heavy metals were spiked in green tea extract to observe the sensor ability of the material. The sensor ability for the material for real-time detection of green tea was found to be LOD-2.12×10^{-7} µg/mL (MoS_2) and 1.21×10^{-9} µg/mL (MoS_2@rGO).

Introduction

2D nanomaterials, especially layered nanomaterials, have received end-to-end attention since the year 2000 as a result of their distinct properties, such as chemical and physical characteristics [1], [2], [3]. 2D nanomaterials generally have a high surface area, good chemical stability, and high electron conductivity. By comparison to this envious environment, the existence of pollutants is growing day-by-day due to human beings' usage. The main life-saving natural resource in our environment is water. As per the records of the world health organization, the contamination percentage of water is growing enormously on some continents with time. And green tea is one of the most famous beverages in Asia. According to recent research, green tea has been shown to have nutrients that can help with digestion, prevent cancer, and lessen the effects of computer radiation. Green tea contains bio elements such as cadmium (Cd), lead (Pb), and mercury (Hg), all of which are hazardous metals, according to recent research [4]. These three metals harm essential enzymes and a variety of physiological systems, including the circulatory, renal, and central nervous systems. [5]. This affects the health and mental behaviour of human and natural beings. So, to decrease the pollutant percentage, many hypotheses have been proposed by researchers. There are so many materials and methods available to observe and detect hazardous pollutants in water [6], [7]. For example, graphene oxide is one of the well-known materials to be applied for the detection of pollutants, especially heavy metals. For example, a modified graphene oxide with polyaniline nanofibers is used for the detection of heavy metals [8]. A lot of research articles have been published on graphene or graphene oxide modified materials for the detection of heavy metals (references). But nowadays, the composition of 2D materials interests many researchers because of its similar properties to the nano form of carbon material (2D) materials. Related to these properties nowadays, a new material was observed that is none other than MoS_2. It has so many applications in the fields of biomedical, sensors, electrochemical, etc. [9], [10], [11], [12], [13].

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PARABOLIC MOTION EFFECTS PAST AN EXPONENTIALLY ACCELERATED ON CONVECTIVE HEAT AND MASS TRANSFER FLOW OVER A VERTICAL PLATE WITH CROSS DIFFUSION

K.RAMESH BABU, M.SIMHADRI and K.JANARDHAN

Department of Mathematics, Annamacharya Institute of Technology and Sciences, Rajampet-516126, Kadapa (Dist.), Andhra Pradesh. e-mail: rameshmaths01@gmail.com

*ABSTRACT:*The present studied of the problem is investigation of scientific effects parabolic motion exponentially accelerated on temperature changes of heat and mass flow done with a perpendicular to the horizontal plate with cross diffusion and taking an account of the soret and dufour effects. Against the gravitational field the plate is started parabolic with a velocity in its own plane, the plate temperature and concentration is raised up homogeneously with time. The dimensionless prevailing calculations are explained by explicit finite difference technique. Now discussion about the characteristics of the fluid flows through graphically.

I. INTRODUCTION

In condition, there occur flows which are formed the temperature variances in addition to the concentration variances. The pace of heat transfer is affected the rate of mass transfer variances. In trades, several air techniques occur in which heat and mass transfer earnings place simultaneously as a result of mutual buoyancy moment in the presence of thermal radiation. In advanced manufacturing for the project of fins, brace rolling, atomic control plants, air turbines and several force gadgets for flying machine, military hardware, digital television, flaming and boiler firm, supplies handling, energy use, temperature quantities, health and military application and mass transfer acts as a vital role.

Many submissions for the parabolic motion like solar cookers, solar concentrators and parabolic trough solar collector. A parabolic concentrator kind solar cooker has a wide range of applications like baking, roasting and distillation due to its exclusive property of creating a practically complex temperature. Muthucumaraswamy et al. [8] are discussed an analytical study of free convection flow near a parabolic in progress send less straight up plate with isothermal in the existence of uniform mass flux. Muthucumaraswamy et.al [3] are scrutinized the MHD convection free flow with a starting explanatory movement of an countless isothermal perpendicular to the horizontal plate in the presence of thermal radiation and chemical reaction. Muthucumaraswamyet.al [2] are studied the flow of preceding a starting parabolic motion of the countless perpendicular to the horizontal plate with adjustable temperature and flexible mass diffusion. Prabhakar Reddy et.al [9] examined numerical the effects of chemical radiation reaction on an unstable HMD free flow convection with a starting parabolic motion of an unlimited isothermal perpendicular to the horizontal porous plate and considering the effect of viscous dissipation. Muthucumaraswamy et.al [6] extended the pivot impacts on an uneven in compressible stream of an electrically leading past liquid homogeneously enhanced vast isothermal perpendicular to the horizontal plate, under the activity of a transitionally applied attractive field. Muthucumaraswamy et.al [7] illuminated trembling past a flow starting parabolic motion of the boundless perpendicular isothermal to the horizontal plate uniform mass dispersion, within the sight of a chemical homogeneous response of the major edict. Soundalgekar [11] is explained the viscous incompressible flow past fluid vast perpendicular to the horizontal uniformly accelerated plate in the straight up direction. Singh et.al [10] elucidated the impact of free-convection mass exchange viscous incompressible flow past fluid an accelerated uniformly countless perpendicular to the horizontal plate. Hossain et.al [1] are investigated the free-convection laminar unsteady flow of a incompressible fluid viscous, an accelerated endless porous plate perpendicular to the horizontal. Muthucumaraswamy et.al [4] examined the variable temperature and mass diffusion unsteady hydromagnetic past flow of uniformly accelerated infinite perpendicular to the horizontal porous plate. Constance Angela [12] illuminated the combined study of the Dufour Effect and Hall Effect on a Magnetohydrodynamic flow past an Exponentially Accelerated Vertical Plate with varying Temperature and Mass Diffusion. Muthucumaraswamy et.al [5] surveyed the impacts of turn on the unsteady flow past fluid of a uniformly incompressible accelerated endless perpendicular to the horizontal

THERMAL RADIATION IMPACT ON MHD CASSON VISCO-ELASTIC FLUID UNDER VISCOUS DISSIPATION

K. Sreenivasulu[1] B. Hari Babu[1] P. Chandra Reddy[2*]

[1]Department of Mathematics, PACE Institute of Technology & Sciences (Autonomous), Ongole-523272, A.P., India.

[2*]Department of Mathematics, Annamacharya Institute of Technology & Sciences (Autonomous), Rajampet-516126, A.P., India.

***Corresponding author Email: chandramsc01@gmail.com**

ABSTRACT

A theoretical study has been performed to analyze various properties of an electrically conducting visco-elastic and dissipative Casson fluid past a vertical porous plate bounded by a porous medium in the presence of thermal radiation and variable permeability. The basic concepts like magneto hydrodynamics, visco-elasticity, heat transfer, skin friction and rate of heat transfer are presented. The non-linear partial differential equations which govern the flow are solved numerically by finite difference scheme. The presence of thermal radiation decreases the temperature. The changes in skin friction and Nusselt number are also observed.

Keywords: MHD, thermal radiation, Casson fluid, visco-elasticity, vertical porous plate, heat transfer.
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1.Introduction:

The studies on MHD visco-elastic fluids with radiation effect past a porous media plays significant role in many scientific, industrial and engineering applications. In MHD generator, the hot fluid is passing through transverse magnetic field, and then electric field will be produced. The liquid metal provides electrical conductivity and inert gas is a convenient carrier to the liquid. The carrier gas is pressurized and heated by passage through the heat exchanger within the combustion chamber. The hot gas is incorporated into the liquid metal to form a working fluid. The liquid metal consists of gas bubbles uniformly dispersed in an approximately equal volume. The studies on MHD visco-elastic fluids with radiation effect past a porous media plays significant role in many scientific, industrial and engineering applications. To recover the water for drinking

Acquisition of English Language through Language Laboratories- A paradigm shift in Language Learning

M.Nagaraja Kumar, Assistant Professor of English, Annamacharya Institute of Technology and Sciences, Rajampet, email: rajkumarmeruva@gmail.com

Dr.B. Bala Nagendra Prasad, Head, Humanities and Sciences Department, Annamacharya Institute of Technology and Sciences, Rajampet, email: prasadbbn@gmail.com

Abstract

In this world of gizmos, technology is fast growing and the world is witnessing many Innovative explorations. Today's world doesn't need people who confined themselves to their own territory, but the people who can excel globally well. To do so one must have gained expertise in the language predominantly spoken in the world. It is a well-known fact that English is the language which is chiefly spoken throughout the world and the fact of the matter is one who gains mastery over English language can conquer the world. The need of the hour is to have a system of Education where students of the nation should be provided with the opportunity of learning English language irrespective of the part of the Nation that he/she hails from. Meeting unending demands of people the Educational Boards have refurbished the whole systems and have embarked upon the idea of introducing the Language Labs in Schools and Colleges. The advent of such language Laboratories has yielded tremendous results in making the students learn English Language very effectively. A Language laboratory is commonly christened "Lab" is destined for the purpose of dealing with the aspects language learning. A Lab is a setting with a particular set-up and runs under the supervision of trained language experts. A language dealing institution which is dearth of lab facilities provide boredom and monotony to the learners and deprive them the opportunity of Language Learning situations. In the absence of such labs the learners will find themselves detached from the world of interest and creativity. In a language laboratory the students have the access to audio, video, multi-media and Internet facilities. For students attending a language lab is retreat from traditional class rooms, Hence the students find it interesting. This paper explains how a Language Laboratory helps in enhancing English language skills and the methodologies adopted to give further impetus in making a student more proficient in speaking English Language.

Key Words: **Language Laboratory, Technology, Audio and Video, Multi-media**

The Role Of Hr In Organizational Innovation

S. Sowjanya[1*], Dr. T. Navaneetha[2]

Abstract

Talented people have the power to turn ordinary companies into industry leaders. Your HR team leads the efforts to attract those people into your organization and maximize their talents, but that directive goes beyond making sure their companies appeal to a wider array of candidates. HR plays a critical role in building a trusting environment for everyone — one that promotes learning and iterative improvement and normalizes risk-taking. In other words, creating an environment that's necessary for successful innovation is very important these days in any organization.

Key Words: employee, environment, human being, HR, innovation, management, role

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"Innovation Management is about more than just planning new products, services, brand extensions, or technology inventions. It's about imagining, mobilizing, and competing in new ways," says Idris Mootee, author of Design Thinkingfor Strategic Innovation.

Evolving role of HR:

HR's role has changed swiftly over the past few years, with HR professionals getting involved in the company's management as a strategic associate. Nowadays, they have to work together with the company's' top management to establish how to combine HR activities with the intended organizational approach. HR's role is now focused on employee management initiatives and organizational growth intervene tions in order to achieve the person-organization fit. Basically, the aim is to train and develop the employees on the whole so that they can evolve with the organization. With cultural changes becoming more prevalent in the companies, it is the need of the hour that the HR supports these changes and initiates innovation, breaking them away from their stereotype administrative profile.

HR's contribution to organizational innova tion:

Processes and policies are the core of any Organization but where do the ideas for these processes come from? Undeniably, social interactions among human beings beget innovative ideas that in turn give rise to new processes and initiatives that the management can implement. The same has been concluded from several meetings that were aimed at improving efficiency. The employees are the core assets of any company. A company's product, brand, techniques, sales, would mean nothing if it doesn't have the right workforce to implement and sustain it. Suffice it to say, it is essential to administer this particular asset efficiently and competently.

What makes HR's role in organization innovation so crucial is communication. There are so many techniques and books available for managing tangible assets such as finances etc. Naturally, it would be a disaster if these techniques are applied to manage human resources as it requires different skills and preparation to deal with these social assets. This is mainly because of the two-way communication that exists with human beings. The HR must constantly develop itself to manage the employees of the company by fostering an in-house social network that initiates the flow and sharing of ideas rather than holding them in their brains.

This flow of ideas can lead to innovation. Here

***Corresponding Author:-** S.Sowjanya
Address: [1*]HOD, Department of Management Studies Rajeev Gandhi Memorial College of Engineering and Technology NANDYAL Andhra Pradesh
[2]Assistant Professor, MBA Department Annamacharya Institute of Technology and Sciences
New Boyanpalli RAJAMPET Andhra Pradesh

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A STUDY ON SERVICE DELIVERY MANAGEMENT IN E-GOVERNANCE SYSTEM WITH SPECIAL REFERNCE TO THE USERS OF e-SERVICES

Dr.T.Navaneetha, Assistant Professor, Department of Management Studies, Annamacharya Institute of Technology and Sciences(Autonomous), Rajampet, kadapa(District), Andhra Pradesh-516126,

Abstract: *India is the largest democratic country that is striving hard to move from developing status to developed country. Government is taking several initiatives to move in a positive direction. One among the initiatives is e-governance. According to Abdul Kalam e-governance is a strong tool for ensuring corruption free administration. E-governance helps to create SMART governance in the society (S=simple, M=Moral, A=Accountable=responsive and T=Transparent). In this regard the present study focus on identifying the demographic profile of the respondents, analyzing the effectiveness of e-governance initiatives from the view of users of e-services and finally to enquire about the problems experienced by the users of e-governance. For this a sample of 120 respondents are taken and data is collected through a structured questionnaire. Statistical tools like t-test, one way ANOVA and ranking methods are used for analyzing the data. It is found that employee attitude and performance is creating much disturbance in delivery of services as compared to infrastructure, information communication technology (ICT) perception and Government intervention. It is concluded that better service provider's attitude and performance needs to be enlightened for better service delivery management in e-governance system.*

Key words: **E-governance, e-services, users, ICT, infrastructure, government intervention, employee attitude and performance.**

I. Introduction

E-governance is the application of information technology for delivering better services of the government to the users of the service generally local citizens. The main users of e-services are government, citizens and also for the business purpose. It is associated with carrying out the functions of government and achieves maximum results of productivity and economic growth in the country. E-governance focus on single window clearance, overcoming barriers especially political and language barriers, assimilates back end operations and secured online transactions by making confidentiality. It is treated as an evolutionary phenomenon concentrating on changing the mindset of people across the globe.

The concept of e-governance has come into existence in 1990's. It is considered as a policy strategy to improve service delivery and to reduce service cost. The aim of e-governance is to deliver the services in a better way with utmost transparency and accountability. E-governance largely influences the next generations to follow e-commerce in both public and private sector organizations. E-governance rotates around 3 basic ideals like ICT's, management concepts and Government itself. It enables government to improve the process of service delivery. It helps in the utilization of government services in day to day activities. In order to apply this e-governance at remote level digital equipments such as computers are very much necessary. E-government presents transparency, clarity, efficiency and accountability. E-governance brings simplicity of government services like documentation, submission of online documents. Morality can be increased by decreasing bribing, red tapism e.t.c. In addition to that

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JOB SATISFACTION ON JOB PERFORMANCE OF EMPLOYEES IN INFORMATION TECHNOLOGY INDUSTRY

[1]Dr. Somasekhar Donthu, MBA, Ph.D., UGC NET, APSET
Associate Professor,
Mittal School of Business
Lovely Professional University,
Phagwara, Punjab.
Email: somuecom@gmail.com
[2]Dr. P. Subramanyam
Associate Professor & HOD
Department of Management Studies
Annamacharya Institute of Technology & Sciences, Rajampet
Email: subbu_phd@yahoo.com
Corresponding Author: **[1]Dr. Somasekhar Donthu, MBA, Ph.D., UGC NET, APSET**

Abstract:

This research article aims to "To measure the impact of key predictors of job satisfaction on job performance of employees in IT industry". The paper applies data reduction using Confirmatory Factor Analysis (CFA) on a sample of 364 respondents drawn from IT industry in the Bengaluru and condenses a set of 12 job satisfaction items converted into a four key predictors. The present study proposes a model of the impact of key predictors of job satisfaction on job performance. The study found that pay, supervision, work itself and promotion are impacting significantly the job performance. Therefore, IT companies should focus on the above factors to job performance of employees. The study investigated the impact of key predictors of job satisfaction on job performance of the employees in IT industry concluded that pay had the highest impact on the job performance of the employees' supervision, work itself followed by promotions.

Key words: Pay, Supervision, Work itself, Promotion, Job Satisfaction and Job Performance.

Introduction

In today's global context many organizations are facing intensive challenges to improve the employee's job satisfaction and as a result, improve their organizational commitment to gain competitive advantage as well as maintain retention of their key employees. Great interest of organizational topics that related to attitude and behavior such as organizational commitment, job satisfaction and job performance has been sparked by its potential benefits to individuals and organizations. According to Steinhaus & Perry (1996) cited in (Samad, 2011) committed and satisfied

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Integration between Indian Stock Market and Developed Stock Markets

Dr. P. Subramanyam[1], Mr. Joswa Stalin S[2], Mr. Ashoka G[3], Mr. Raghavendra K[4]

Head[1], Department of Management studies, Annamacharya institute of technology and sciences, Rajampet, Andhra Pradesh, subbu_phd@yahoo.com

Assistant Professor[2], Department of Commerce and Management, Acharya Bangalore B School, Bangalore, Karnataka, stalin.9990@gmail.com

Assistant Professor[3], Department of Commerce and Management, Acharya Bangalore B School, Bangalore, Karnataka, ashuahok58@gmail.com

Assistant Professor, Department of Commerce and Management, Acharya Bangalore B School, Bangalore, Karnataka, raghuk2408@gmail.com

Abstract

The present study investigates the stock market integration amongst important global stock markets, namely, Australia, Canada, France, Germany, India, UK and USA to examine the short-run and long-run relationships with Indian stock market and selected developed stock markets based on time series data for the period between 2001 (January 2) and 2021 (December 31). This study also examines the possibility of portfolio diversification between the Indian stock market and the developed stock markets. Low correlation is observed between Indian stock market and France stock market that indicates the possible gains from international diversifications. Johansen cointegration test confirms a precise long-term equilibrium connection amongst all the stock markets as a widespread strength. Granger causality test results based on VECM show that both Indian stock market and USA stock market are associated in the long-run but it would take long time to return to equilibrium and Indian stock market is associated with France, Germany and USA stock markets in the short-run, which entails that investors can earn reasonable benefits from international portfolio diversification in the short- run but benefits from international portfolio diversification in the long-run are restricted.

Keywords: Stock Market Integration, Stock Market Return, Portfolio Diversification, Johansen Cointegration Test, Granger Causality Test.

INTRODUCTION

Now-a-days the dynamics of share markets, their upheavals, heightened activities and their ensuing integration are gaining major importance with globalization perspective. The Indian stock exchanges hold a place of prominence not only in Asia but also at global stage. The

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Impact of Microcrediton Living Standard of Dairy Entrepreneurs at Rayalaseema Region of AP.

** Dr MSR Mariyappan, *V. Vedavathi
*Dean - School of Management, Vel Tech Technical University, Avadi
**Research Scholar Vel tech, Assistant Professor, AITS ,Rajampet

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ABSTRACT
Microcredit is part of micro finance, which provides a wider range of financial services for low income people. Micro creditservesasavitalroleforLivingstandardofpoorpeople inthedevelopingcountries.InthisStudyRayalaseema region of AP was selected as research area. Mostpeople in the Rayalaseema region area are subordinate to the poverty line, because most of the displacedpeople who are female other than male staying here. Women lost their male relatives in struggle, and forced to take aresponsibility of their family in order to look after their children, aged parents and their male relatives.Micro credit helpsthe poor people particularly women in effective ways in order to create income generating activities.The prime objective ofthisstudyistoinvestigatetheimpactofMicrocreditonliving standardofdairyentrepreneursinRayalaseemaDistricts.Int heruralareasofRayalaseema region DivisionalSecretariatDivisions100dairyentrepreneurs were selected as the sample size of population. The selected entrepreneurs who have received loan frombanks for dairy farming activities in Rayalaseema region. Primary data were used for gathering informationandquantitativeanalysiswascarriedouttofind outtheresults.Inthequantitativeanalysisthecorrelationan dregressionmethods were employed to examine the hypotheses by using SPSS. The result of this study concluded that there is a positiveimpact of micro credit on living standard of dairy entrepreneurs. In addition to this,using micro credit facilities create more job opportunities and variety of economic activities and improve householdeducation,income,savingandheathconditiono fthepeople.Thestudyrecommendsthatmicrocreditinstit utionshouldconsiderimprove the livingstandardofdairyentrepreneursthroughincrease the loanamountwithlowerinterest rate.

Keywords : Microcredit, Dairy Entreprenuers Living standards

I. INTRODUCTION

Microcredit plays a vital role in significant innovations in development policy of the past twenty-five years. Microfinance isnot a new concept; it comes from the development of Grameen bank concept introduced by Mohammad Yunus inBangladesh. But it traced back to 1906 in Latin America. Thus, there was evidence for in the social banking, group-basedlending, self-help group concepts, etc. Normally rural financial market can identify as formal financial market and informalfinancial market which act as financial intermediaries. In developing country as aIndia formal financial institutiondoesn't serve financial services to the rural sector efficiently. Moreover, Low income people cannot be satisfied regardingformal financial institution's lending procedures. Because they haven't any fixed income way or any collateral to obtainfinancial services. So, the more people obtain the loans from informal financial institutions or informal money providers aslow-income people are facingpoorer situationandalso, they save their fundsininformal channels. So, they don't provideany guaranteefor thatsavings.Themicrofinanceactivitieshavegivenafinancia l solutionfor thatkindofpeople.

Further microfinance comes with the main objective of providing financial services to the poor segments of the society,contributesitsroleintheformoffinancialdevelop mentwithaprimaryfocusonenhancingthelivingstandardt hroughpovertyalleviation.Inthelasttwodecades,therearese veralmodificationsinthemicrofinancesectorsuchas,introdu ctionof micro insurance, diversification of products, provide instructions and several types of collateral free flexible loan as thecapacityoftheborrowers.

Microcredit is part of micro finance, which provides a wider range of financial services, especially savings accounts, tothe poor. Many traditional banks subsequently introduced micro credit despite initial misgivings. The United Nationsdeclared 2005 as the international year of micro credit. As of 2012 microcredit is widely used in developing countries and ispresented as having enormous potential as a tool that can be helpful to possibly reduce feminization of poverty indevelopingcountries.

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OPEN ACCESS

Influence of consumer brand attitude on purchase intention -In case of selected branded atta products

P. Venkata Subbiah [1], A.S. Sathish [2]

Abstract

Consumer behaviour change every day and evolve from time to time based on various factors, but the one thing that would always stay constant is their mentality on value consciousness, people always tend to gain more value for the spending money. Value consciousness means the value a customer gains for the amount of money he pays. People are starting to become more and more value conscious, as businesses are getting really competitive and the customers use the bet out of it. Purchase intention had showed remarkable work in contributing to the theory of buyer behaviour. However, the impact brand attitude on purchase intention in marketing has not yet been well explored especially in a developing economy. The fact that there are conceptual connections of trust to the notion of satisfaction and loyalty, and that this effort is especially lacking in the brand-consumer relationship, moves the authors to focus on analyzing the relationships existing among these concepts. Further the relationship between brand attitude, product knowledge, the way it affects the perceived value of consumers and the ultimate result on brand trust is also tested.

Keywords: Brand Attitude, Brand Trust, Product Knowledge, Value consciousness.

Author Affiliation: [1] Research Scholar, VITBS, VIT University, Vellore & Assistant Professor in AITS (Autonomous), Rajampet.
[2] Sr. Associate Professor,VIT Business School,VIT University, Vellore.
Corresponding Author: P. Venkata Subbiah. Research Scholar, VITBS, VIT University, Vellore & Assistant Professor in AITS (Autonomous), Rajampet.
Email: venkataits2015@gmail.com, sathish.as@vit.ac.in

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1. Introduction

Packaged and canned products are becoming a major part of this fast moving and busy global population. It makes the work easier and saves time without compromising on taste or quality. Patanjali has become one of the most recognized brands in India with an extensive product line that caters to many needs of the customer. Patanjali Ayurved Limited, the fastest growing FMCG Company in the country is a mineral and herbal products company established in 2006 and headquartered in the industrial areas of Haridwar. The brand promotes being natural and ayurveda. The company is very profitable and successful. It was listed 13th in the list of India's most trusted brands (The Brand Trust Report) as of 2018, and ranks first in FMCG category. Patanjali whole wheat atta is a 100% whole wheat flour. This atta is perceived and claimed to be good for health and is very affordable. Patanjali atta is our focus here in this research. The above-mentioned variables are tested here with regard to Patanjali Atta.

Furthermore, the influences of self-brand congruity, entertainment and brand placement acceptance as antecedents to brand attitude is expecting to put more value consciousness to the brand recall, brand attitude and purchase intention relationships. The notion that consumers approach their decisions in different ways as they gain familiarity through experience with a product has long been popular with consumer researchers. The processes by which information is acquired, interpreted, and utilized in consumer decisions should reflect the quantity and nature of relevant information already gained through previous experience. Recent empirical evidence confirms the influential role of product familiarity in information processing. The methodology used in this study is questionnaire in the form of google form to understand about the consumers. The analysis had frequencies, descriptive, correlation, regression and factory analysis. These was conducted to evaluate that does brand trust is attained through Value consciousness, brand attitude and product knowledge with a sample of 250 buyers.

2.Literature Review:

Empirical paper [1] "Employer brand trust and affect: linking brand personality to employer brand attractiveness" with the objective to close the research gap by drawing on a consumer brand model of brand affect and trust as a means of explaining employer brand attractiveness. Employer brand affect, Employer brand trust and Employer brand attractiveness are the variables listed. The methodology of this study is those students interested in working in the consultancy industry completed a survey designed to evaluate consultancy employer brands. The results indicate that [1,2,3] employer brand trust and affect are both influenced by the brand personality trait sincerity.

Empirical paper [4] "The Influence of Brand Awareness on Brand Trust Through Brand Image". The purpose of this study was to determine 1) relationship influences brand awareness on brand trust, 2) relationship influences brand awareness on brand image,3) influence of brand image on brand trust. Brand awareness, Brand trust and Brand

Intuitionistic fuzzy rough sets and fruit fly algorithm for association rule mining

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Sreenivasula Reddy T., R. Sathya & Mallikharjunarao Nuka

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Association rule mining · Dimensionality reduction · Fruit fly algorithm · Intuitionistic fuzzy-rough set · Irrelevant features

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Review Article

Heart Disease Prediction and Detection Using Association Rule Mining Techniques

T Sreenivasula Reddy[1]*, R Sathya[2] and Mallikharjuna Rao Nuka[3]

[1]*Department of Computer Science and Engineering from Annamalai University, Annamalai Nagar, Tamil Nadu, India*

[2]*Department of IT, Annamalai University, Chidambaram, India*

[3]*Department of MCA, Annamacharya Institute of Technology & Sciences (Autonomous), Newboyanapalli, Rajampet, Kadapa District, Andhra Pradesh, India*

***Corresponding Author:** T Sreenivasula Reddy, Department of Computer Science and Engineering from Annamalai University, Annamalai Nagar, Tamil Nadu, India.

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Abstract

Data science mining methods are utilized in the field of medication for different purposes. Mining affiliation rule is one of the intriguing points in information mining which is utilized to produce continuous itemsets. It was first proposed for market bushel examination. Analysts proposed varieties in methods to create incessant itemsets. Creating huge number of incessant itemsets is a tedious cycle. In this paper, the creators contrived a strategy to anticipate the danger level of the patients having coronary illness through incessant itemsets. The dataset of different coronary illness patients is utilized for this exploration work. The information mining strategies-based frameworks could vitally affect the workers' way of life to anticipate heart sicknesses. There are numerous logical papers, which utilize the strategies of information mining to anticipate heart infections. Nonetheless, restricted logical papers have tended to the four cross-approval methods of dividing the informational index that assumes a significant part in choosing the best procedure for foreseeing coronary illness. Pick the ideal blend between the cross-approval methods and the information mining, order strategies that can upgrade the exhibition of the forecast models. This paper means to apply the four-cross-approval methods (holdout, k-overlay cross approval, separated k overlap cross-approval, and rehashed irregular) with the proposed techniques Extended Support Vector Machine and Extended KNN to work on the precision of coronary illness expectation and select the best forecast models. It investigates these procedures on a little and huge dataset gathered from various information sources like Kaggle and the UCI AI archive. The assessment measurements like exactness, accuracy, review, and F-measure were utilized to quantify the presentation of forecast models. Experimentation is performed on two datasets, and the outcomes show that when the dataset is epic (50000 records), the ideal mix that accomplishes the most noteworthy precision is holdout cross-approval with the neural organization with an exactness of 71.82%. Simultaneously, Repeated Random with Random Forest considers the ideal blend in a little dataset (303 records) with a precision of 89.01%. The best models will be prescribed to the doctors in business associations to help them anticipating coronary illness in workers into one of two classifications, cardiovascular and non-heart, at a beginning phase. Successive itemsets are produced dependent on the picked indications and least help esteem. The separated successive itemsets assist the clinical professional with settling on indicative choices and decide the danger level of patients at a beginning phase. The proposed strategy can be applied to any clinical dataset to anticipate the danger factors with hazard level of the patients dependent on picked factors. An exploratory outcome shows that the created technique distinguishes the danger level of patients effectively from continuous itemsets. The early recognition of heart illnesses in representatives will further develop efficiency in the business association.

Keywords: Data Mining; Heart Disease; Feature Selection; Cross-Validation Methods; Data Preprocessing; Classification Algorithms; Productivity; Business Organizations; Frequent Itemsets; Heart Disease Prediction; Association Rule Mining; Data Mining; Medical Data Mining; SVM; ESVM; ANN and EKNN

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A Dynamic Hybrid Decoder Apprroach Using EG-LDPC Codes for Signal Processing Applications

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Authors:

J. Chinna Babu

Mallikharjuna Rao
Annamacharya Institute of Technology & ...

Ramana Kadiyala
Chaitanya Bharathi Institute of Technology

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HUMIDITY AS WELL AS TEMPERATURETRACKING RELATED INTERNET OF THINGS WITH ARDUINO UNO

Dr. C. Madana Kumar Reddy, Associate Professor & HOD, Department of Computer Appllications, Annamacharya Institute of Technology and Sciences (Autonomous), New boyanapalli, Rajampet,Kadapa Dt. Andhra **Pradesh,cmkrcmkr@gmail.com,cmkr@aitsrajampet.ac.in**

Abstract: The technology described in this article is a portable solution for measuring temperature and stickiness properties at a particular place and guaranteeing that the data is indisputable everywhere in the world. The innovation that enables this is the Internet of Things (IoT), a sophisticated and competent answer for connecting physical objects to the web and connecting the whole universe of physical objects in an architecture. In this work an IOT based tracking system that humadity and temperature has been implemented successfully.
Key words: temperature, world, Internet of Things (IOT),

1. INTRODUCTION

We could handle any digital hardware in our houses as well as organizations through the Internet of Things (IOT). Furthermore, you may browse data from any device and see it visually from any time and from any place. Through the use of an Arduino Uno as well as an ESP8266-01 modules, we could analyse temperatures and clamminess information from a DHT11 sensor then send this to a Thing Speak cloud. Arduino Uno is indeed a microcontroller (MCU); it receives data about wetness and temperatures from a DHT11 sensor, processes it, and then passes this to an ESP8266 module. ESP8266 is indeed a WiFi module that serves as a foundation for the IoT. It is capable of exchanging data with a Cloud environment[1,2].

WSN enabling IoT biological monitoring applications across open nature areas is an experiment. WSN is based on forward-thinking innovations wherein we communicate with earth by identifying the characteristic human requirements. This necessitates a range of observation techniques, each of which is reliant on what kind of data collected by sensor devices.The structure is in charge of monitoring and regulating natural variables such as temperature, relative humidity, and the content on the site page, and it can be accessed via the web from anywhere on the globe via the web of things[3,4,5].

When an event occurs in this situation, the alarm or LED warns in this manner. The impacts of changes in the environment affecting creatures, plants, and people can be monitored and mitigated via a rigorous regular monitoring system. By incorporating embedding knowledge into the earth, we may train environment to be perceptive with regard to a variety of objectives; that's one of the applications that

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Patient Monitoring System in the context of Artificial Intelligence in ICU

N Narasimha Prasad[1], M. Prasad[2], Deepika amol Ajalkar[3],Chanchal Prabha[4]
1.Assistant Professor, Department of Master of Computer Applications, Annamacharya Institute of Technology and Sciences (Autonomous), New Boyanapalli, Rajampet, Kadapa-516126, Andhra Pradesh, India,
2. Assistant Professor Senior, School of Computer Science and Engineering, Vellore Institute of Technology (Chennai Campus), Chennai, TamilNadu - 600127.
3. Assistant Professor, Department of Information Technology, G.H.Raisoni College of Engineering and Management, Wagholi ,Pune-412207.
4. Assistant Professor, Department of Management,IIMT College of Management, Greater Noida, Uttar Pradesh, India. 201310.
Correspondence email:prasad.nalamar@gmail.com

ABSTRACT
In the modern-day world, patients with critical conditions get monitored in the intensive care units in which every condition of the patient is monitored and necessary treatment is taken in a timely. These patients are susceptible to many diseases and that's why many of their important and damaged organs are taken special care of. To provide such an amount of care to a single patient, much of the staff is required on a single patient for 24 hours. Due to such an amount of care, a lot of useful data is generated which can play an important role to understand many important factors which get ignored usually. To make sense of such large data on paper for a doctor is a very difficult task that can consume a lot of time and still we don't know the analyzed finding are correct or not. To detect high risks and failure of the organs, machine learning can play an important role to detect such events and actions can be taken place promptly. In this paper, findings from a lot of research papers have been discussed and summarized to give the best possible solution. The goal of this research article is to give useful insights that can improve the already available models.
Keywords: *Patient Monitoring System, Artificial Intelligence, Intensive Care Unit (ICU)*

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INTRODUCTION

The field of artificial intelligence is greatly inspired by the brain process and functions of humans and machine learning is now in the vast range of technologies that can be used for the case of predictions. Artificial intelligence has many sub-fields and machine learning is one of them. In machine learning models, algorithms are created that help computers extract patterns from data without using programming. This is the thing that distinguishes machine learning from various other computing domains it doesn't use the programming to create any model doesn't use any programming to make any predictions and forecasting about the data. In the health care department, machine learning can be used in various clinical applications which can be used to form a lot of predictions.

LITERATURE REVIEW

Invasive/non-invasive healthcare technologies paired with artificial intelligence (AI) can assist hospital personnel perform more efficiently [1]. For instance, radio frequency (RF) sensor technology can collect data from a patient's body, and when that data is run via AI algorithms, significant conclusions are produced without the intervention of medical personnel [2,8]. Remote non-contact sensing technologies paired with sophisticated machine learning algorithms can deliver accurate results in real time, enabling physicians to easily monitor and diagnose disorders [9]. Artificial intelligence has been credited with numerous breakthroughs in seizure diagnosis when data from conventional electroencephalography is used (EEG). Although it was regarded as having reasonable sensitivity and specificity [4,5], it was not accepted as standard technique. In 15% of patients with no behavioural responses to motor commands following an acute brain damage, supervised learning methods utilising EEG validated evidence of hidden awareness [10]. Additionally, 12 hours after cardiac arrest, a deep-learning artificial neural network

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Packet Proceed attacks in Mobile Ad hoc networks: Security and Reliable Detection

P. Swathi

Assistant Professor, MCA Department, AITS, RAJAMPET

Abstract

Mobile Ad hoc Networks (MANET) have grown in popularity due to its mobility and security features. MANETs are a popular network for a variety of purposes. Packet losses in mobile ad hoc networks can be caused by two things: linkage errors and tiny packets. The network is experiencing a series of packet losses. NAODV is a suggested detection model for distributed packet dropping attacks (PDAs). Small node detection and isolation are founded on team work involvement of nodes communicating in different ways dependent on their TRUST levels. The packet dropping rate is equivalent to the channel error rate, according to traditional techniques. Finding an effective method of detecting It's tough to make connections between lost packets. Packets are sent through nodes that have a high level of trust. We tested this with NS2 and found that it was faster. By recognizing network and data packet drops, SAODV detects tiny nodes. The existence of malicious nodes is detected by SAODV, which detects packet dropping as a link problem. It also places a premium on data security. It proposes a packet-block based technique that trades detection accuracy for lower computing complexity to decrease computation overhead. In comparison to standard approaches, the suggested model achieves a substantially higher detection efficiency.

keywords: MANET, SAODV, Denial-of-Service, AODV, MD5 algorithm.

1. INTRODUCTION

Nodes in a wireless network with several hops join cooperatively to impart huge cloud. At least one node will take advantage of this allied mentality to launch assaults. When someone is contained in a specific path, they begin losing packets. In the most extreme case, the rogue node simply stops forwarding each packet received from upstream nodes, thereby interrupting the supply chain and, as a result, the destination. By splitting the network's architecture, a strong Denial-of-Service (DoS) assault will eventually disable it. Despite the fact that prolonged packet dropping degrades network speed, such a "always-on" assault has drawbacks from the attacker's perspective. To begin with, the persistent existence of packet loss is very common at nodes that are malevolent, makes this type of assault is efficient to identify. Second, once discovered, these assaults are competently to counteract. For example, if the attack is identified but the malicious nodes are unknown, the multi-path routing that isn't straight methods [1][2] will be used to avoid the assault's black holes, hence probabilistically removing the attacker. A security system's vulnerability is a flaw in it. Because the system does not authenticate a user's identity before granting data access, it may be open to unwanted data modification. The vulnerability of MANET is greater than that of a wired network. In wireless network communications, security

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Research Article

LSTM-Based RNN Framework to Remove Motion Artifacts in Dynamic Multicontrast MR Images with Registration Model

Shahanaz Ayub,[1] **R. Jagadeesh Kannan**,[2] **Shitharth S**,[3] **Raed Alsini**,[4] **Tawfiq Hasanin**,[4] **and Choragudi Sasidhar**[5]

[1]*Electronics and Communication Engineering Department, Bundelkhand Institute of Engineering and Technology, Jhansi, Uttar Pradesh, India*
[2]*School of Computer & Engineering, Vellore Institute of Technology, Chennai Campus, India*
[3]*Department of Computer Science & Engineering, Kebri Dehar University, Kebri Dehar, Ethiopia*
[4]*Department of Information Systems, Faculty of Computing and Information Technology, King Abdulaziz University, Jeddah, Saudi Arabia*
[5]*Department of Computer Applications, Annamacharya Institute of Technology and Sciences, Rajampet, 516 126 Andhra Pradesh, India*

Correspondence should be addressed to Shitharth S; shitharths@kdu.edu.et

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Today, many people under the age of 10 are being examined for brain-related issues, including tumours, without displaying any symptoms. It is not unusual for children to develop brain-related concerns such as tumours and central nervous system disorders, which may affect 15% of the population. Medical experts believe that the irregular eating habits (junk food) and the consumption of pesticide-tainted fruits and vegetables are to blame. The human body is naturally resistant to harmful gears, but only up to a point. If it exceeds the limit, a cell manipulation process is automatically initiated that can remove dangerous inactive tissues from the cell membrane and later grows into tumour blockage in the human body. Thus, the adoption of an advanced computer-based diagnostic system is highly recommended in order to generate visually enhanced images for anomaly identification and infectious tissue segmentation. In most cases, an MR image is chosen since it is easier to distinguish between affected and nonaffected tissue. Conventional convolution neural network (CCNN) mapping and feature extraction are difficult because of the vast volume of data. In addition, it takes a lengthy time for the MRI scanning process to obtain diverse positions for anomaly identification. Aside from the discomfort, the patient may experience motion abnormalities. Recurrent neural network (RNN) classifies tumour regions into several isolated portions much faster and more accurately, so that it can be prevented. To remove motion artefacts from dynamic multicontrast MR images, a novel long short-term memory- (LSTM-) based RNN framework is introduced in this research. With this method, the MR image's visual quality is improved over CCNN while simultaneously mapping a larger volume and extracting more quiet characteristics than CCNN can. DC-CNN, SMSR-CNN, FMSI-CNN, and DRCA-CNN results are compared. For both low and high signal-to-noise ratios, the suggested LSTM-based RNN framework has gained reasonable feature intelligibility (SNRs). In comparison to previous approaches, it requires less computing and has higher accuracy when it comes to detecting infected portions.

1. Introduction

The simultaneous investigation of magnetic resonance (MR) images and the identification of anomalies existing in the sensitive region of the human brain rely heavily on MR image sequences from 1.5 T Siemen's type scanners [1]. It is a common practise to combine many imaging techniques, such as CT, PET, and MRI, while attempting to determine an infected person's location during an infection. The information in the merged image is more detailed, but it is also a

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Revolutionizing Heavy Vehicle Fuel Efficiency: A Distance-Based Machine Learning Approach

[1]Saginala Masthan, mastanjaffu@gmail.com, Assistant Professor, Department of MCA, Annamacharya Institute of Technology and Sciences, Rajampet, Andhra Pradesh

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ABSTRACT:"Emphasizing the significance of fuel consumption across all vehicle lifecycle stages, this paper proposes a data summarization strategy centered on distance rather than conventional time intervals for crafting personalized machine learning models. The focus is on optimizing fuel consumption in heavy vehicles using machine learning techniques. The effectiveness of a methodology aimed at reducing fuel consumption in heavy-duty vehicles (HDVs) is detailed and assessed through simulations and real-world HDV experiments. The suggested model can be easily tailored and implemented for each vehicle within a fleet to enhance overall fuel efficiency. Furthermore, the study demonstrates the reliability of simulations for direct application to real HDVs. Notably, in scenarios where speed variation range was limited, the proposed method exhibited an average improvement of approximately 3 percentage points over standard predictive cruise control (PCC) across identical road profiles."

KEYWORDS: Artificial Neural Networks (ANN),fuelconsumptionoptimization,data summarization, HeavyVehicles.

I. INTRODUCTION

The average fuel consumption for vehicles isneededandcrucialalloverthephasesoftheir life-cycle. These models are importanttothemanufacturestobuildthepartsofvehiclesaccordingly,regulatorsandconsumers[1].Inordertodealwithincreasingly strict limitations on greenhousegasemissions,andthelikelyincreasein(fossil)fuelprices,heavy-dutyvehicle(HDV) manufacturers are under pressure toreduce fuel consumption. Moreover,thecompetitivenatureofthe HDVmarketalsoforcesmanufacturerstodevelop fuel-efficient vehicles [2]. On a flatroad, driving with constant speed (standardcruise control) is the optimal solution to theproblem of minimizing the fuel consumptionwith a constraint on travelling time. Speedprofile optimization is an effective approachfor reducing the fuel consumption of a singleHDV.ThisapproachcanalsobeusedinotherapplicationssuchasinHDVplatooning[3].

In general, every customer wants to use lessfuelforthevehicleswithmoreprofit.Ingeneral, techniques used to develop modelsfor fuel consumption fall under three maincategories:•Physics-basedmodels,whichare derived from an indepthunderstandingofthephysicalsystem.Thesemodelsdescribe the dynamics of the components ofthe vehicle at each time step using detailedmathematicalequations.

• Machine learning models, which are data-drivenandrepresentanabstractmappingfrom an input space consisting of a selectedsetofpredictorstoanoutputspacethatrepresentsthetargetoutput,inthiscaseaveragefuelconsumption.•Statisticalmodels,whicharealsodata-drivenandestablish a mapping between the probabilitydistributionofaselectedsetofpredictorsandthe target outcome

It is common to formulate the speed profileoptimization problem as an optimal controlproblem[4].Inthisformulation,theoptimizationiscarriedout(duringdriving)