3.4.3 Details of research papers per teacher in CARE Journals notified on UGC website during the year 2023-2024

Name of the Author(s)	Department of the Author(s)	Title of the Paper	Name of the Journal
Dr V T Krishnaprasath	Artificial Intelligence and Data Science	A Novel Masked Facial Recognition System Using CNN	IEEE XPLORE
Ms.Abhirami J S, Ms.Kalpana G, Ms.Sika K	Artificial Intelligence and Data Science	Real Time Criminal Face Identification system based on Artificial Intelligence and machine learning	International Journal on Applications in Information and Communication Engineering
Ms.Abhirami J S	Artificial Intelligence and Data Science	Artificial Intelligence and Machine Learning based Healthcare chatbot system	International Journal on Applications in Basics and Applied Sciences
Ms.Kalpana G, Ms.Sika K, Ms.Abhirami J S	Artificial Intelligence and Data Science	Enhancing Pre-Trained Transfer Learning Performance using Automated Brain Tumor Classifiction	EAI
Dr V T Krishnaprasath,Sujithra G,Rajichellam J	Artificial Intelligence and Data Science	Coral Reef Optimization for Predicting Features in Multiobjective Clustering Bio-Inspired Dataset	EAI
Dr V T Krishnaprasath, Sruthi S Madhavan	Artificial Intelligence and Data Science	Enhancing Public Safety: A Real-time Social Distance Monitoring with Computer Vision and Deep Learning	Salud, Ciencia y Tecnología - Serie de Conferencias
Abhirami J S	Artificial Intelligence and Data Science	Smart Traffic Management System with Emergency vehicle prioritization and stolen vehicle detection using Arduino Technology	International Journal of Engineering Research & Technology
Dr.P.T.Vijaya Rajakumar,Mrs. R. Yasodha	Management Studies	Employee Competency and Understanding Capability in Gear Manufacturing Companies in Coimbatore, Tamil Nadu	Asian Journal of Management
Dr. S. Shanthi, Mrs. R. Yasodha	Management Studies	A Study on Strategies to Increase the Operational Efficiency in Super markets with reference to Coimbatore.	Bharatiya Shiksha Shodh Patrika
Dr. S. Shanthi, Mrs. R. Yasodha	Management Studies	Effectiveness of Advertising on Social Media	Shanlax International Journal of Management

Mrs. Aaziya A	Management Studies	Deriving Performance Indicators from Models of Multipurpose Shopping Pattern	Educational Administration: Theory and Practice
Mrs. Sukanya S	Management Studies	A study on Impact of Liquidity and Profitability on the financial position in Kerala Region special reference with Rubfila International Limited, Kanjikode, Palakkad	Asian Journal of Management
Dr N K Sakthivel, Dr S Subasree, Dr. S. Sivakumar, M.MADAN MOHAN	Computer Science and Engineering	classification of kidney cancer data using depth aware generative adversarial networks approach	Seybold Report
M.Mahabooba, D r N K Sakthivel, Dr S Subasree	Computer Science and Engineering	Colorectal Cancer Prediction Using Bioinformatics Analysis Based On Double Fuzzy Clustering Driven Context Neural Network	Samdarshi Journal
Dr S Subasree, Dr N K Sakthivel, Ms. S. Priya, M.Mahabooba	Computer Science and Engineering	"Bioinformatics Analysis of the Genes Involved in the Extension of Prostate Cancer to Adjacent Lymph Nodes using Adaptive Activation Functions with Deep Kronecker Neural Network"	Seybold Report
Dr S Subasree, Dr N K Sakthivel,	Computer Science and Engineering	"Bioinformatics Analysis of the candidate biomarkers with poor prognosis of breast cancer using constructive Neural Network"	Samdarshi Journal
Dr N K Sakthivel, Dr S Subasree	Computer Science and Engineering	Channel boosted convolutional neural network for Predicting Survival in Bladder Cancer based on TCGA Database and Bioinformatics	Samdarshi Journal
M.S.Vinu	Computer Science and Engineering	Artificial Intelligence And Machine Learning Based Healthcare	IJABAS
Dr. S. Sivakumar	Computer Science and Engineering	AI Based Smart Auditorium For Energy And Space Management Using Intelligent Compact Controller	IDCIoT 2024 IEEE CONFERENCE
Dr. S. Sivakumar	Computer Science and Engineering	Privacy-Preserving Image Storage on Cloud Using An Unified Cryptographic Authentication Scheme	Salud, Ciencia y Tecnología
M.Mahabooba	Computer Science and Engineering	Deep Rice Transfer: Exploiting CNN Transfer Learning for Effective Rice Variety Classification	IEEE XPLORE
Dr. S. Sivakumar	Computer Science and Engineering	Sustainable Agriculture for Crop-Field Monitoring and Irrigation Automation using IoT	International Journal of Engineering Research and Technology
M.Mahabooba	Computer Science and Engineering	Automatic LPG Gas Leakage Detection and Cut-off System	International Journal of Engineering Research and Technology

M.Mahabooba	Computer Science and Engineering	Pest Control and Leaf Disease Identification Mechanism Using A iot	International Journal of Engineering Research and Technology
M.Mahabooba	Computer Science and Engineering	Patient Health Condition Monitoring System by using IOT	International Journal of Engineering Research and Technology
M.Mahabooba	Computer Science and Engineering	The Development of 6-G Technology in Integration with AI type of Synergy	IEEE XPLORE
M.S.Vinu	Computer Science and Engineering	Accurate Brain Tumour Segmentation in MRI Images using Enhanced CNN and Machine Learning Methods	International Journal of Intelligent Systems and Applications in Engineering (IJISAE)
Dr. S. Sivakumar	Computer Science and Engineering	Hybrid Attention Residual Deep Convolution Learning Network for Bio Medical Image Analysis	Journal of Intelligent & Fuzzy Systems
Ms. Jeni Narayanan L A	Information Technology	Smart Artificial Intelligence Ambulance with Decision Making System	International Journal of Engineering Research & Technology
Dr. K. Sivakumar	Information Technology	Smart Commodities Public Distribution System using IoT	Salud, Ciencia y Tecnología – Serie de Conferencias
Ms. Jeni Narayanan L A	Information Technology	Real Time Criminal Face Identification System Based on Artificial Intelligence and Machine Learning	International Journal on Applications in Information and Communication Engineering
Dr. K. Sivakumar	Information Technology	Unified Security Paradigm: Bi-Factor Authentication and Hyper Elliptical Curve Cryptography in IoT-Enabled Cloud Data Protection (BFHECC-IoMT)	SSRG International Journal of Electronics and Communication Engineering
Dr. K. Sivakumar	Information Technology	Healthcare Disagnostics with an Adaptive Deep Learning model Integrated with the Internet of Medical Things (IoMT) for Predicting heart Disease	Biomedical Signal Processing and Control
Ms. M. Gokilavani	Information Technology	Drip Irrigation System Integration with IOT and Renewable Energy for Sustainable Agriculture	International Journal of Engineering Research & Technology
Dr. K. Sivakumar	Information Technology	Optimum Power Forecasting Technique for hybrid Renewable Energy Systems Using Deep Learning	Electric Power Components and Systems
Dr.V.Jayaraj	Electronics and Communication Engineering	Detection and diagnosis of age-related macular degeneration using recurrent neural network with cloud architecture and internet of things	Journal of Intelligent & Fuzzy Systems
Dr.V.Jayaraj	Electronics and Communication Engineering	Kidney Impairment Prediction Due to Diabetes Using Extended Ensemble Learning Machine Algorithm	Journal of Machine and Computing

Dr.V.Jayaraj	Electronics and Communication Engineering	Radial basis function Neural Network optimized with Slap Swarm algorithm espoused paddy leaf disease Classification	Biomedical Signal Processing and Control
Mrs.K.Sivakami	Electronics and Communication Engineering	Energy efficient routing using adaptive elephant herding optimization for IoT-WSN	Journal of Intelligent & Fuzzy Systems
Mrs.S.M.Deepa	Electronics and Communication Engineering	A BMO Based MRPID Controller with optimal control of speed in hybrid stepper motor	Optimal Control Application and Methods
Dr.R.Deepa	Electronics and Communication Engineering	Advancements in early detection of diabetes and diabetic retinopathy screening using artificial intelligence	AIP Advances
Dr.R.Deepa	Electronics and Communication Engineering	Healthcare's new Frontier: AI-driven early cancer detection for improved well-being	AIP Advances
Dr.R.Deepa	Electronics and Communication Engineering	Early Detection of Skin Cancer using AI Deciphering Dermatology Images for Melanoma Detection	AIP Advances
Dr.R.Deepa	Electronics and Communication Engineering	Early Prediction of Cardiovascular Disease using Machine Learning unveiling risk factors from Health records	AIP Advances
Dr.R.Deepa	Electronics and Communication Engineering	Modeling and Simulation of Electric Vehicle Drive with Evaluating Forces	Journal of Data Acquisition and Processing
Dr.R.Deepa	Electronics and Communication Engineering	Optimizing Agricultural Practices with Machine Learning: A Comprehensive Review	International Journal of Agriculture Innovation Technology and Globalisation
Dr.K.Nagarajan, Mr. M.Jeba Paulin, Mr.T.Prabu, Mr Mohammed Kasim	Electronics and Communication Engineering	Design and Simulation Analysis of Spider Robot	International Journal on Application in Information and Communication Engineering
Mr.T.Prabu, Mr.M.Mohammed Kasim, Dr.K.Nagarajan, Mr. M.Jeba Paulin	Electronics and Communication Engineering	Centralized Monitoring System for Street Light Fault detection and Location Tracking	International Journal on Application in Engineering and Technology
Mr.S.Mohan	Electronics and Communication Engineering	Removal of Salt and Pepper Noise using Adaptive Switching Modified Decision based Unsymmetric trimmed Median Filter Optimized with Hyb-BCO-FBIA	Automatika
Mrs N Revathi	Electronics and Communication Engineering	Enhancing Industrial Security with IOT based Passive Intrusion Detection and Segmentation	Salud, Ciencia y Tecnología
Dr.P.Parthiban, Mrs.V.S.Vaisakhi	Electronics and Communication Engineering	Efficient Malicious Node Detection by Multi-Objective Energy Trust Aware Hybrid Optimization Based Maximizing Lifetime of Wireless Sensor Networks	Journal of Intelligent & Fuzzy Systems

	Electronics and Communication Engineering	Firebug Optimized Modified Bee Colony Algorithm for Trusted WSN Routing	IETE Journal of Research
Dr.V.Jayaraj	Electronics and Communication Engineering	Mapping of groundwater availability in dry areas of rural and urban regions in India using IOT assisted deep learning classification model	Groundwater for Sustainable Development (Elsevier)
Dr. B. R. Senthil Kumar	Aeronautical Engineering	Assessment of noise levels by using noise prediction modeling	The Scientific Temper
Dr. B. R. Senthil Kumar	Aeronautical Engineering	Synthesis and characterization of ZnO, ZnO doped Ag2O nanoparticles and its photocatalytic activity.	The Scientific Temper,
Dr. K. Sathish Kumar	Aeronautical Engineering	Effect of velocity ratio and Mach number on thin lip coaxial jet	International Journal of Turbo & Jet-Engines
Dr. K. Sathish Kumar	Aeronautical Engineering	Investigation of slanted perforation diameter in tabs for supersonic jet control	Aircraft Engineering and Aerospace Technology
Dr. K. Sathish Kumar	Aeronautical Engineering	Sonic Under-Expanded Co-Flowing Jet Mixing Characteristics with Varying Lip Thickness	Int. J. Vehicle Structures & Systems
Dr. K. Sathish Kumar	Aeronautical Engineering	Jet Mixing Characteristics of Ventilated Chevron Nozzles	Int. J. Vehicle Structures & Systems
Dr. K. Sathish Kumar	Aeronautical Engineering	Effect of Increasing Bypass Ratio on Supersonic Co-Flowing Jet with Finite Lip Thickness	International Journal of Heat and Fluid Flow
Dr. S. Rathinavel	Aeronautical Engineering	AA4032-TiC-h-BN-related composites: a machine learning model-based experimental study with performance prediction	Journal of the Brazilian Society of Mechanical Sciences and Engineering, Springer
Dr. S. Rathinavel	Aeronautical Engineering	Cellulosic fiber extraction and characterization from derris scandens (Roxb.) benth root for polymer composite reinforcements	Biomass Conversion and Biorefinery
Dr. S. Rathinavel, Ms. J. Prinsula	Aeronautical Engineering	Development and analysis of environmental friendly biocomposite films with pomegranate peel as filler for conventional applications	Biomass Conversion and Biorefinery
Dr. S. Rathinavel	Aeronautical Engineering	Utilization of bio-waste material pomegranate peel powder along with silver nitrate and polyvinyl alcohol to form a hybrid biofilm	Biomass Conversion and Biorefinery
Dr. J. Arun Prakash	Aeronautical Engineering	Evaluation of mechanical, microstructural and tribological properties of ADC-12 composite reinforced with TiO2 and WC	AIP Conference Proceedings
Dr. A. Deepak	Science and Humanitites	Tamil Architecture Technology	Indian Journal of Multilingual Research and Development

Dr. A. Deepak	Science and Humanitites	Climbing Adaptation of Kalithogai	Indian Journal of Multilingual Research and Development
Dr. A. Tony Dhiwahar	Science and Humanitites	Photocatalytic degradation of tetracycline hydrochloride using pure and copper-doped magnesium ferrite nanoparticles: Efficiency, kinetics and mechanism	Inorganic Chemistry Communications
Dr. A. Tony Dhiwahar	Science and Humanitites	Investigation of Visible Light Driven Photocatalytic Activity of Mn Doped CuFe2O4 Nanoparticles	Journal of Cluster Science
Dr.Y.Sameena	Science and Humanitites	Efficacy of nanoparticle synthesized spinach variety in bioremadiation of Copper from Contaminated Waters	World Journal Pharmacy and pharmacutical Sciences
Dr P.Periasamy, Dr.N. Sathiyapriya	Science and Humanitites	Nanophysics: Exploring the Quantum at the Small Scale	Technische Sicherheit (International Journal)
Dr P.Periasamy, Dr.N. Sathiyapriya	Science and Humanitites	The Role of IoT Technology in Modern Day-To-Day Life Process: A Critical Review	Technische Sicherheit (International Journal)
Mrs.D.Tharani	Science and Humanitites	Review on Biogenic synthesis of ZnO nanoparticles and their characterization and applications	International Journal of Novel Research and development
Ms.A.Thangamani	Science and Humanitites	The Impact of Social Media on the Evolution of Language and Communication Trends	Shanlax International Journal of English
Ms A.Thangamani	Science and Humanitites	Impact of Nautical References in Joesph Conrad Works	International Journal on Applications in Engineering and Technology
A Lakshmi Priya	Science and Humanitites	Analysis of the optical characteristic of porous silicon and porous modified with polymers	China Petroleum Processing and Petrochemical Technology
Mrs.S.Jenisha	Science and Humanitites	Evaluating the elastic properties of porous silicon and porous silicon subjected to polymer treatment	China Petroleum Processing and Petrochemical Technology
Ms. Susmi Mariam Varghese	Science and Humanitites	Reftections on English Language Teaching and Learning in the Post-Covid 19 Undergraduate Classroom	The Indian Journal of Technical Education
Dr.Y.Sameena	Science and Humanitites	Interaction of Atorvastatin-loaded magnetic iron oxide nanoparticles with DNA	Inorganic and Nano-Metal Chemistry
Dr.Y.Sameena	Science and Humanitites	Host-Guest Inclusion Complexation between beta Cyclodextrin and Some Chromenones: 2D Roesy Investigation	The Indian Journal of Technical Education

Dr.Y.Sameena	Science and Humanitites	Research of Physical-Chemical and Ecological Characteristics of Ukkadam Lake Water Coimbatore District, Tamil Nadu, India	Journal of Advanced Zoology
Dr. A. Sangeetha Devi	Science and Humanitites	Vehicle Supervision System using Navigation Systems and Internet of Things	IEEE XPLORE
Dr. A. Sangeetha Devi	Science and Humanitites	Intelligent Fuel Pump System with RFID and the Internet of Things	IEEE XPLORE
Dr. V. Rohini	Science and Humanitites	Solvothermal synthesis of magnetically separable Co–ZnO nanowires for visible light driven photocatalytic applications	Physica B: Condensed Matter
Dr. V. Rohini	Science and Humanitites	Development of C3N4 embedded Bi2WO6 heterostructure for the improved toxic Cr(VI) reduction performance	Chemical Physics Letters
Dr.R.Deepa	Science and Humanitites	A Study on Tenses (Simple Present, Present Continuous, Simple past and Past Perfect) and its Difficulties Experienced by the L2 Learners of First Year Engineering Students	Journal of Xidian University
Dr.R.Deepa	Science and Humanitites	A Study on role of communication skills during interviews its path and challenges for the learners	Bulletin for Technoligy and History
Dr.R.Deepa	Science and Humanitites	A study on one compound complex sentence for constructive Learning platform of L2 Learners	MUKT SHABD journal
Mrs. M.Buvanasankari	Science and Humanitites	Qualitative Behavior of fourth order Neutral Difference Equations	Indian Journal of Natural Science
Dr.K.Ramesh Mrs.M.Nagarathinam	Science and Humanitites	On Generalized Presemi Closed Sets in Neutrosophic Topological Spaces	The International journal of analytical and experimental modal analysis
Dr.K.Ramesh Mrs.C.Sushama	Science and Humanitites	On Pre Generalized Regular α-Continuous and Irresolute Mappings in Intuitionistic Fuzzy Topological Space	International Journal of Computational Engineering Research
Dr. R. kannan, Dr. R. Anand	Electrical and Electronics Engineering.	Improved indrirect instantaneous torque control based torque sharing funtion approach of SRM drives in Evs using hybrid technique	ISA Transaction
Dr. R. kannan	Electrical and Electronics Engineering.	A photovaoltaic-based Novel Transformer less High Gain Converter for Dc Microgrid Applications	Recent Advances in Electrical & Electronic Engineering
Mr. K. Edison Prabhu	Electrical and Electronics Engineering.	IoT-based Systemic Lupus erythematosus prediction model using hybrid genetic algorithm integrated with ANN	ETRI, Wiley

Dr. R. kannan	Electrical and Electronics Engineering.	Optimal Design for super capacitor/ battery power management Applied in Electric Vehicle Applications: A Hybrid Methodology	IETE Journal of Research(T&F)
Dr. S. Arun kumar	Electrical and Electronics Engineering.	Healthcare's new frontier:AI-driven early cancer detection for improved well-being	AIP Advances
Dr. M. Manorajapaul	Electrical and Electronics Engineering.	Performance Analysis of battery E-vehicle system using open loop and closed loop application	Measurement: Sensors
Mrs. B. Nandhini	Electrical and Electronics Engineering.	Literature Review on Brushless DC Motor Analysis, Modelling are control methods	International journal of Creative Research Thoughts
Mr.D.Saravanakumar	Electrical and Electronics Engineering.	An Extended Topology named active switched capacitor/switched inductor Quazi-Z-Source with multi level inverter(ASE/SL-QZSI) for Three- Phase Grid -Tie PV power system: A SPBO-RBFNN control scheme	Journal of Circuits, Systems and Computers
Dr. R. Anand	Electrical and Electronics Engineering.	Transporation for Electrical Vehicles plays a major role in the automobile Industry	Journal of Advanced Zoology
Dr. R. Anand	Electrical and Electronics Engineering.	sensorless Speed and positionb control of permanent magnet BLDC motor using particle swarm optimization and ANFIS	Measurement: Sensors
Dr. S. Arun kumar	Electrical and Electronics Engineering.	A source location privacy protocol based energy efficient and link Reliabke multi-scale Bifurcated deep capsnet Routing in social IoT	International journal of communication systems
Dr. S. Daison Stallon, Dr. R. Anand, Dr.R.Kannan	Electrical and Electronics Engineering.	Optimal Detection and Classification of Grid Connected system Using MSVM FSO Tecnique	Environmental Science and Pollution Research
Dr. S. Saktivel	Electrical and Electronics Engineering.	Optimization of Position and rating of Shunt and Series connected FACTS Devices for Transmission congestion management in Deregulated power market	AIMS Electronics and Electrical Engineering
Dr. R. kannan	Electrical and Electronics Engineering.	Security and Privacy Considerations in multimedia resource managament using ybrid Deep Learning technique in cloud computing	International Journal of Intelligent Engineering and Systems
Dr. R. kannan	Electrical and Electronics Engineering.	Performance Analysis for battery stability Improvement using Direct Air Cooling Mechanism for Electric Vehicles	Advances in Elecrical Engineering, Electronics and Energy
Mrs.Priyadharsini.P	Computer Science and Business Systems	Prediction and classification of tea leaf diseases using deep learning techniques	Journal of Advanced Zoology

Ms.Priya.B, Mrs.Sruthi.P.S	Computer Science and Business Systems	An Analysis of Convolutional Neural Network Approach for Face Recognition	International Journal on Applications in Engineering and Technology
Dr.Y.Sarojini, Mrs.J.Ruby Elizabeth, Ms.Priya.B	Computer Science and Business Systems	Automatic Anti Sleep Alarm Detector for Drivers	Foundry Journal
Dr.Y.Sarojini, Mrs.J.Ruby Elizabeth, Mrs.Sruthi.P.S, Mrs.Anju.P	Computer Science and Business Systems	Detecting Alzheimer's disease by using retinal images with a noval non-invasive method	Technische Sicherheit
Mrs.Anju.P, Dr.Y.Sarojini, Ms.Priya.B, Mrs. Sruthi. P. S	Computer Science and Business Systems	Enhanced Protocol Testing Using PEX Exploration and Shortest Path Method	Journal of Technology
Dr.Y.Sarojini	Computer Science and Business Systems	Micro-Doppler based human activity recognition using ABOA based dual spatial convolution with gated recurrent unit.	Journal of Machine and Computing
Dr.Y.Sarojini, Ms.Priya.B	Computer Science and Business Systems	IoT based Air Quality Monitoring System with server notification.	Journal of Technology
Mr.R.Vinoth Kumar, Dr.J.Maniraj	Mechanical Engineering	Experimental investigation and machinability behaviour on synthesized titanium composite	Journal of ceramic processing research
Dr.S.Jeevanantham, Dr.V.M.M.Thilak, Dr.M.Santhosh, Mr. S.Nishanth and Mr. Athisaya Sagaya. Rajan	Mechanical Engineering	Investigations and Optimization of process parameters for Improving surface quality in the Internal Grinding of EN31 Steel	European Chemical Bullet in
S. Nishanth,S	Mechanical Engineering	Investigation on the mechanical properties of AA5052/AZ61A by Ultrasonic welded joints	Materials today proceedings
Dr. S. Jeevanantham, Dr. V.M.M.Thilak, Dr. P.Senthil Kumar, Mr. S.Nishanth	Mechanical Engineering	Characteristics on Mechanical possessions of coconut fibre protected with epoxy and polyester mixtures	Tuijin Jishu/Journal of Propulsion Technology
Dr. S. Jeevanantham	Mechanical Engineering	Characterization of peanut husk-derived Si3N4 basalt fiber-reinforced unsaturated polyester resin composites"	Biomass Conversion and Biorefinery
Dr.S.P. Arunkumar, Dr.M.Balakrishnan	Mechatronics Engineering	Transporation for Electrical Vehicles plays a major role in the automobile Industry	Journal of Advanced Zoology
Dr. SP. Arunkumar, Dr. M. Maheswaran, Ms. K. Sudhapriya	Mechatronics Engineering	Electric Rechargeable Cells Are Electrochemical Cells That Have Been Used Mostly In Electric Vehicles	SJIS-P
Dr. M. Maheswaran	Mechatronics Engineering	IRIS scanner based computational methodology for smart atm systems"	YMER

Dr. M. Maheswaran	Mechatronics Engineering	the significance of converter losses and the role of transmission systems in the overall efficiency of ev propulsion	International Journal of Applied Engineering & Technology
Dr. M. Maheswaran	Mechatronics Engineering	sustainable energy and power quality assessment by invasive thermography and energy audit in the tea industry: a scientific study"	Journal of Environmental Protection and Ecology
Dr.S.P. Arunkumar	Mechatronics Engineering	optimal design and analysis of ball catch mechanism in reverso watch	China Petroleum Processing and Petrochemical Technology
Dr.M.Balakrishnan	Mechatronics Engineering	A Study of Barrier and Challenges of Electric Vehicle in India and Vehicle to Grid Optimization	Tuijin Jishu/Journal of Propulsion Technology
Dr.M.Balakrishnan	Mechatronics Engineering	analysis of data with possible ways for charging the battery of electrical two wheeler	European Chemical Bulletin
Dr.S.P. Arunkumar	Mechatronics Engineering	study on a solar water heater performance under the influence of nanofluid	EMERG

A Novel Masked Facial Recognition System Using CNN

Publisher: IEEE

R. Parvathi ; Chitra Murugan ; Md. Sabbir Hasan Sohag ; V T Krishnaprasath ; M. R. Arun All Authors •••

Abstract:
The present work consists of the elaboration of models for facial recognition of individuals with a mask and to present suggestions of different methodologies that can be... View more

Metadata

Abstract:
The present work consists of the elaboration of models for facial recognition of individuals with a mask and to present suggestions of different methodologies that can be applied to adapt existing models. There is a need to evaluate the accuracy of these architectures in real scenarios, especially when it comes to applications that help prevent COVID-19. In this work convolutional neural network is applied to facial recognition. In addition, the ability of transfer learning to assist in the creation of new models will be evaluated. So, the steps include pre-processing of the chosen database, Model development, Training of models with hyperparameter variation, and Validation of models. In a problem of deep convolutional networks with multiclasses, the obtained results were able to classify the vast majority of images and be consistent with the current state of the art.

Published in: 2023 2nd International Conference on Edge Computing and Applications (ICECAA)

Date of Conference: 19-21 July 2023

DOI: 10.1109/ICECAA58104.2023.10212225

Date Added to IEEE *Xplore*: 16 August 2023

Publisher: IEEE

ISBN Information:

Conference Location: Namakkal, India

Contents

I. Introduction

International Journal on Applications in Information and Communication Engineering
Volume 9 : Issue 3 : August 2023, pp 21– 24 www.aetsjournal.com ISSN (Online) : 2394 - 6237

Real time Criminal Face Identification System based on Artificial intelligence and Machine learning

[1]Mrs. Abhirami.J.S , [2]Mrs. Kalpana.G, [3]Mrs. Sika.K, [4]Mrs. Jeni Narayanan.L.A
Assistant Professor
[1,2,3]Department of Artificial intelligence and Data Science
[4]Department of Computer Science and Engineering
Nehru Institute of Engineering and Technology
Coimbatore -641105

Abstract— As the crime rate has been increasing year after year, it has become increasingly difficult for police to be able to monitor and respond to situations immediately because of the extensive load upon them. With the exponential growth in technology in recent years, we need to work on a solution for this. Artificial intelligence (AI) and blockchain appear to be a cornerstone for a crime prevention strategy. Surveillance cameras are being installed in more and more places as people's concern for safety is also increasing in recent times. These security cameras can be used for much more and can contribute to solving this problem. There are and have been systems in place that are being used actively to tackle this problem, but they lack in a lot of areas. This chapter focuses on the ever-growing need for a robust criminal identification system that is both efficient and economical for mass usage.

A system has been proposed comprised of cutting-edge hardware and software that can dramatically increase the accuracy and reliability of the criminal identification system using the incorporation of machine learning and artificial intelligence while being economical for wide range use. Validation through AI–blockchain helps to achieve end-to-end encryption, time-stamping, and checking for lawfulness

Keywords— Blockchain , Artificial intelligence , Photograph Segments, User-friendly environment, Images etc

I. INTRODUCTION

The aim of this project is to develop a system for identifying criminals in any investigation department. The project utilizes a technique where images of known criminals are stored in a database along with their details. These images are segmented into various parts such as eyes, hair, lips, nose, etc. These segmented images are also stored in a separate database.

To identify criminals, eyewitnesses are shown the images or slices that appear on the screen. Using these slices, a composite face is constructed, which can then be compared with the stored images in the database. If there is a match of up to 99%, it is predicted that the person being investigated is the criminal.This project aims to provide a user-friendly environment for operators and eyewitnesses to easily design and identify criminal faces.

A. Problem Area Description

The project focuses on the identification of criminals with the assistance of eyewitnesses. It consists of four main modules: Adding, Deleting, Updating, and Identifying Criminals. There are mainly three roles in the project. They are,

- Administrator
- Operator
- Eyewitness

B. Administrator

The administrator is responsible for providing user IDs and passwords, as well as managing user authentication. They can create, delete, and update user IDs and passwords.

C. Operator

The operator belongs to the investigating department and is responsible for entering and maintaining criminal details. They can add, delete, and update criminal information. The operator also constructs the composite face of the criminal using the eyewitness s's input.

D. Eyewitness

The eyewitness plays a crucial role in identifying criminals. They select cropped parts of the criminal's face from a separate database maintained by the operator. The selected parts are then frozen by the operator, and a complete face of the criminal is constructed. The details of the identified criminal are retrieved from the database. Additionally, an imaginary face of the criminal can be constructed using the cropped parts.

II. SYSTEM STUDY

Over the years, the process of face identification has evolved. In the past, law enforcement agencies relied on

International Journal on Applications in Basic and Applied Sciences
Volume 9: Issue 4 : September 2023, pp 1 – 6 www.aetsjournal.com ISSN (Online) : 2455 – 1007

Artificial Intelligence and Machine Learning Based Healthcare Chatbot System

[1]Mrs. Abhirami.J.S , [2]Mrs. M.S.Vinu
Assistant Professor
[1]Department of Artificial intelligence and Data Science
[2]Department of Computer Science and Engineering
Nehru Institute of Engineering and Technology
nietjsabhirami@nehrucolleges.com

Abstract— With increasing population of India, increasing birth rate and decreasing death rate due to advancement in the medical field it's found that numbers of doctors are less to serve the need of the increasing population. This scenario can be better understood while walking through the cities government hospitals where the less availability of the doctors is the major cause behind the improper treatment of the patients and in certain scenario the resultant death. Sometime even doctors can make mistake in providing the correct treatment result in death of patient. To encounter such cases there is a need of the smart and Intelligent Chabot who can provide advice to the doctors and sometime even patients about what to do in such cases which ultimately results in the saving the life of hundreds of people. The AI based medical Chabot on which this research topic is based deals with providing medical advice in such scenario because sometime doctors can even make mistake while observing the symptoms but the machine which is specifically developed for it can't make such mistake. This AI based medical Chabot can take decision as per the request of the patient.

Keywords— Health care,Artificial Intelligence,Chabot, Symptoms.

I. INTRODUCTION

Through chat bots one can communicate with text or voice interface and get reply through artificial intelligence. Typically, a chat bot will communicate with a real person. Chat bots are used in applications such as e-commerce customer service, call centers and Internet gaming. Chat bots are programs built to automatically engage with received messages. Chat bots can be programmed to respond the same way each time, to respond differently to messages containing certain keywords and even to use machine learning to adapt their responses to fit the situation. A developing number of hospitals, nursing homes, and even private centers, presently utilize online Chat bots for human services on their sites. These bots connect with potential patients visiting the site, helping them discover specialists, booking their appointments, and getting them access to the correct treatment. An ML model has to be created wherein we could give any text input and on the basis of training data it must analyze the symptoms. A Supervised Logistic Regression machine learning algorithm can be implemented to train the model with data sets containing various diseases CSV files. The goal is to compare outputs of various models and suggest the best model that can be used for symptoms in real world inputs. Data set contains CSV file having all diseases compiled together. The logistic regression algorithm in ML allows us to process the data efficiently. The goal here is to model the underlying structure or distribution of the data in order to learn more from the training set. In any case, the utilization of artificial intelligence in an industry where individuals' lives could be in question, still starts misgivings in individuals. It brings up issues about whether the task mentioned above ought to be assigned to human staff. This healthcare chat bot system will help hospitals to provide healthcare support online 24 x 7; it answers deep as well as general questions. It also helps to generate leads and automatically delivers the information of leads to sales. By asking the questions in series it helps patients by guiding what exactly he/she is looking for.

Almost everyone kept on hold while operators connect you to a customer care executive. On an average people spend around 7 minutes until they are assigned to a person. Gone are the frustrating days of waiting in a queue for the next available operative. They are replacing live chat and other forms of slower contact methods such as emails and phone calls. Since chat bots are basically virtual robots they never get tired and continue to obey your command. They will continue to operate every day throughout the year without requiring to take a break

II. LITERATURE SURVEY

[1]Mohammed Javed et al.[2016] explained a method to implement word segmentation. He proposed in his algorithm to calculate character spaces in the sentences. The character spaces should include all types of gaps between charactersThey include the gaps between letter, punctuations and the words. The algorithm functions on the basis of the amount of gap or character space between each unit in the sentence. After the calculation of character spaces, an average of the gaps is calculated to know the mean average between characters in the sentence. This average gap distance is then applied to the sentence which is to be segmented. The places at which the character space is more than the average character space are said to be the points of tokenization. The

Enhancing Pre-Trained Transfer Learning Performance Using Automated Brain Tumor Classification

Sivakumar Karuppan[1], Kalpana G[2], Sika K[3], Abhirami J S[4]

{sivakumar.karuppan@gmail.com[1] nietkalpanagese@nehrucolleges.com[2], nietksika@nehrucolleges.com[3]

Associate Professor[1], Assistant Professor[2,3] Artificial Intelligence and Data Science, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu

Abstract. Classification and prediction of brain tumors are essential for the early diagnosis and treatment of brain-related conditions. Broad exploration and strategic enhancements over the long haul bear witness to the need of cerebrum cancer recognition and investigation for any sign framework. Exact cancer recognition is fundamental for this review, thus a productive robotized technique should be executed. To aid in and enhance the classification of brain tumors, numerous segmentation algorithms have been developed. Brain imaging segmentation is a well-known and challenging subfield of medical image processing. A novel automated detection and classification system is suggested by the study. Preprocessing MRI images, segmenting those images, extracting features, and classifying those features are the stages that make up the suggested strategy. In this review, we propose an exchange learning way to deal with precisely characterize mind growths and foresee their threat utilizing progressed profound learning methods. After the features from the MRI scans were extracted, a deep learning model was used to divide the images into gliomas, meningiomas, non-tumors, and pituitary tumors. For grouping, VGG-16 Net pre-prepared models were utilized. To upgrade the VGG-16 Net model's presentation, information expansion strategies are applied to lighten overfitting and further develop speculation. The trained model has remarkable sensitivity and specificity in detecting tumor presence and accurately predicting tumor grades, achieving the highest level of accuracy for brain tumor classification. The suggested VGG-16 Net was able to correctly identify brain tumors on MRI images with 96.17 percent accuracy.

Keywords: Deep learning, a detection model, MRI images, disease prediction, and disease classification.

1 Introduction

The Brain malignant growths present tremendous challenges in the field of clinical assurance and treatment. Early and exact distinguishing proof of frontal cortex malignant growths is

IACIDS 2023, November 23-25, Lavasa, India

DOI 10.4108/eai.23-11-2023.2343173

Coral Reef Optimization for Predicting Features in Multiobjective Clustering Bio-Inspired Dataset

Krishnaprasath V T[1], Sivakumar Karuppan[2], Sujithra G[3], Rajichellam J[4]

prasathkriss@gmail.com[1], sivakumar.karuppan@gmail.com[2], nietsujithrag@nehrucolleges.com[3]

Associate Professor[2], Assistant Professor[1,3] Artificial Intelligence and Data Science, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu

Abstract. The term "clustering ensemble" refers to the difficulty of assembling a set of input clustering solutions. A multiobjective transformative calculation was used to demonstrate the clustering problem as a multiobjective improvement problem in this paper. The agreement bunching issue is changed in the writing into an old style K-implies grouping with hypothetical help, and the K-implies based Agreement Grouping (KCC) shows the benefits over current strategies. KCC enjoys the benefits of K-implies, however it has an instatement responsiveness issue. Moreover, the continuous understanding grouping structure confines the fundamental section age and mix into two disconnected parts. Consequently, combining various clustering algorithms is one of the most common approaches to circumventing the limitations of each clustering method. The primary goal is to combine multiple partitions from various clustering algorithms into a single clustering solution called a consensus partition. Numerous approaches have been proposed in the literature to continuously or optimally improve the solutions of cluster ensembles. Consequently, this paper presents a brand-new bioinspired dataset to upgrade the cluster groups as a commitment to this significant topic. The underlying parts are consolidated utilizing a strategy that utilizes the Coral Reefs Enhancement calculation, bringing about an agreement segment, in the technique that has been proposed. The bunch groups are made in different courses in this technique. The demonstration of the proposed calculation has been compared to that of other notable cluster troupe calculations that are currently in use for a variety of genuine and counterfeit informational index. An exact examination utilizing 20 unmistakable issues and two particular files will be completed to look at the adequacy and practicability of the proposed strategy and decide its feasibility.

Keywords: Ensemble, Clustering, Prediction, Optimization, Bioinspired Dataset, K-means.

1 Introduction

There is a huge number of proposed bunching computations on paper that have actually been used in a variety of applications. Regardless, there are a few requirements for data collection

IACIDS 2023, November 23-25, Lavasa, India

DOI 10.4108/eai.23-11-2023.2343187

Salud, Ciencia y Tecnología - Serie de Conferencias. 2024; 3:616
doi: 10.56294/sctconf2024616

SERIE DE CONFERENCIAS

Check for updates

Category: STEM (Science, Technology, Engineering and Mathematics)

ORIGINAL

Enhancing Public Safety: A Real-time Social Distance Monitoring with Computer Vision and Deep Learning

Mejora de la seguridad pública: Una monitorización social a distancia en tiempo real con visión por computador y aprendizaje profundo

Sivakumar Karuppan[1], Krishnaprasath V T[1], Pradeep V[2], Sruthi S Madhavan[1]

[1]Department of Artificial Intelligence and Data Science, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India.
[2]Department of Information Science and Engineering, Alva's Institute of Engineering and Technology, Moodbidri, Karnataka, India.

Cite as: Karuppan S, Krishnaprasath VT, Pradeep V, Sruthi SM. Enhancing Public Safety: A Real-time Social Distance Monitoring with Computer Vision and Deep Learning. Salud, Ciencia y Tecnología - Serie de Conferencias 2024;3:616. https://doi.org/10.56294/sctconf2024616.

Submitted: 08-12-2023 Revised: 19-02-2024 Accepted: 09-03-2024 Published: 10-03-2024

Editor: Dr. William Castillo-González

ABSTRACT

In spite of the fact that the COVID-19 epidemic has lately afflicted millions of individuals all over the world, the number of people who are being affected is continuing to climb. In response to the ongoing pandemic scenario throughout the world and in an effort to stop the virus from further disseminating, a number of governments have initiated a number of groundbreaking preventative measures. One of the most effective methods for warding off the spread of infectious diseases is maintaining adequate social distance. In the context of a real-time top view environment, the purpose of this study survey is to propose the use of a social distance framework that is built on deep learning architecture as a preventative strategy for maintaining, monitoring, managing, and lowering the amount of physical connection that occurs between individuals.
In order to identify people in the photographs, we made use of a number of different deep learning detection models, including R-CNN, Fast R-CNN, Faster-RCNN, YOLO, and SSD. Because of the significant differences between the top and bottom views of a human's appearance, the architecture was trained using the top view human data set. After that, the Euclidean distance is utilised to derive a pair-wise distance estimate between the individuals depicted in a picture. Using the information obtained from a detected bounding box, one may determine where the centre point of a single detected bounding box is located. A violation threshold is constructed, which is determined by the information of a person's distance to a pixel and determines whether or not two people are in breach of social distance.

Keywords: Social Distance; Coronavirus; Disease; Monitoring System; Detection Model and Deep Learning.

RESUMEN

A pesar de que la epidemia de COVID-19 ha afectado últimamente a millones de personas en todo el mundo, el número de afectados sigue aumentando. En respuesta al actual escenario pandémico en todo el mundo y en un esfuerzo por impedir que el virus siga propagándose, varios gobiernos han puesto en marcha una serie de medidas preventivas pioneras. Uno de los métodos más eficaces para evitar la propagación de enfermedades infecciosas es mantener una distancia social adecuada. En el contexto de un entorno de vista cenital en tiempo real, el propósito de esta encuesta de estudio es proponer el uso de un marco de distancia social construido sobre una arquitectura de aprendizaje profundo como estrategia preventiva para mantener, supervisar, gestionar y reducir la cantidad de conexión física que se produce entre los individuos. Con el fin de identificar a las personas en las fotografías, hicimos uso de una serie de diferentes modelos de detección de aprendizaje profundo, incluyendo R-CNN, Fast R-CNN, Faster-RCNN, YOLO, y SSD. Debido a las diferencias significativas entre las vistas superior e inferior de la apariencia humana, la arquitectura se

Published by :
http://www.ijert.org

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 13 Issue 5, May 2024

Smart Traffic Management System with Emergency Vehicle Prioritization and Stolen Vehicle Detection Using Arduino Technology

Abhirami Js
Assistant Professor
Department of Artificial Intelligence and Data Science,Nehru Institute of Engineering and Technology, Anna University,Coimbatore,India

Dinesh Kumar M, Prasanth S And Dalbert Mario.J
Department of Artificial Intelligence and Data Science,Nehru institute of Engineering and Technology, Anna university,Coimbatore,India

Abstract

This paper presents an innovative Arduino-based system designed to address the challenges of traffic congestion in urban areas. The system integrates advanced traffic signal control mechanisms with automatic clearance protocols for emergency vehicles and stolen vehicle detection functionalities. The primary objective is to improve traffic flow efficiency while ensuring swift passage for emergency vehicles, particularly ambulances, through congested traffic junctions.The system utilizes real-time data processing and decision-making algorithms to dynamically adjust signal timings based on traffic conditions and prioritize emergency vehicle routes. By intelligently managing traffic signals, the system minimizes delays and optimizes traffic flow, thereby reducing congestion and enhancing overall road safety.Furthermore, the system incorporates stolen vehicle detection sensors and algorithms to enhance security and facilitate rapid response to vehicle theft incidents. These features not only contribute to traffic management but also improve law enforcement capabilities, adding a layer of surveillance and protection to urban environments.Experimental evaluations conducted in simulated and real-world traffic scenarios demonstrate the system's effectiveness in reducing congestion, improving emergency vehicle response times, and enhancing overall traffic management. The results showcase significant improvements in traffic flow efficiency and emergency vehicle prioritization, validating the practicality and reliability of the proposed system.The proposed system represents a significant advancement in intelligent transportation systems, offering scalable and adaptable solutions for urban traffic challenges and emergency services optimization. Its integration of traffic management, emergency vehicle prioritization, and security features makes it a comprehensive and versatile solution for modern urban environments.

Keywords :**Smart traffic management system, Emergency vehicle prioritization, Stolen vehicle detection, Arduino technology, Traffic signal control, Real-time data processing, Traffic flow optimization, Urban traffic challenges, Law enforcement capabilities, Road safety, Surveillance and protection, Intelligent transportation systems, Scalable solutions, Urban environments.**

1. INTRODUCTION

The rapid urbanization and increasing vehicular traffic in modern cities have led to significant challenges in traffic management, emergency response, and vehicle security. Addressing these challenges requires innovative solutions that can optimize traffic flow, prioritize emergency vehicle passage, and enhance security measures. In this context, our project focuses on developing a Smart Traffic Management System using Arduino technology.

The system integrates advanced algorithms for traffic signal control, real-time data processing, and decision-making to dynamically adjust signal timings based on traffic conditions. Additionally, it incorporates features for emergency vehicle prioritization, allowing swift passage for ambulances and other emergency vehicles through congested traffic junctions. Furthermore, the system includes stolen vehicle detection functionalities, enhancing security and enabling rapid response to vehicle theft incidents.

By combining traffic management, emergency vehicle prioritization, and security features, the Smart Traffic Management System aims to improve overall road safety, reduce congestion, and enhance law enforcement capabilities in urban environments.

2. LITERATURE REVIEW

2.1 Traffic Management Systems:

Studies in traffic management systems have focused on optimizing traffic signal timings to improve traffic flow and reduce congestion. Ahmed et al. (2018) proposed a dynamic signal control algorithm based on traffic flow patterns, achieving significant reductions in congestion levels. Similarly, Smith & Johnson (2019) explored machine learning approaches for adaptive signal control, demonstrating improvements in traffic efficiency and travel time.

ISSN 0976-495X (Print)
2321-5763 (Online)
DOI: 10.52711/2321-5763.2023.00017

Vol. 14| Issue-02|
April - June| 2023

Available online at
www.anvpublication.org

Asian Journal of Management
Home page www.ajmjournal.com

RESEARCH ARTICLE

Employee Competency and Understanding Capability in Gear Manufacturing Companies in Coimbatore, Tamil Nadu

P.T. Vijaya Rajakumar[1], R. Yasodha[2]*

[1]Professor and Director, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu.
[2]Assistant Professor, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu.
*Corresponding Author E-mail: **yasodha1507@gmail.com**

ABSTRACT:

Competency-based human resources planning serves as a link between human resource management and the overall strategic plan of an organization. Competencies are defined as observable abilities, skills, knowledge, motivations or traits defined in terms of the behavior's needed for successful job performance. Competency-based management supports the integration of human resources planning with business planning by allowing organizations to assess the current human resource capacity based on their competencies against the capacity needed to achieve the vision, mission and business goals of the organization. Targeted human resource strategies, plans and programs to address gaps are then designed, developed and implemented to close the gaps. Employee competency management is critical for organizations that seek to align their work force with business objectives. However, ensuring that organization staff members have the proper skills and competencies to consistently perform the tasks may pose a challenge. This study was conducted to evaluate current strengths and needs of an organization and then to implement the necessary corrective actions. Employee competency and understanding is the ability of an individual to do a job properly. A competency is a set of defined behaviors that provide a structured guide enabling the identification, evaluation and development of the behaviors in individual employees. The main objectives of this study is to know the reasons why employee competency and understanding capability occurs, to identify the factors which make employees dissatisfied, to know the satisfactory level of employees towards their job and proficiency level and ability to find the areas where manufacturing industries are lagging behind.

KEYWORDS: Competence, Motivation, Organization, Manufacturing.

INTRODUCTION:

Competence is the ability of an individual to do a job properly. A competency is a set of defined behavior that provide a structured guide enabling the identification, evaluation and development of the behaviour in individual employees. Competency based human resources planning serves as a link between human resources management and the overall strategic plan of an organization.

Efficient management of the workforce becomes one of the major focuses of human resource experts in every organization since the advancement of globalization.

The change that occurred in the technological as well as administrative aspects leads improvement in employee skills. Employee productivity and growth becomes the major challenges faced by human resource experts which enables them to focus on the competencies of employees. Competency is not a new concept of the era but it becomes a recent practice of the organizations due to certain developments in this direction.

Assessing and measuring your employees' performance and productivity and discussing your findings with them,

Received on 01.06.2022 Modified on 09.11.2022
Accepted on 25.02.2023
Asian Journal of Management. 2023; 14(2):113-117.
DOI: 10.52711/2321-5763.2023.00017

A STUDY ON STRATEGIES TO INCREASE THE OPERATIONAL EFFICIENCY IN SUPER MARKETS

Dr.S.Shanthi Professor, MBA, Nehru Institute of Engineering and Technology
Mrs.R.Yasodha, Assistant Professor, MBA, MBA, Nehru Institute of Engineering and Technology

ABSTRACT

The Study concentrates on organized retailing, which consists of shopping malls coming up a big way in India. This study is conducted at a leading superstore in Coimbatore. Insights about the various business processes and the operational procedures were studied through observation and interactions with the employees of the outlet. Then a study was conducted among the customers visiting the store to assess their satisfaction level with the various attributes of the store and its operational procedures followed to serve the customers.

The study was conducted with an objective to find out how operational efficiencies at a retail outlet impact the consumer behavior and lead to customer delight. Data was collected through a structured questionnaire. The results were tabulated and analyzed using statistical tool like factor analysis. The findings, suggestions and the conclusion of the study were presented under the appropriate heads

INTRODUCTION

Retailing is the interface between the producer and the individual consumer buying for personal consumption. This excludes direct interface between the manufacturer and institutional buyers such as the government and other bulk customers. A retailer is one who stocks the producer's goods and is involved in the act of selling it to the individual consumer, at a margin of profit. As such, retailing is the last link that connects the individual consumer with the manufacturing and distribution chain.Managing store operations for a retail business is a challenging task. It requires integration among various functions within the store. When all the functions are performed in an integrated manner then only the store can run smoothly achieving full customer satisfaction.

Operational Efficiency

Each and every process taking place in the store is defined in the Store Operations Manual. This document lists the tasks which need to be carried out at the store level; it states the responsibility and the time period in which these tasks need to be carried out. This document serves as a guide to efficient store operations.

The task in the store can be broadly classified into following:

1. Store Administration and Management of the Premises;
2. Managing Inventory and display;
3. Managing Receipts;
4. Customer Service; and
5. Managing Promotion, Events, Alliances and Partnerships.

Every task is aimed at providing customer an experience which leads to customer delight which is the only way Reliance Mart can stay ahead of its competitors and still run profitably.

After receiving a service the customer evaluates post purchase and three possible outcomes are:

1. Actual performance matches expectation, leads to satisfaction.
2. Performance exceeds expectation and the consumer is Delighted and here customer is excited and does repeat purchases and involves himself into mouth to mouth publicity for the Store. Hence such customers are valuable assets to the company. And the store should always try to gain delighted customers by their unmatchable service. This can help store achieve all its objectives.
3. Performance below expectations is the situation where customer gets unsatisfied and resorts to negative publicity of the store. This situation has to be avoided at all cost. This can do a very damaging impact on the store image and it becomes a very tough job to get back such a customer.

OPEN ACCESS

Manuscript ID:
MGT-2024-11047303

Volume: 11

Issue: 4

Month: April

Year: 2024

P-ISSN: 2321-4643

E-ISSN: 2581-9402

Received: 15.02.2024

Accepted: 17.03.2024

Published: 01.04.2024

Citation:
Shanthi, S., and R. Yasodha. "Effectiveness of Advertising on Social Media." *Shanlax International Journal of Management*, vol. 11, no. 4, 2024, pp. 55–58.

DOI:
https://doi.org/10.34293/management.v11i4.7303

Effectiveness of Advertising on Social Media

S. Shanthi
Professor, Department of MBA
Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India

R. Yasodha
Assistant Professor, Department of MBA
Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India
https://orcid.org/0000-0002-6156-9546

Abstract

Advertising today plays a pivotal role because of the fast growing competition and fear of losing the market. Without advertising, people will neither be aware of the attributes of the product nor of its price. A growing class of advertising media has been on the Social Media. Social Media advertising provides an advantage of its impact, mass coverage, repetition, flexibility and prestige of the product to its customers. The fact that the product or services is promoted on a Social Media may build a prestigious image of product and its sponsor. The Social Media advertising may be taken for good communication requirement to emphasis on the prime prospect and geographic sales analysis. The study focuses on impact of the advertisements, the perception, purchasing behavior and product preference of the respondents. The sponsors too need to know how well their product had reached the audience. The notion is that customers should make a purchase rather than to have a desire. This study is opted in order to understand customer's perception on the product and advertisement's nature.

Keywords: Consumer, Perception, Social Media, Advertising, Product

Introduction

Advertising today plays a vital role because of the fast growing competition and fear of losing the market. Though it may be made useful by the sponsors and producers to a large extent the actual impact has to be analyzed and hence it leads into this study. It also focuses on the perception and the purchasing behavior of respondents to analyze how it had made them aware and cautious in choosing the product.

Advertising is the service for which the consumers are willing to pay, because the information it provides reduces search time. Advertising is a service rather than a cost. Today's development of MNC's had led the companies rushing to give advertisements through various Medias. Advertising has emerged as a tool to try to stimulate goods. It is also used as a method of consumer marketing to pay for overproduced goods. It is also used as a method of preventing new competitors in the market. A developing country like India needs advertising because - Advertising is a way of communication of information to the consumer, It is the most economical means by which a manufacturer or an institution communicate to the audience, Advertising being a necessary means of communication is an inseparable part of free speech, to improve the economy of developed and developing countries by increasing production and providing employment.

Dr. P. MANIARASAN
Principal
Nehru Institute of Engg. & Technology
T.M.Palayam, Coimbatore - 641 105.

Educational Administration: Theory and Practice
2024,30(4), 7385-7391
ISSN:2148-2403
https://kuey.net/

Research Article

Educational Administration Theory and Practice

Deriving Performance Indicators From Models Of Multipurpose Shopping Pattern

Dr. N. Indhira[1*], Aaziya A[2], V. Sabaresan[3], M.Lalitha[4] , Dr.S.Sekar[5], Dr.V.Seedha Devi[6]

[1]Assistant Professor, Department of Management Studies, Annai Vailankanni Arts and Science College, Thanjavur. indhraresearch@gmail.com
[2]Assistant Professor- SG, Department of Management, Nehru Institute of Engineering and Technology, "Nehru Gardens" , Coimbatore-641105. aajaaziya@gmail.com
[3]Assistant Professor, Department of Computer Science and Engineering, St.Joseph's Institute of Technology, Old Mahabalipuram Rd, Kamaraj Nagar,Chennai - 600119. sabaresanvenugopal@gmai.com
[4]Assistant Professor, Department of Management Science, CVR College of Engineering, Telangana, mlalitha.cvr@gmail.com
[5]Guest Lecturer, Department of Commerce (CA), Government Arts College (Autonomous), Salem-636007.
[6]Associate Professor, Department of Information Technology, Jaya Engineering College, Chennai. seethaitjec@gmail.com

Citation: Dr. N. Indhira[1] (2024), Deriving Performance Indicators From Models Of Multipurpose Shopping Pattern *Educational Administration: Theory And Practice*, 30(4), 7385-7391
Doi: 10.53555/kuey.v30i4.2577

ARTICLE INFO

ABSTRACT

The concept of multipurpose shopping patterns has gained increasing attention in retail research as consumers engage in a variety of activities beyond traditional purchasing when visiting retail environments. This paper aims to explore the derivation of performance indicators from models of multipurpose shopping patterns. Drawing upon recent literature, this study synthesizes various approaches to understanding and analyzing multipurpose shopping behaviors and proposes a framework for deriving performance indicators. The framework considers key dimensions such as conversion rate, basket size, dwell time, repeat purchase rate, customer satisfaction score, foot traffic, inventory turnover rate, cross-selling, customer lifetime value, and others. By systematically examining these dimensions, retailers can gain insights into consumer behavior, optimize operations, and enhance overall performance in an increasingly competitive market. The proposed framework provides a comprehensive guide for researchers and practitioners seeking to understand and measure the effectiveness of multipurpose shopping patterns in retail environments. Future research directions and practical implications are also discussed to facilitate further exploration and application of performance indicators derived from models of multipurpose shopping patterns.. The findings reveal that tourists exhibit distinct multipurpose shopping patterns, ranging from those primarily seeking bargains to those focused on luxury goods or specific product categories. Additionally, the study highlights the influence of factors like nationality, travel purpose, and trip duration on shopping behavior. By understanding these multipurpose shopping patterns, duty-free shop operators can tailor their marketing strategies, product offerings, and store layouts to better meet the diverse needs of tourists. This configurationally perspective offers a nuanced understanding of tourist behavior in duty-free shops, providing valuable insights for retailers and marketers in this sector.

Keywords: *Drive Revenue Growth, Improve Marketing Strategies, Inform Strategic Decision-Making, enhance Customer Experience and shopping patterns*

Introduction

The researchers investigated how online-offline integration in retailing affects consumers' multi-purpose shopping behavior. Multi-purpose shopping refers to consumers' tendency to engage in various shopping activities beyond mere purchasing, such as browsing, comparing prices, seeking product information, and enjoying leisure experiences. By integrating online and offline channels, retailers aim to provide consumers

ISSN 0976-495X (Print)
2321-5763 (Online)
DOI: 10.52711/2321-5763.2023.00032

Vol. 14| Issue-03|
July - September| 2023

Available online at
www.anvpublication.org

Asian Journal of Management
Home page www.ajmjournal.com

RESEARCH ARTICLE

A Study on Impact of Liquidity and Profitability on the Financial Position in Kerala Region Specail Reference with Rubfila International Limited, Kanjikode, Palakkad

Sukanya S
Assistant Professor, Department of Management Studies, Nehru Institute of Engineering and Technology
*Corresponding Author E-mail: **sukusubramanyan.s@gmail.com, pramodkv33@gmail.com**

ABSTRACT:
Finance is the life blood of business. It also the nerve center of business. It is essential for every business for undertaking all managerial activities connected with. Every business whether it is big, medium, or small needs finance to carry on its operations and to achieve its targets. Liquidity describes the degree to which an asset or security can be quickly bought or sold in the market without affecting the asset's price. Market liquidity refers to the extent to which a market, such as a country's stock market or a city's real estate market, allows assets to be bought and sold at stable prices. The term profitability refers to the ability to the firm to earn maximum profit from the best utilization of its resources. The profitability of the firm can easily be measured by using profitability ratio's. The main objectives of this study is to understand the factors affecting liquidity and profitability of the firm and to analyze how liquidity and profitability influence the financial position of the firm. To receiving the proper result I used Ratio Analysis, Correlation, Cash flow Statement, Trend Analysis. The findings also get smooth and showing favorable to the organizations.

KEYWORDS: Liquidity, Profitability, Financial Rubfila International.

INTRODUCTION:

Liquidity and profitability of the organization having a vital role in the financial position of the company. It is showing the real standing position of the organization's financial areas, it help the organization to know their growth and able to take proper decision. Everybody associated with the business like employees, bankers, creditors, government, shareholders, management and the society want to know how the finance, which is not separable from any other functional activity is being optimized. Accounting liquidity measures the ease with which an individual or company can meet their financial obligations with the liquid assets available to them. There are several ratios that express accounting liquidity.

Received on 14.10.2022 Modified on 18.01.2023
Accepted on 24.04.2023
Asian Journal of Management, 2023; 14(3): 191-196.
DOI: 10.52711/2321-5763.2023.00032

The analysis of financial statement is a process of evaluating the relationship between components and part of the financial statement to obtain a better understanding of firms financial position and performance.

LITERATURE REVIEW:

Prasanta Paul (2011) stated on the Financial Performance Evaluation – Some of the selected NBFCs are taken for the comparative study. In the study, five of the listed NBFCs are considered for the analyzation of comparative financial performance. Different type of statistical tools like standard deviation, arithmetic mean, correlation etc. are used extensively.

Sheela Christina (2011) reported on Financial Performance of Wheels India Ltd. Secondary data collection method is used for the analytical type of research design. Before conducting the study, validity and reliability is checked for the past five years where

The Seybold Report

ISSN 1533-9211

DOI 10.17605/OSF.IO/KVUB7

CLASSIFICATION OF KIDNEY CANCER DATA USING DEPTH AWARE GENERATIVE ADVERSARIAL NETWORKS APPROACH

N K SAKTHIVEL

Dean, Computing, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India.

S SUBASREE*

Professor & Head, Department of Computer Science and Engineering, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India. *Corresponding Author Email: drssubasree@gmail.com

S SIVAKUMAR

Assistant Professor (SG), Department of Computer Science and Engineering, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India.

M MADAN MOHAN

Assistant Professor, Department of Computer Science and Engineering, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India.

Abstract

Advanced Biotechnology methods have led the generation to Large-Scale Bioinformatics and Gene Data and makes it important to analyze this data in Bioinformatics. This study analyses Gene Expression Data from 1157 kidney cancer patients to identify particular genes for prognosis. To overcome data instability, an end-to-end, depth-aware generative adversarial networks (DAGAN) approach including a loss function for the tasks of classification is proposed. The proposed approach combines the empirical wavelet transform (EWT) to rebuild the loss in non-linear Feature Extraction and neutral network for neutral categorization loss. Medical information and genome data are utilized to define the optimum classification method and to analyze the accuracy of classification through sample category, primary detection, tumor level, vital stage as risk factors. The result of this examination shows that the DAGAN is very effectual than the typical machine learning and the data mining strategies to predict kidney cancer prognosis using gene expression data. These findings have important implications for feature extraction from gene biomarkers to predict, prevent and early detect kidney cancer prognosis.

Keywords: Genomic Data, Deep Learning; Kidney Cancer; Bioinformatics

1. INTRODUCTION

Identification of gene is useful for cancer detection and prognosis prediction using bioinformatics approaches and to facilitate treatment by Jena, L[5]. The availability of large amount of gene expression data makes difficult to analyze the cancer data by Rukhsar, L.[1]. Some classification methods depends on extracted genes are developed, they can help in early identification along prognosis prediction. Generally, Gene modifications can cause cancer through enabling cells to proliferate exponentially, permeating normal surrounding cells, and spread all over the body. Deep learning methods are used in previous studies to predict patients' disease condition through the analysis of gene sequence mutations at Spinal Muscular Atrophy, heredity non-polyposis colon cancer & autism by Shao, D.[2]. It combines gene expression

Samdarshi
ISSN: 2581-3986
Vol 16 Issue 3 (August 2023)

Colorectal Cancer Prediction Using Bioinformatics Analysis based on Double Fuzzy Clustering Driven Context Neural Network

[1]S. Subasree, [2]N K Sakthivel, [3]M. Mahabooba, [4]B Jasmine Punitha
[1*]Professor and Head, Department of Computer Science and Engineering,
Nehru Institute of Engineering and Technology,
Coimbatore, Tamil Nadu, India
[2]Dean(Computing), Department of Computer Science and Engineering
Nehru Institute of Engineering and Technology,
Coimbatore, Tamil Nadu, India
[3]Assistant Professor, Department of Computer Science and Engineering,
Nehru Institute of Engineering and Technology,
Coimbatore, Tamil Nadu, India
[4]Assistant Professor, Department of Computer Science and Engineering
Nehru Institute of Engineering and Technology,
Coimbatore, Tamil Nadu, India

ABSTRACT:

The current work aimed to develop Machine Learning (ML) system to predict survival of Colorectal cancer (CRC) patients according to immune gene expression and ML approaches. This research found a close relationship between the immune microenvironment and occurrence and progression of CRC. To construct predictive system, these study done different expression analysis among normal and tumor tissues, screened prognostic markers for CRC using a regression algorithm, and built immune-related regulatory network using immune genome and factors of transcription. 3 ML approaches utilized to create the predictive system, and concordance indexes, calibration curves, and Brier scores evaluated its performance. Statistical analyses conducted using SPSS Statistics 19.0, and bioinformatics analysis carried out utilizing Python. The proposed method achieved significantly higher accuracy, ROC, and Recall compared to existing methods such as Bi-CRC-CPHRA-RSFA-MLRA, Bi-CRC-TMLM, and Bi-CRC-GNA-CPA.

Keywords: Colorectal cancer, Immune gene, Prognostic model, regression algorithm, Prediction accuracy

1. INTRODUCTION

The current study reveals CRC ranks as 4th most common cancer worldwide, resulting 1,096,601 new cases and deaths near 551,269[1]. Despite significant growth in detection and treatment, the mortality rate for CRC patients remains unsatisfactory. Occurrence and progress of CRC involve alterations in chromosomal copy number, gene methylation, and genome data, resulting vast diversity of prognosis in CRC patients [2]. Because of high need to predict CRC prognosis, different study groups have announced prognostic methods based on distinct markers. However, complex computation formulas of these models hinder their widespread application in clinical practice [3]. As a single biomarker cannot give exact prognostic details for CRC patients due to their diverse prognosis, most of recent prediction methods only predict prognosis for specific patient groups and not for individual patients,[5,6,7]. Ascertaining the predicted mortality risk percentage for a patient is valuable from their perspective than particular set. Hence, it is crucial and worthwhile to build predictive methods that can provide individual mortality risk predictions.

2. LITERATURE SURVEY

This section reviews some of the recent bioinformatics studies on colorectal cancer.

A study was conducted by[8] in 2022. Their research developed new machine learning survival predictive system that identifies Immune prognostic markers for survival of CRC patients. The study analyzed differential gene expression among normal and affected tissues and used Univariate Cox regression to filter prognostic markers for colorectal cancer. Prognostic immune genome and factors of transcription utilized to

The Seybold Report

ISSN 1533-9211

DOI: 10.5281/zenodo.8366457

BIOINFORMATICS ANALYSIS OF THE GENES INVOLVED IN THE EXTENSION OF PROSTATE CANCER TO ADJACENT LYMPH NODES USING ADAPTIVE ACTIVATION FUNCTIONS WITH DEEP KRONECKER NEURAL NETWORK

S. SUBASREE

Professor and Head, Department of Computer Science and Engineering, Nehru Institute of Engineering and Technology, (Autonomous), Coimbatore 641 105, TN, India.

N. K. SAKTHIVEL *

Dean (Computing), Nehru Institute of Engineering and Technology, (Autonomous), Coimbatore 641 105, TN, India. *Corresponding Author Email: nksakthivel@gmail.com

S. PRIYA

Assistant Professor (SG), Department of Computer Science and Engineering, Nehru Institute of Engineering and Technology, (Autonomous), Coimbatore 641 105, TN, India.

M. MAHABOOBA

Assistant Professor, Department of Computer Science and Engineering, Nehru Institute of Engineering and Technology, (Autonomous), Coimbatore 641 105, TN, India.

Abstract

The objective of this research was to discover the genes involved in prostate cancer (PCa) patients' participation in extra lymph nodes and offer useful insights for identifying possible diagnostic biomarkers and pathogenic genes in PCa metastasis. Using Adaptive activation functions with deep Kronecker neural network (AAF-DKNN) and PCA with or without down sampling, the most significant candidate genes were determined. In total, twenty one genes were identified as related to the lymph node involvement. Between these, 9 genes were observed in metastatic prostate cancer, 6 were identified in another metastatic cancer and 4 were found in another local cancer. Additionally, augmentation of candidate genes was assessed in another PCa data sets. A verified set of genes that contribute to PCa metastasis was also identified. The SPAG1 and PLEKHF2 gene amplification was linked with a reduced chance of survival in prostate cancer patients.

Keywords: Gene Expression Analysis, Metastasis Prostate Cancer, Adaptive Activation Functions With Deep Kronecker Neural Network.

1. INTRODUCTION

Prostate cancer is accountable for 3rd highest count of cancer-associated deaths [1]. In fewer than 10% of prostate cancer cases, a positive family history is observed [2]. It is challenging to treat aggressive as well as metastatic forms of prostate cancer. The androgen receptor and TP53 are the most frequently impacted genes in patients with metastatic PCa who frequently exhibit somatic genomic changes [3]. Additionally, the tumour suppressor gene PTEN and the transcriptional regulator ETS have changed, albeit to a lesser degree. Advanced genetic analysis shows promise in identifying genetic alterations and discovering prognostic or

Samdarshi
ISSN: 2581-3986
Vol 16 Issue 3 (August 2023)

Bioinformatics Analysis of the Candidate Biomarkers Correlated with Poor Prognosis of Breast Cancer Using Constitutive Artificial Neural Network

[1]Dr. S Subasree, [2]Dr. N K Sakthivel
[1]Professor & Head,
Department of Computer Science and Engineering,
Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India
[2]Dean (Computing),
Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India

Abstract

A prevalent malignancy affecting women globally is called breast cancer (BC).Important genes and putative predictive biomarkers for BC are screened in this study using bioinformatics analysis. Gene expression profiles from three Gene Expression Omnibus (GEO) datasets are employed to detect differential expressed genes (DEGs) in fifty eight normal tissues and two hundred and three cancer tissues. While many studies have investigated this area, lower classification accuracy has been an issue in some cases. To address this problem, this manuscript proposes the use of a Constitutive Artificial Neural Network (CANN) in a bioinformatics analysis BI-BC-CANN.The proposed method is divided into two phases for diagnosing breast cancers. In the first phase, input data is collected from TCGA_BRCA datasets. In the second phase, the CANN classifier is used to classify breast cancer biomarkers as normal or abnormal. Unlike other methods, the CANN classifier does not rely on optimization strategies to determine the optimum parameters for accurate classification of breast cancer. Performance metrics such as accuracy, computation time, and area under the curve (AUC) are evaluated. The proposed method achieved higher accuracy of 23.18% and 13.92%, high AUC of 12.84% and 21.63%, and lower computation time of 14.83% and 18.34% compared to existing methods, namely Identification of candidate biomarkers correlated with poor prognosis of breast cancer based on bioinformatics analysis (BI-BC-PPI), and Identification of key molecular targets that correlate with breast cancer through bioinformatics techniques (BI-BC-WGCNA), respectively.

Keywords: Breast cancer, Bioinformatics analysis,Metastasis Prostate cancer, Constitutive artificial neural network.

1. Introduction

BC is a widespread malignancy and primary reason for death between women worldwide [1]. In the United States alone, there were up to 276,480 new cases of BC in women, in recent years, accountable for female cancers at 30%. Based on molecular characteristics of estrogen receptor (ER), progesterone receptor (PR), human epidermal development factor receptor 2 (Her2), BC are categorized into (i) Luminal A (ER+/PR+, Her2-) (ii) Luminal B (ER+/PR+, Her2+)(iii) HER2+ (ER-/PR-, Her2+) (iv) triple-negative breast cancer (TNBC) (ER-/PR-, Her2-). [2]. Different clinical treatments are carried out based on the specific molecular subtype. Despite advancements in target therapy, the treatment outcomes for BC remain unsatisfactorydue to drug resistance and recurrence [4]. Hence, there is anecessity to understand molecular algorithms of BC and identify possible prognostic biomarkers to increase the BC prognosis. Advanced genetic analysis can offer opportunities to identify high-risk patients and understand the pathologic process [5].

The primary contributions of this manuscript can be summarized as below:

- Conducting a detailed estimation of a TCGA_BRCA dataset to identify a verified set of genes with differential expression based on breast cancer that have spread to adjacent normal and abnormal tissues.
- Utilizing a deep learning technique, CANN, to achieve this objective. The usefulness of data analysis methods in cancer biology has been demonstrated, leveraging high-throughput experimental bioinformatics data on breast cancer.

Samdarshi
ISSN: 2581-3986
Vol 16 Issue 3 (August 2023)

Channel Boosted Convolutional Neural Network for Predicting Survival in Bladder Cancer based on TCGA Database and Bioinformatics

[1]N K Sakthivel, [2*]S Subasree
[1]Dean, Computing, Department of Computer Science and Engineering,
Nehru Institute of Engineering and Technology
[2]Professor & Head, Department of Computer Science and Engineering,
Nehru Institute of Engineering and Technology,
Coimbatore, Tamil Nadu, India

ABSTRACT :

Recent years, there is a significant progress in identifying bladder cancer through research. This paper presents a novel deep learning method, known as BI-BLC-CBCNN, for bladder cancer identification. The method utilizes The Cancer Genome Atlas (TCGA) database as input and preprocesses data using guided tri-Gaussian filters. The preprocessed data then classified using a Channel boosted convolutional neural network into two categories, benign and malignant. The proposed method was evaluated through various performance metrics like accuracy, precision, and ROC.The results showed that the BI-BLC-CBCNN method outperformed existing methods such as BI-BLC-OSRG and BI-BLC-IRGP, with 18.45% and 18.43% lower computation time and 23.34% and 19.56% higher accuracy, respectively. In conclusion, the proposed method has the potential to significantly improve bladder cancer identification and diagnosis.

Keywords: Bladder Cancer, Bioinformatics, Channel boosted convolutional neural network, guided tri Gaussian filters.

1. INTRODUCTION

Bladder Cancer (BC) ranks tenth in global cancer prevalence, with morbidity rate 3.0% and death rate 2.1%. Non-Muscle Invasive Bladder Cancer (NMIBC) includes 75% BC cases, while remaining 25% are Muscle Invasive Bladder Cancer (MIBC). Surgery can treat NMIBC, but it often recurs and may worsen to MIBC, which has rough characteristics and poor prediction. Traditional pathological grading and medical TNM staging used for evaluating BC. Unfortunately, there is no genuine screening methodsto detect BC, and early metastasis connected with poor prognosis and therapeutic results.

Researchers suggested that alteration of malignant suppresser genome to ontogenesis, like HER-2, H-Ras, and Bcl-2, can promote BC. Development of targeted molecular therapies has opened new methods to improve BCtreatment. To better understand variables contribute to detect and development, and specific immune area and efficiency of immunotherapy for BC, many researchers have focused on progressing most efficient prediction signatures. However, some biomarkers or screening tools are there inmedical practice. Therefore, urgent need to progress robust biomarker prognosing BC and teach therapeutic treatment, especially targeted and immunotherapy for BC patients

Recently, many researchers have focused on deep learning methods for efficient BC classification. This paper introduces the BI-BLC-CBCNN method, which aims to maximize accuracy and minimize computation time. These advantages motivated the authors to conduct this research.

The manuscript's primary contributions are as follows:

- The method presented in this paper supports The Cancer Genome Atlas (TCGA) database as its input.
- Input data undergo pre-processing using guided tri-Gaussian filters.
- The preprocessed data are then classified using the Channel-boosted convolutional neural network, which categorizes the preprocessed data as either benign or malignant.

International Journal on Applications in Basic and Applied Sciences
Volume 9: Issue 4 : September 2023, pp 1 – 6 www.aetsjournal.com
ISSN (Online) : 2455 – 1007

Artificial Intelligence and Machine Learning Based Healthcare Chatbot System

[1]Mrs. Abhirami.J.S , [2]Mrs. M.S.Vinu
Assistant Professor
[1]Department of Artificial intelligence and Data Science
[2]Department of Computer Science and Engineering
Nehru Institute of Engineering and Technology
nietjsabhirami@nehrucolleges.com

Abstract— With increasing population of India, increasing birth rate and decreasing death rate due to advancement in the medical field it's found that numbers of doctors are less to serve the need of the increasing population. This scenario can be better understood while walking through the cities government hospitals where the less availability of the doctors is the major cause behind the improper treatment of the patients and in certain scenario the resultant death. Sometime even doctors can make mistake in providing the correct treatment result in death of patient. To encounter such cases there is a need of the smart and Intelligent Chabot who can provide advice to the doctors and sometime even patients about what to do in such cases which ultimately results in the saving the life of hundreds of people. The AI based medical Chabot on which this research topic is based deals with providing medical advice in such scenario because sometime doctors can even make mistake while observing the symptoms but the machine which is specifically developed for it can't make such mistake. This AI based medical Chabot can take decision as per the request of the patient.

Keywords— Health care,Artificial Intelligence,Chabot, Symptoms.

I. INTRODUCTION

Through chat bots one can communicate with text or voice interface and get reply through artificial intelligence. Typically, a chat bot will communicate with a real person. Chat bots are used in applications such as e-commerce customer service, call centers and Internet gaming. Chat bots are programs built to automatically engage with received messages. Chat bots can be programmed to respond the same way each time, to respond differently to messages containing certain keywords and even to use machine learning to adapt their responses to fit the situation. A developing number of hospitals, nursing homes, and even private centers, presently utilize online Chat bots for human services on their sites. These bots connect with potential patients visiting the site, helping them discover specialists, booking their appointments, and getting them access to the correct treatment. An ML model has to be created wherein we could give any text input and on the basis of training data it must analyze the symptoms. A Supervised Logistic Regression machine learning algorithm can be implemented to train the model with data sets containing various diseases CSV files. The goal is to compare outputs of various models and suggest the best model that can be used for symptoms in real world inputs. Data set contains CSV file having all diseases compiled together. The logistic regression algorithm in ML allows us to process the data efficiently. The goal here is to model the underlying structure or distribution of the data in order to learn more from the training set. In any case, the utilization of artificial intelligence in an industry where individuals' lives could be in question, still starts misgivings in individuals. It brings up issues about whether the task mentioned above ought to be assigned to human staff. This healthcare chat bot system will help hospitals to provide healthcare support online 24 x 7; it answers deep as well as general questions. It also helps to generate leads and automatically delivers the information of leads to sales. By asking the questions in series it helps patients by guiding what exactly he/she is looking for.

Almost everyone kept on hold while operators connect you to a customer care executive. On an average people spend around 7 minutes until they are assigned to a person. Gone are the frustrating days of waiting in a queue for the next available operative. They are replacing live chat and other forms of slower contact methods such as emails and phone calls. Since chat bots are basically virtual robots they never get tired and continue to obey your command. They will continue to operate every day throughout the year without requiring to take a break

II. LITERATURE SURVEY

[1]Mohammed Javed et al.[2016] explained a method to implement word segmentation. He proposed in his algorithm to calculate character spaces in the sentences. The character spaces should include all types of gaps between charactersThey include the gaps between letter, punctuations and the words. The algorithm functions on the basis of the amount of gap or character space between each unit in the sentence. After the calculation of character spaces, an average of the gaps is calculated to know the mean average between characters in the sentence. This average gap distance is then applied to the sentence which is to be segmented. The places at which the character space is more than the average character space are said to be the points of tokenization. The

AI -Based Smart Auditorium for Energy and Space Management Using Intelligent Compact Controller

Publisher: IEEE Cite This PDF

S. N. Teli ; Kanchan K. Doke ; S. Siva Kumar ; W. Rajan Babu ; Sachin Gee Paul ; C. Mohan Raj All Authors

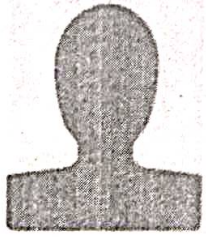
Dept. of Computer Science and Engineering, Nehru Institute of Engineering and Technology, Coimbatore

Abstract

Document Sections

Abstract:

Efficient use of energy rather than production is essential in this era. A large percentage of electricity is being wasted unnecessarily. This energy wastage often occurs in crowded places



Follow

S. Siva Kumar

Also published under: Sharij Kumar

Affiliation

Dept. of Computer Science and Engineering, Nehru Institute of Engineering and Technology, Coimbatore

Dr. P. MANIARASAN
Principal
Nehru Institute of Engg. & Technology
T.M.Palayam, Coimbatore - 641 105

Publication Topics

Clock Domain, Crowded Places, Data Loss, Debugging, Design Verification, Digital Input, Distribution System, Electrical Appliances, Electromechanical System, Energy Conservation, Energy Consumption, Energy Management, Energy Use, Flow

Publications	Citations
3	3

Publications by Year

Co-Authors:

W. Rajan Babu
S Bharath
Ramananda Bhimireddy
Suman Chalana

Salud, Ciencia y Tecnología - Serie de Conferencias. 2024; 3:609
doi: 10.56294/sctconf2024609

SERIE DE CONFERENCIAS

Categoría: STEM (Science, Technology, Engineering and Mathematics)

ORIGINAL

Privacy-Preserving Image Storage on Cloud Using An Unified Cryptographic Authentication Scheme

Almacenamiento de imágenes en la nube para preservar la privacidad mediante un esquema unificado de autenticación criptográfica

R. Manivannan[1], G. Venkateshwaran[1], D. Menaga[2], S. Sivakumar[3], M. Hema Kumar[4], Minu Susan Jacob[5]

[1]Department of Computer Science and Engineering, E.G.S. Pillay Engineering College. Nagapattinam, India.
[2]Department of Computer Science and Engineering, St.Joseph's Institute of Technology. Chennai, Tamil Nadu, India.
[3]Department of Computer Science and Engineering, Nehru Institute of Engineering and Technology. Coimbatore, India.
[4]Department of Electronics and Communication Engineering, Sona College of Technology. Salem, Tamil Nadu, India.
[5]Department of Computer Science and Engineering, Sathyabama Institute of Science and Technology. Jeppiaar Nagar, Rajiv Gandhi Salai, Chennai - 600 119, Tamilnadu, India.

Cite as: Manivannan R, Venkateshwaran G, Sivakumar S, Kumar MH, Jacob MS. Privacy-Preserving Image Storage on Cloud Using An Unified Cryptographic Authentication Scheme. Salud, Ciencia y Tecnología - Serie de Conferencias 2024; 3:609 . https://doi.org/10.56294/sctconf2024609.

Submitted: 06-12-2023 **Revised:** 14-02-2024 **Accepted:** 10-03-2024 **Published:** 11-03-2024

Editor: Dr. William Castillo-González

ABSTRACT

With the proliferation of several cutting-edge technologies such as the Artificial Intelligence (AI), and Machine Learning (ML), Internet of Things (IoT), cloud technology is gaining colossal popularity in recent years. Despite the general publicity on the theme across the digital world, defending user data kept in the cloud database is the most decisive problem. Recent potential cyber attacks reveal that storing private images entails more unique care related to other types of information on the cloud. As the cloud customer who has kept their images has no control over their data the cloud service provider has to ensure better security against cyber threats. Cryptography algorithms are the best choice to secure pictorial data in the cloud. These techniques transform images into an inarticulate form to keep confidentiality over undependable and vulnerable social media .In this paper, we aim to propose an approach for improving image security on the cloud using cryptography algorithms. We developed a cohesive approach, called Unified Cryptographic Image Authentication (UCIA) to protect user images on a cloud platform. The proposed UCIA approach includes two phases: (i)UCIA engenders a cipher text through a Data Encryption Standard (DES) by providing a key and a message as input, and (ii)UCIA implements a Twofish algorithm to encipher the pictures by applying cipher text. The enciphered picture data is then stored in the cloud database and can be recovered when the customer requests it. The effectiveness of both enciphering and deciphering procedures are analyzed using the evaluation metrics including time for enciphering, deciphering, cloud storage, and enciphering throughput. Experimental results reveal the better performance and strength of the UCIA approach.

Keywords: Cloud Computing; Data Encryption Standard; Image Encryption; Twofish Algorithm.

RESUMEN

Con la proliferación de varias tecnologías de vanguardia como la Inteligencia Artificial (IA), y el Aprendizaje Automático (ML), Internet de las Cosas (IoT), la tecnología en la nube está ganando una popularidad colosal en los últimos años. A pesar de la publicidad general sobre el tema en todo el mundo digital, la defensa de los datos de los usuarios guardados en la base de datos en la nube es el problema más decisivo. Los recientes ciberataques potenciales revelan que el almacenamiento de imágenes privadas conlleva un cuidado más singular en relación con otros tipos de información en la nube.

Dr. P. MANIARASAN
Principal
Nehru Institute of Engg. & Technology
T.M.Palayam, Coimbatore - 641 105

DeepRiceTransfer: Exploiting CNN Transfer Learning for Effective Rice Variety Classification

Kanaga Priya P[1]
Research Scholar,
Department of Computer Science and Engineering,
KPR Institute of Engineering and Technology,
Coimbatore, India.
kanagapriyacse@gmail.com

Kirupa P[2]
Assistant Professor,
Department of Computer Science and Engineering,
SNS College of Engineering,
Coimbatore, India,
kirupa0705@gmail.com

Thilakaveni P[3]
Lecturer,
Department of Computer Engineering,
PSG Polytechnic College,
Coimbatore, India.
ptv.dce@psgpolytech.ac.in

Nisha Devi K[4]
Assistant Professor,
Department of Artificial Intelligence and Data Science,
Bannari Amman Institute of Technology,
Erode, India.
nishadevik@bitsathy.ac.in

Mahabooba M[5]
Assistant Professor,
Department of Computer Science and Engineering,
Nehru Institute of Engineering and Technology,
Coimbatore, India
nietmahaboobam@nehrucolleges.com

Jayachitra S[6]
Assistant Professor,
Department of Electronics and Communication Engineering,
PSNA College of Engineering and Technology,
Dindigul, India
jayachitra0804@gmail.com

***Abstract*— The proposed DeepRiceTransfer (DRT) model gives a thorough examination of the accurate categorization of rice types. The research aimed at reworking the accuracy and effectiveness of rice variety types. Convolutional Neural Networks (CNNs) and transfer learning are utilized by the version to strategically capitalize on previous facts from several datasets. The proposed methodology used many extraordinary neural network architectures, along with the DeepRiceTransfer Convolutional Neural community (CNN) for the rice image dataset, to achieve the correct type of results. To enhance the model's overall performance, we especially used transfer learning methods with the MobileNet, ResNet50, and VGG16 architectures. Numerous statistical criteria, which include accuracy, precision, F1 score, and support, have been used to evaluate the class consequences. With accuracy scores of 98.44% for the DRT model, 98.94% for CNN with transfer learning using MobileNet, 79.79% for ResNet50, and 99.47% for VGG16 architectures, the models showed impressive success in classifying rice varieties. The models confirmed impressive achievement in classifying rice types effects spotlight CNN models' effectiveness in efficaciously classifying rice sorts consistent with their distinctive trends, especially those who use DRT and switch getting to know with MobileNet, ResNet50, and VGG16 architectures. The models' elevated accuracy charges spotlight their capacity for real-time implementations in the rice range category and first-class assessment.**

Keywords— DeepRiceTransfer (DRT), Rice, Transfer Learning, MobileNet, ResNet50, VGG16, and Classification.

I. INTRODUCTION

The world food supply depends, among others, on rice production. It is the major nourishment for a large part of the world's people. Furthermore, several rice variety types underscore the importance of proper identification and categorization. This will help us to identify the unique qualities that distinguish one rice variety from another for better farming practices and the genuineness of rice products in the market. In the past, traditional varieties' classification was a time and labor-consumer process relying mostly on personal qualitative evaluations. On the other hand, recent advancements in computer vision as well as machine learning have offered room for image-based classification. On these grounds, our study proposes a novel technique known as "DeepRiceTransfer". The technique utilizes both the CNN's characteristics as well as transfer learning for the quick, more accurate categorization of different types of rice. Many types of image classification have been successfully carried out under transfer learning, a modeling approach whereby a previously trained model is tweaked to suit specific aims. Using transfer learning for rice species classification offers us an opportunity to exploit information learned on other sets of data and adapt it to our unique challenges that may be so difficult to comprehend. Such a strategy not only yields better performance but also gives a stable model performance with a limited amount of labeled data. Our DeepRiceTransfer technique makes it easier and better to determine the identity of a rice variety. Through the combination of the abilities of CNN and adaptation abilities through transfer learning, we aim to develop an answer that exceeds already available methods concerning the performance of their accuracies. Moreover, their approach can be scaled to many other production environments. We are targeting to change how rice varieties can be identified using the DeepRiceTransfer application. This move will therefore enhance productivity in the sector thus, leading to the creation of sustainable food systems.

This proposed work will discuss, in detail, how DeepRiceTransfer was done in the subsequent sections. Secondly, we will also provide test outcomes showing the efficacy of our approach. We will also look at the wider significance and usage of our method in precision farming and agricultural studies. Through our efforts towards better rice variety classification and facilitation of agroeconomic innovation, we commit to enhancing global food security. To put

979-8-3503-6079-0/24/$31.00 ©2024 IEEE
DOI 10.1109/SASI-ITE58663.2024.00025

Published by :
http://www.ijert.org

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 13 Issue 4, April 2024

Sustainable Agriculture for Crop-Field Monitoring and Irrigation Automation using Internet of Things (IOT)

Dr.S.Sivakumar
Assistant Professor Senior Grade,
Department of CSE
Nehru Institute of Engineering and Technology
Coimbatore,India

Dr.S.Subasree
Professor of Head ,
Department of CSE
Nehru Institute of Engineering and Technology
Coimbatore,India

S.Kabilesh Kumar
Department of CSE
Nehru Institute of Engineering and Technology
Coimbatore,India

B.Ravishankar
Department of CSE
Nehru Institute of Engineering and Technology
Coimbatore,India

K.Rokesh Kanna
Department of CSE
Nehru Institute of Engineering and Technology
Coimbatore,India

K.Sanjay
Department of CSE
Nehru Institute of Engineering and Technology
Coimbatore,India

Abstract **— Agriculture is the back bone of India and nearly 70% of people in our country depend on agriculture. The yield of agriculture should be increased rapidly to fulfill the food requirements of population throughout the world. Now days internet of things (IOT) used for solving many real time problems. WSN plays vital role in many field like transport, medical, military, mobile phones, home appliances and so on. Agriculture is one of the important sources for all living things. But nowadays agriculture crops are affected due to many environmental changes. To overcome this WSN takes important role in the field of agriculture. WSN helps the farmer to produce the crop with high quantity and reduce the cost of yield. Agriculture gets affected by climatic change, environmental change, and natural disaster. Using WSN the soil and water management can be done. Here wireless sensors are used so the cost of implementation is very low. In this paper wireless sensor nodes are used to monitor the crops. This helps to increase the productivity of agriculture. The human effort is reduced by automatic process and it encourages the farmer to develop the farm land.**

Keywords— **Ultra-modern, Enhance, Internet of things(IOT),Water management, Scalability.**

INTRODUCTION

A global grid is a futuristic demand solution that collects data from numerous digital Internet of Things (IoT) sensors. Key findings from such a data are then utilized to successfully handle resources, mineral wealth, and operations; the info is being used to enhance operations throughout the city. It includes information gathered from residents, gadgets, houses, and property, which is centrally managed but also handle urban mobility systems, energy plants, utility services, water system networks, waste, surveillance, data management, institutes, library resources, healthcare facilities, and other social service. One of the most popular applications in the IoT paradigm is the smart home.

Smart Things by Samsung, HomeKit by Apple, and Android Things by Google are three of the top home IoT systems that have developed in recent years. These systems save power, link disparate protocols and devices, provide Automation and online control, and also enables third force software development. The increased need for smart home devices is propelling the Internet of Things forward. Majorly smart home gadgets, for example, such as smart televisions, refrigerator, kitchen appliances, air conditioners, and heater units, are connected to the Internet to make people's lives more pleasant and convenient.

Published by :
http://www.ijert.org

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 13 Issue 4, April 2024

Automatic Lpg Gas Leakage Detection and Cut-off System

Prof. M. Mahabooba
Department of computer Science and engineering
Nehru institute of Engineering and technology
Coimbatore

Prof.VINU M S
Department of computer Science and engineering
Nehru institute of Engineering and technology
Coimbatore

Yogasastha K
Department of computer Science and engineering
Nehru institute of Engineering and technology
Coimbatore

Keerthivasan S
Department of computer Science and engineering
Nehru institute of Engineering and technology
Coimbatore

Linguraj K
Department of computer Science and engineering
Nehru institute of Engineering and technology
Coimbatore

Santhosh Kumar R
Department of computer Science and engineering
Nehru institute of Engineering and technology
Coimbatore

ABSTRACT:
The Automatic LPG Gas Leakage Detection and Cut-off System represents a pivotal advancement in household safety measures. Traditionally, gas cylinders are ubiquitous in households, necessitating robust safety protocols. The conventional approach typically involves employing a basic toxic gas sensor coupled with an alarm system. However, with the integration of IoT technology, our system revolutionizes safety standards.
By incorporating advanced gas sensors and an embedded cut-off function, our system offers enhanced protection against potential gas leaks. Upon detecting even the slightest trace of gas leakage, the system swiftly activates a shutoff mechanism to prevent escalation. This proactive approach significantly reduces the risk of accidents and potential harm.
Moreover, the seamless integration with IoT facilitates real-time communication. Instant alert messages are sent to connected mobile devices, enabling users to promptly respond to gas hazards remotely. This feature not only enhances user convenience but also ensures rapid intervention, thereby minimizing the likelihood of accidents or property damage.
Overall, the convergence of IoT technology and safety features in our system marks a significant milestone in household safety. By providing real-time awareness and control over gas-related incidents, our solution sets a new standard for proactive gas leakage detection and emergency response systems.

INTRODUCTION

The proliferation of LPG (liquefied petroleum gas) cylinders in household and industrial settings underscores the critical importance of safety measures against potential gas leaks. Traditional gas leakage detection systems, relying solely on general toxic gas sensors and alarm systems, often lack the efficiency and immediacy required to mitigate risks effectively. However, with the advent of IoT (Internet of Things) technology, a paradigm shift is underway in gas leak detection and response mechanisms.The Automatic LPG Gas Leakage Detection and Cut-off System represents a groundbreaking advancement in gas safety protocols. By integrating IoT capabilities, this system not only detects gas leaks but also swiftly activates a cut-off mechanism in the event of a detected leak. This proactive approach significantly reduces the likelihood of gas-related accidents and minimizes potential damages.
Furthermore, the incorporation of IoT technology enables seamless communication between the gas detection system and connected mobile devices. Instant alert messages are dispatched to users, providing real-time notifications of gas leaks and facilitating prompt response measures, even from remote locations. This level of interconnectedness and responsiveness fundamentally transforms the way we perceive and manage gas-related incidents. In essence, the convergence of IoT technology and safety features in the Automatic LPG Gas Leakage Detection and Cut-off System heralds a new era in gas safety protocols.

Dr. P. MANIIARASAN
Principal
Nehru Institute of Engg & Technology
T.m.Palayam, Coimbatore - 641 105.

Published by :
http://www.ijert.org

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 13 Issue 4, April 2024

Pest Control and Leaf Disease Identification Mechanism Using Aiot

Ms. M. MAHABOOBA
AP/SG
Nehru Institute Of Engineering And Technology
Department Of CSE

Ms. S. Manimala Ap
Nehru Institute Of Engineering And Technology
Department Of CSE

R. Kishore
Nehru Institute Of Engineering And Technology
Department Of CSE

K.Balaji
Nehru Institute Of Engineering And Technology
Department Of CSE

K.Pasupathi
Nehru Institute of Engineering And Technology
Department Of CSE

A. Rajavel
Nehru Institute of Engineering And Technology
Department Of CSE

Abstract— **This project aims to transform agriculture through the development of A-IoT technologies. It can solve problems that can monitor important areas to achieve good plant growth and effective pest management. The system uses battery-powered sustainability and advanced image processing algorithms to continuously monitor plant health throughout the day and monitor for pests. Infrared motion sensors have also been used to monitor crops at night in the greenhouse environment. Through advanced smart algorithms, the system analyzes sensor data to identify symptoms of plant diseases and quickly alert farmers to any problems. The main aim of the project is to increase efficiency and reduce losses from pests and environmental damage through the integration of urine technology with stable energy. The convolutional neural network (CNN) algorithm is trained with up to 96.78% accuracy using the Kaggle Jupyter dataset, strengthening the performance and reliability of the system.**

Keywords— **AIoT, smart agriculture, crop health, pest management, battery-powered sustainability, image processing algorithms, infrared motion sensors, greenhouse environment, smart algorithms, plant diseases, efficiency, losses reduction, urine technology, stable energy, convolutional neural network (CNN)**

1. INTRODUCTION

Agriculture faces many challenges, from increasing plant growth to better pest control. In response to these challenges, the development of artificial intelligence in Internet of Things (AIoT) technology holds great promise. The project aims to transform agriculture by using artificial intelligence and IoT technology to monitor important aspects of plant health and pest management. Leveraging battery-powered sustainability and advanced image processing algorithms, the system can continuously monitor plant health and sun pests. Additionally, infrared motion sensors are used to extend monitoring into the night, especially in greenhouse environments. A system that detects pests in agricultural areas and enables farmers to quickly understand threats was developed using Raspberry Pi and a camera.

Using intelligent algorithms, the system analyzes sensor data to detect early signs of plant diseases, allowing timely intervention to reduce risks. The main aim of the program is to improve agriculture and reduce damage caused by pests and the environment. The project aims to reduce environmental impact while increasing crop yields by integrating technologies such as AIoT and sustainable energy. The core software used in the project includes image processing techniques for pest detection and the use of convolutional neural network (CNN) algorithm for high-precision training using the Kaggle Jupyter dataset. These software products increase the performance and reliability of the system, allowing farmers to better understand agricultural management.

1.1 BACKGROUND

Traditionally, agricultural pest management methods are labor intensive and time consuming; It relies on manual inspections and the use of pesticides. This manual method not only incurs significant labor costs, but also poses risks to soil health and the environment due to excessive or improper use of pesticides. In addition, manual methods often cause delays in the detection of pests, resulting in increased efficiency and losses .Current systems attempt to use algorithms such as K-Nearest Neighbors (KNN) to detect pests. However, these systems tend to have low accuracy, limiting their effectiveness in accurate identification and control of pests. According to these challenges, there is an urgent need for better and more accurate pest management. Using advances in AI IoT technology such as image processing and machine learning, it is possible to create a system that can detect malware and optimize them for use. By solving these problems, the project aims to change pest management in agriculture, reduce dependence on manual labor, reduce pesticide use, maintain healthy soil and ultimately increase crop yields.

Dr. P. MANIIARASAN
Principal
Nehru Institute of Engg. & Technology
T.M.Palayam, Coimbatore - 641 105.

Published by :
http://www.ijert.org

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 13 Issue 4, April 2024

Patient Health Condition Monitoring System by Using IOT

Mrs. Jasmine Punitha
Assistant professor - CSE
Nehru Institute of Engineering and Technology
Coimbatore

Mrs. Priya. S
Assistant professor – CSE
Nehru Institute of Engineering and Technology
Coimbatore.

Mrs . Mahabooba . M
Assistant professor – CSE
Nehru Institute of Engineering and Technology
Coimbatore.

M .Santhiya
Department of CSE
Nehru Institute of Engineering and Technology
Coimbatore,India

M. Monisha
Department of CSE
Nehru Institute of Engineering and Technology
Coimbatore,India

M. Athira
Department of CSE
Nehru Institute of Engineering and Technology
Coimbatore,India

Abstract
Patient Health Monitoring System (PHMS) is a new solution using IoT technology that can be used to monitor and track patients' health in real time. Thanks to advanced data analysis and machine learning algorithms, PHMS can provide real-time information and alert healthcare providers to any abnormal or potentially dangerous conditions. Integrating IoT technology into healthcare not only improves care efficiency but also facilitates early detection and health management, ultimately helping to improve patient outcomes and reduce healthcare cost.

INTRODUCTION:
In recent years, the integration of Internet of Things (IoT) technology into healthcare has revolutionized patient care and management. The Patient Health Monitoring System (PHMS) proposed in this article uses the powerful functions of IoT devices that can be used to realize effective and continuous monitoring of the patient's healthy consumption. Routine patient care often includes routine check-ups or hospital visits, which may not reflect important health conditions or early warning signs. But patients beyond PHMS gives doctors the go-ahead for their health, leading to ongoing care hours to do. This article explores the design, implementation, and benefits of patient health monitoring using IoT wearable devices. By using IoT devices to monitor patient health, Healthcare organizations can improve patient care, reduce healthcare costs, and support health management. This article aims to provide a better understanding of the potential of IoT technology to revolutionize patient care and improve health outcomes. Abbreviations and Abbreviations: IoT: Internet of Things

Dr. P. MANIIARASAN
Principal
Nehru Institute of Engg & Technology
T.N.Palayam, Coimbatore - 641 105.

2024 4th International Conference on Advance Computing and Innovative Technologies in Engineering (ICACITE) | 979-8-3503-6016-5/24/$31.00 ©2024 IEEE | DOI: 10.1109/ICACITE60783.2024.10616538

The Development of 6-G Technology in Integration with AI type of Synergy

Primmia D. R.
Assistant Professor
Department of Electronics and Communication Engineering, Prince Shri Venkateshwara Padmavathy Engineering College, TN. primmia.d.r.ece@psvpec.in

M.Mahabooba
Assistant Professor
Department of Computer science and Engineering (CS and E) Nehru Institute of Engineering and Technology, T.M.Palayam, Tamil Nadu,India.
nietmahaboobam@nehrucolleges.com

J. Karpagam
Department of Electrical and Electronics Engineering, Karpagam Academy of Higher Education, TN.
karpagam.kahe@kahedu.edu.in

Komal Sharma
Chitkara Centre for Research and Development, Chitkara University, Himachal Pradesh, India.
komal.sharmacu@gmail.com

Akhilesh Singh
Department of Civil Engineering IES College of Technology, Bhopal, M.P., India.
akhilesh.research@iesuniversity.ac.in

Sharon Manoj
UG Scholar,Department of Information Technology,
Hindustan Institute of Technology and Science, Kelambakkam, Tamil Nadu, India.
sharonmanoj64@gmail.com

Abstract: In this scientific study, the mutual connection between 6G technology, which and machine intelligence (AI) comes center stage. Delving on to the potential connections, the paper suggests that the merging of 6G and AI holds the secret to opening new possibilities in diverse fields. A thorough analysis emerges, showing the transformative effect that this mixture can have on the critical sectors such as medical care, transport, augmented reality education, resource management, robots, as well as solving challenges in public safety and battle. While the paper highlights the hopeful possibilities that lie to come it carefully admits the simultaneous increase of risks. In light of this understanding, the paper provides a detailed review of the security risks that are inherent in this technology nexus. Furthermore, a careful study of potential prevention methods is given, underscoring the necessity of proactive measures for maximizing the benefits while protecting against possible dangers. The merger of 6G and AI, as anticipated in this academic discourse, arises not only as a trigger for revolutionary developments but also as a territory needing careful consideration of ethics and security imperatives. The paper consequently acts as a leading light, directing the debate towards a future what the fusion of 6G while AI adds positively to our progress while carefully handling related challenges.

Keywords: 6G technology, machine intelligence, AI, transformative effect, medical care, transport, augmented reality education, security risks, prevention methods, infrastructure, ethical issues.

I. INTRODUCTION

The field of 6G study is seeing a notable increase in activity as we see the internationalization of 5G (Gatherer, 2018; Saad al., 2020; RF Wired World, 2019; Latva-aho with Leppänen, 2019 at Giordani with

Zorzi, 2019; Giordani with Zorzi, 2020). As stated in ITU-R M.2083 (2015), the three main use cases noted by 5G provide the groundwork for better cellphone broadband (eMBB), massive machine-type telecommunications (mMTC), and ultra-reliability very a low latency communications (URLLC). Every one of these use cases handles a particular need, such as more machine-centric traffic for the World Wide Web (WWW) of Things (IoT), more human-centric traffic with video, or low-latency, high-reliability services like operations from away.

It is important to understand that 6G is a paradigm change rather than just an improvement over 5G in the shift from 5G to 6G. An important component of this change is the introduction of computer technology (AI) (Saad and colleagues, 2020). The combination of AI with 6G has the ability to release hitherto unimaginable possibilities. In addition to being widely used within the link to best 6G performance, AI will also take use of the infrastructure that 6G gives to support the growing application of AI in a variety of industries, including industry, transportation, and healthcare. It is expected that this mutually useful interaction will give rise to new use cases that blend the needs of several 5G use cases, such as massive URLLC (mURLLC) and mobile broadband predictable low-latency interaction (MBRLLC) (Saad et al., 2020; radio frequency Wireless World, 2020).

These new 6G use cases, together with AI developments, are expected to lead to the rise of several new services, such as "human-centric services" (HCS), "connected machines and auto systems" (CRAS), and "extended reality" (XR). Thanks to the partnership between 6G and AI, these services mark a paradigm change in communications, computation, control, the practice of localization and sense (3CLS) (Saad et al., 2020).[1-5]

It is important to stress that the development of infrastructure that can meet these advanced services' unique needs is necessary for their completion. Although this kind of infrastructure is mostly found in cities (Onireti and Associates, 2016), there are still large gaps in link in emerging nations' rural regions (McKinsey, 2014). By offering inexpensive broadband within those underserved regions, a number of international projects, including "basic internet accessibility" and "global accessible to the network for all (the GAIA)," have evolved with the intention of closing this gap or at the very least lessening it (Onireti and Associates, 2016; Mekuria al Mfupe, 2017). Even though it might be difficult to get fully

International Journal of
INTELLIGENT SYSTEMS AND APPLICATIONS IN ENGINEERING
IJISAE
ISSN:2147-6799 www.ijisae.org Original Research Paper

Accurate Brain Tumour Segmentation in MRI Images using Enhanced CNN and Machine Learning Methods

M. S. Vinu[1*], Vijayalakshmi Pasupathy[2], K. P. Senthilkumar[3], K. Balasubramanian[4], Dhanaselvam J.[5], Keshav Kumar K.[6]

Submitted: 03/11/2023 **Revised:** 22/12/2023 **Accepted:** 03/01/2024

Abstract- This research targets the crucial objective of brain tumor segmentation in MRI images utilising an integrated technique applying present day machine learning models. The approach starts with a rigorous preparation procedure, covering resizing, rotation, conversion, and augmentation, to optimize the dataset for further assessment. Feature extraction contains shape-primarily based, depth-based, and model-based approaches, giving an in-depth know-how of the intricate tumor features. The ensemble of machine learning to know designs contains Convolutional Neural Network (CNN), Support Vector Machine (SVM), Recurrent Neural Network (RNN), K-Nearest Neighbors (KNN), and Random Forest (RF). Training and testing on a dataset of 3290 images revealed the highest super segmentation accuracy of 9.78% for CNN main, 9.43% for SVM, 91.3% for RNN, 87.6% for KNN, and 85.4% for RF. The varied ensemble catches fantastic subtleties in brain tumor capabilities, boosting the robustness of the segmentation approach. Results illustrate the versatility of machine learning, in particular CNN, in recognising complicated patterns within scientific imaging material. The ensemble's more than one performances stress the importance of a comprehensive method, such as outstanding machine learning to know paradigms. This evaluation gives vital information for future study in clinical image assessment in addition to enhancing mental tumour segmentation approaches. The outcomes carry incredibly fantastic promise for enhancing diagnostic accuracy, in the end extending the abilties of computerized systems in supporting doctors in the become aware of and remedy making plans of malignancies.

Keywords— *brain tumor segmentation, MRI images, machine learning, ensemble approach, deep learning*

Introduction

Brain tumor segmentation the use of magnetic resonance imaging (MRI) images plays a significant part in medical prognosis, supplying essential information for therapy formulating plans and monitoring [1], [2]. Accurate and green segmentation is vital for appropriately recognising tumor boundaries, letting clinicians in making mindful options. In this notice, we offer an integrated approach the utilisation of complex machine learning acquiring knowledge of patterns to beautify the accuracy of thoughts tumor segmentation. The approach comprises preprocessing processes, function extraction techniques, and an ensemble of machine learning methods, combined with Convolutional Neural Network (CNN), Support Vector Machine (SVM), Recurrent Neural Network (RNN), K-Nearest Neighbors (KNN), and Random Forest (RF). The complete strategy intends to handle the difficult and subtle nature of mind tumor images, capturing pictures dispersed variants in morphology, intensity, and spatial interactions [3], [4].

The importance of these investigations resides in the capacity to boost the brand new in clinical image assessment, adding to more trustworthy and green equipment for mind tumor diagnosis. As the healthcare community more and more is dependant on computerized structures for picture interpretation, the correctness of segmentation styles turns into vital. The suggested ensemble technique pulls jointly multiple machine learning to know paradigms, each bringing specific capabilities to the segmentation objective. The results of our take a look at retain promise for increasing scientific procedures, minimising manual

1Department of Computer Science and Engineering, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India
2Department of Computer Science and Engineering, Panimalar Engineering College, Chennai, Tamil Nadu, India,
3Department of Electronics and Communications Engineering, Saveetha School of Engineering, SIMATS, Chennai, Tamil Nadu, India,
4Department of Computer Applications, Kalasalingam Academy of Research and Education - Deemed to be University, Krishnankovil, Tamil Nadu, India
5Department of Electrical and Electronics Engineering, Sri Krishna College of Technology, Coimbatore, Tamil Nadu, India
6Department of Mathematics, G. Narayanamma Institute of Technology and Science (for Women), Hyderabad, Telangana, India
Corresponding: vinuja@gmail.com
Emails:vinuja@gmail.com; pasramviji@gmail.com; skkr8587@gmail.com; ksbala75@gmail.com; dhanzeeepcet@gmail.com; keshav.gnits@gmail.com

Journal of Intelligent & Fuzzy Systems xx (20xx) x–xx
DOI:10.3233/JIFS-241512
IOS Press
CORRECTED PROOF

Hybrid attention residual deep convolution learning network for bio medical image analysis

A. Sundar Raj[a,*], Paruchuri Chandra Babu Naidu[b], S. Sivakumar[c] and S. Senthilkumar[d]
[a]*Department of Biomedical Engineering, E.G.S. Pillay Engineering College, Nagapattinam, Tamilnadu, India*
[b]*Department of Electrical and Electronics Engineering, BSA Crescent Institute of Science and Technology, Vandalur, Chennai, Tamilnadu, India*
[c]*Department of Computer Science and Engineering, Nehru Institute of Engineering and Technology, Coimbatore, Tamilnadu, India*
[d]*Department of Electronics and Communication Engineering, E.G.S. Pillay Engineering College, Nagapattinam, Tamilnadu, India*

Abstract. Biomedical image analysis has progressed significantly with the integration of artificial intelligence, presenting new opportunities for early diagnosis and treatment of diseases with high mortality rates, such as skin cancer. This research work introduces a novel Hybrid Attention Residual Deep Convolution Learning (HARDCL) Model designed to enhance the accuracy of skin lesion classification, which is often challenging due to the subtle characteristics of lesions. The HARDCL Network employs an innovative hybrid attention mechanism within a residual learning framework, effectively distinguishing between benign and melanoma skin lesions with a high degree of precision. The encoder-decoder network segments the lesion from dermoscopic images, followed by feature extraction and classification, achieving a maximum accuracy of 97.11%, precision of 98.10%, recall of 98.81%, and an F1-score of 98.45%. This performance surpasses conventional deep learning algorithms such as AlexNet, InceptionV3, and ResNet18, demonstrating the effectiveness of the attention-based features in identifying critical lesion characteristics. However, despite its strengths, the HARDCL Network's computational intensity and the need for a substantial dataset for optimal training highlight areas for further refinement. The proposed network advances the field of skin cancer diagnostics, offering a robust tool for medical professionals and setting a foundation for future enhancements in automated biomedical image analysis techniques.

Keywords: Biomedical image analysis, skin cancer, lesion classification, melanoma, deep learning, residual network, attention module

1. Introduction

The proliferation of artificial intelligence is visible and unavoidable in biomedical image analysis. With accurate prediction and classification techniques, early diagnosis of deadly diseases reduces the mortality rate. Skin cancer is one among them; specifically, early diagnosis of melanoma reduces the mortality rate by 90%. The statistics of the American Cancer Society report that 186,680 new melanomas will be diagnosed in 2023, which could increase in the year 2024. With the advancement of computational methodologies, early skin cancer assessment can be done using skin lesions. Lesions represent abnormal melanocyte production. However, identifying the correct cancer type based on the lesion is

*Corresponding author. A. Sundar Raj, Department of Biomedical Engineering, E.G.S. Pillay Engineering College, Nagapattinam, Tamilnadu, India. 611002. E-mail: drasr18@gmail.com.

ISSN 1064-1246/$35.00

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 13 Issue 4, April 2024

Published by :
http://www.ijert.org

Smart Artificial Intellligence Ambulance with Decision Making System

Prof. Jeni Naarayanan L A
Assistant Professor,
Department of IT
Nehru Institute of Engineering and Technology
Coimbatore,India

S.Manoj
Department of CSE
Nehru Institute of Engineering and Technology
Coimbatore,India

M.Praveen
Department of CSE
Nehru Institute of Engineering and Technology
Coimbatore,India

M.Johnson
Department of CSE
Nehru Institute of Engineering and Technology
Coimbatore,India

S.Shyam
Department of CSE
Nehru Institute of Engineering and Technology
Coimbatore,India

Abstract **-Ambulance service which is one of the crucial services, it's get delayed very often. Because of this delay in ambulance service, patient may lose his life and number of these scenarios are increasing day by day. The main reason behind is increasing population which leads to increased number of vehicles, due to which emergency service like Ambulance get affected. Controlling the traffic becomes major issue when it comes to large intima delays between traffic lights/signals. Due to this, ambulance service which is one of the crucial services, it's get delayed very often. Because of this delay in ambulance service, patient may lose his life and number of these scenarios are increasing day by day. This paper proposes a solution to make such services easily available to those in need. The system provides a solution to the number of problems occurring in this world. The system provides a suggestion of the nearby hospital and also shares the patient information currently present in the ambulance. We developed this system which monitors the respiration level, Temperature and Pulse sensor. These values will be updated to hospital through SMS via GSM.**

INTRODUCTION

In today's fast-paced world, the efficiency of emergency services, particularly ambulance systems, is critical in saving lives. However, the increasing population and congestion on roads pose significant challenges, often resulting in delays in ambulance response times. These
delays can have dire consequences, potentially leading to loss of lives due to delayed medical attention. Recognizing the urgency of addressing these challenges, this paper proposes a Smart Artificial Intelligence Ambulance with a Decision-Making System, aimed at revolutionizing ambulance services. By integrating advanced technologies and innovative solutions, this system aims to mitigate the delays in ambulance services and provide timely medical assistance to those in need. The proposed system utilizes a combination of real-time patient health monitoring and traffic analysis approaches to optimize ambulance response times. By incorporating sensors to monitor vital signs such as respiration level, temperature, and pulse, the system ensures continuous monitoring of the patient's medical condition during transit. Moreover, the system employs artificial intelligence algorithms to analyze traffic patterns and optimize route selection, ensuring that ambulances reach their destination swiftly and efficiently. Through the integration of GPS technology and traffic data, the system identifies the shortest and fastest routes, minimizing delays caused by congestion and traffic signals. Additionally, the system features a decision-making module that provides recommendations for the nearest hospitals based on the patient's location and medical condition. By leveraging real-time data and intelligent algorithms, the system facilitates seamless coordination between ambulances and healthcare facilities, ensuring that patients receive timely and appropriate medical care.

OBJECTIVES:

To design/build an ambulance system with patient health monitoring system and traffic analysis approach and to develop a system which will monitor continuous medical condition of an individual on a device and provide nearest hospital data of patient.

IJERTV13IS040339

Salud, Ciencia y Tecnología - Serie de Conferencias. 2024; 3:624
doi: 10.56294/sctconf2024624

Category: Science, Technology, Engineering and Mathematics (STEM)

ORIGINAL

Smart Commodities Public Distribution System using IoT

Sistema inteligente de distribución pública de productos básicos mediante IoT

N. Murali[1], S. Palani Murugan[2], K. Sivakumar[3], Manojkumar Vivekanandan[4], Mishmala Sushith[5], S.Manikandan[6]

[1]Department of Computer Science and Engineering, E.G.S. Pillay Engineering College. Tamil Nadu, India.
[2]Department of Artificial Intelligence and Data Science, E.G.S. Pillay Engineering College. Tamil Nadu, India.
[3]Department of Atificial Intelligence and Data Science, Nehru Institute of Engineering and Technology. Coimbatore, Tamil Nadu, India.
[4]Department of Computer Science & Engineering, School of Engineering and Applied Sciences (SEAS), SRM University-AP. Amaravati, Andhra Pradesh, India.
[5]Department of Information Technology, Adithya Institute of Technology. Coimbatore, Tamil Nadu, India.
[6]Department of Information Technology, E.G.S. Pillay Engineering College. Nagapattinam, Tamil Nadu, India.

Cite as: Murali N, Palani Murugan S, Sivakumar K, Vivekanandan M, Sushith M, Manikandan S. Smart Commodities Public Distribution System using IoT. Salud, Ciencia y Tecnología - Serie de Conferencias 2024; 3:624. https://doi.org/10.56294/sctconf2024624

Received: 27-08-2023 **Reviewed:** 03-10-2023 **Accepted:** 29-12-2023 **Published:** 30-12-2023

ABSTRACT

In non-modern countries like India, the approach of allocating basic local goods to plight families is a significant approach to meeting the needs of a large number of people. The ongoing public dissemination system in Allot stores necessitates manual sum evaluation and trade record maintenance. The ongoing system has a ton of issues. One example is the IOT-based shrewd public appropriation framework project, which proposes a programmed method for getting products to verified cardholders. Similar to this, an informational index keeps track of the nuances of trades. Clients should enter their ID and mystery expression to get to their record through the High level cell. They are able to see the stock availability when they are successfully endorsed in. This structure uses a Raspberry Pi as the controller and uses a Specifics extraction-based extraordinary imprint coordinating computation, which has a higher accuracy score than previous versions. DC engines that are directly controlled by a Raspberry Pi for programmed product appropriation are used to open and close the valves. All along, one of the relatives need to enter one of a kind username and secret articulation. Right when client is supported in, he/she can see things that is open for that specific family account. The customer must provide a remarkable finger impression to the next level of confirmation in order to manage the items.

Keywords: IoT; Smart Computing; Prediction; Performance; Accuracy.

RESUMEN

En países no modernos como la India, el planteamiento de asignar bienes locales básicos a familias en apuros es un enfoque importante para satisfacer las necesidades de un gran número de personas. El sistema de difusión pública en curso en los almacenes Allot requiere la evaluación manual de las sumas y el mantenimiento de registros comerciales. El sistema en curso tiene un montón de problemas. Un ejemplo es el proyecto de marco de apropiación pública astuto basado en el IoT, que propone un método programado para hacer llegar los productos a los titulares de tarjetas verificadas. De forma similar, un índice informativo realiza un seguimiento de los matices de las operaciones. Los clientes deben introducir su ID y su expresión misteriosa para acceder a su registro a través de la celda de alto nivel. Podrán ver la disponibilidad de existencias cuando se hayan registrado correctamente. Esta estructura utiliza una Raspberry Pi como controlador y utiliza un cálculo de coordinación de huellas extraordinario basado en la extracción de Specifics, que tiene una puntuación de precisión más alta que las versiones anteriores. Para abrir y cerrar las válvulas se utilizan

International Journal on Applications in Information and Communication Engineering
Volume 9 : Issue 3 : August 2023, pp 21– 24 www.aetsjournal.com
ISSN (Online) : 2394 - 6237

Real time Criminal Face Identification System based on Artificial intelligence and Machine learning

[1]Mrs. Abhirami.J.S , [2]Mrs. Kalpana.G, [3]Mrs. Sika.K, [4]Mrs. Jeni Narayanan.L.A
Assistant Professor
[1,2,3]Department of Artificial intelligence and Data Science
[4]Department of Computer Science and Engineering
Nehru Institute of Engineering and Technology
Coimbatore -641105

Abstract— As the crime rate has been increasing year after year, it has become increasingly difficult for police to be able to monitor and respond to situations immediately because of the extensive load upon them. With the exponential growth in technology in recent years, we need to work on a solution for this. Artificial intelligence (AI) and blockchain appear to be a cornerstone for a crime prevention strategy. Surveillance cameras are being installed in more and more places as people's concern for safety is also increasing in recent times. These security cameras can be used for much more and can contribute to solving this problem. There are and have been systems in place that are being used actively to tackle this problem, but they lack in a lot of areas. This chapter focuses on the ever-growing need for a robust criminal identification system that is both efficient and economical for mass usage.

A system has been proposed comprised of cutting-edge hardware and software that can dramatically increase the accuracy and reliability of the criminal identification system using the incorporation of machine learning and artificial intelligence while being economical for wide range use. Validation through AI–blockchain helps to achieve end-to-end encryption, time-stamping, and checking for lawfulness

Keywords— Blockchain , Artificial intelligence , Photograph Segments, User-friendly environment, Images etc

I. INTRODUCTION

The aim of this project is to develop a system for identifying criminals in any investigation department. The project utilizes a technique where images of known criminals are stored in a database along with their details. These images are segmented into various parts such as eyes, hair, lips, nose, etc. These segmented images are also stored in a separate database.

To identify criminals, eyewitnesses are shown the images or slices that appear on the screen. Using these slices, a composite face is constructed, which can then be compared with the stored images in the database. If there is a match of up to 99%, it is predicted that the person being investigated is the criminal.This project aims to provide a user-friendly environment for operators and eyewitnesses to easily design and identify criminal faces.

A. Problem Area Description

The project focuses on the identification of criminals with the assistance of eyewitnesses. It consists of four main modules: Adding, Deleting, Updating, and Identifying Criminals. There are mainly three roles in the project. They are,

- Administrator
- Operator
- Eyewitness

B. Administrator

The administrator is responsible for providing user IDs and passwords, as well as managing user authentication. They can create, delete, and update user IDs and passwords.

C. Operator

The operator belongs to the investigating department and is responsible for entering and maintaining criminal details. They can add, delete, and update criminal information. The operator also constructs the composite face of the criminal using the eyewitness s's input.

D. Eyewitness

The eyewitness plays a crucial role in identifying criminals. They select cropped parts of the criminal's face from a separate database maintained by the operator. The selected parts are then frozen by the operator, and a complete face of the criminal is constructed. The details of the identified criminal are retrieved from the database. Additionally, an imaginary face of the criminal can be constructed using the cropped parts.

II. SYSTEM STUDY

Over the years, the process of face identification has evolved. In the past, law enforcement agencies relied on

SSRG International Journal of Electronics and Communication Engineering
ISSN: 2348-8549/ https://doi.org/10.14445/23488549/IJECE-V11I2P104

Volume 11 Issue 2, 33-40, February 2024

Original Article

Unified Security Paradigm: Bi-Factor Authentication and Hyper Elliptical Curve Cryptography in IoT-Enabled Cloud Data Protection (BFHECC - IoMT)

T.A. Mohanaprakash[1], K. Sivakumar[2], Nirmalrani Vairaperumal[3], M. Ramya[4], K. Cinthuja[5]

[1,5]*Department of Computer Science and Engineering, Panimalar Engineering College, Tamil Nadu, India.*
[2]*Artificial Intelligence and Data Science, Nehru Institute of Engineering and Technology, TamilNadu, India.*
[3]*Department of CSE, School of Computing, Sathyabama Institute of Science and Technology, TamilNadu, India.*
[4]*Department of Computer Science And Engineering, St. Joseph's Institute Of Technology, Tamil Nadu, India.*

[1]*Corresponding Author : tamohanaprakash@gmail.com*

Received: 25 October 2023 Revised: 02 December 2023 Accepted: 26 December 2023 Published: 02 February 2024

Abstract *- Ensuring robust security for cloud-stored sensitive information and medical data is critical in contemporary technological landscapes. Safeguarding cloud data involves encryption, access controls, and authentication methods like TLS and multi-factor authentication. Yet, vulnerabilities such as breaches or misconfigurations pose ongoing threats, necessitating continual improvements. The proposed (BFHECC-IoMT) solution integrates a two-factor authentication model and "Hyper Elliptical Curve Cryptography," presenting a formidable security infrastructure for cloud storage. This framework strengthens data encryption using conventional (password or PIN) and hyper elliptical curve-based authentication methods. It fortifies security beyond typical measures, increasing resistance to cryptographic attacks during data transmission or storage. On the other hand, integrating IoMT and cloud security, bolstered by Homomorphic Encryption and Elliptic Curve Cryptography (HECC), establishes a robust security framework for managing sensitive medical information. Addressing the oversight in existing healthcare systems, this integration ensures enhanced data confidentiality and integrity during transmission and storage. Seamlessly uniting IoMT, cloud security, Homomorphic Encryption, and ECC facilitates secure data transfer from IoT devices to cloud systems, ensuring stringent security standards for maintaining confidentiality, integrity, and availability. This comprehensive approach secures patient data transmission and provides privacy during analysis, compliance with healthcare regulations, and the overall secure handling and analysis of health data in the healthcare sector.*

Keywords *- Elliptic Curve Cryptography, Homomorphic Encryption, Internet of Medical Things, Authentication, Medical data.*

1. Introduction

Maintaining the confidentiality and integrity of cloud data is fraught with difficulties. Implementing strong encryption and access controls, including access permissions and encryption key management, is still challenging. Adhering to various data protection laws, like GDPR and HIPAA, entails fulfilling legal obligations and coordinating security protocols. The constantly evolving cyber threats increase the risks of data breaches, unauthorized access, and exploitation due to malicious attacks, human error, or system vulnerabilities. Preventing internal breaches, employee-intentioned breaches, and unauthorized access are ongoing challenges. Handling data across various locations and jurisdictions while complying with local laws and security standards presents complexity. Trusting the security of third-party services, like cloud providers, and ensuring alignment with internal security standards poses a significant challenge. Additionally, securing data during transfer and protecting it from interception remains an ongoing challenge, particularly in public networks. Addressing these issues requires a comprehensive approach involving encryption, secure access controls, continual security monitoring, user education, and implementing up-to-date security protocols and technologies. Safeguarding sensitive information in cloud storage is paramount to prevent unauthorized access or breaches. Cloud systems utilize encryption, access controls, and authentication methods such as TLS and multi-factor authentication for security. However, vulnerabilities like breaches, misconfigurations, or insider threats can compromise data integrity and confidentiality, leading to potential breaches or leaks. To address these concerns, the paper suggests integrating a two-factor authentication system in combination with "Hyper Elliptical Curve Cryptography" to fortify cloud storage security. This proposed system incorporates a standard authentication factor, such as a password or PIN, with an advanced hyperelliptical curve-based authentication

Contents lists available at ScienceDirect

Biomedical Signal Processing and Control

journal homepage: www.elsevier.com/locate/bspc

Healthcare diagnostics with an adaptive deep learning model integrated with the Internet of medical Things (IoMT) for predicting heart disease

K.K. Baseer [a,*], K. Sivakumar [b], Duggineni Veeraiah [c], Gunjan Chhabra [d], Prasanna Kumar Lakineni [e], M. Jahir Pasha [f], Ramu Gandikota [g], Gopakumar Harikrishnan [h]

[a] Associate Professor, Department of CSE, GITAM School of Technology, GITAM (Deemed to be University), Bengaluru, Karnataka, India
[b] Associate Professor, Department of Artificial Intelligence and Data Science, Nehru Institute of Engineering and Technology, Coimbatore, India
[c] Professor, Department of CSE, Lakireddy Bali Reddy College of Engineering (A), Mylavaram, Andhra Pradesh, India
[d] Associate Professor, Department of Computer Science and Engineering, Graphic Era Hill University, Dehradun, India
[e] Associate Professor, Department of CSE, Dadi Institute of Engineering & Technology, Visakhapatnam, India
[f] Associate Professor, Department of Computer Science and Engineering (Data Science), Rajeev Gandhi Memorial College of Engineering and Technology, Nandyal, Andhra Pradesh, India
[g] Department of Computer Science and Engineering, Koneru Lakshmaiah Education Foundation, Hyderabad, Telangana, India
[h] Vice Principal, PA First Grade college, Affiliated to Mangalore University Mangalore, India

ARTICLE INFO

Keywords:
Heart Disease
Cardiovascular Diseases
Internet of Medical Things (IoMT)
Artificial Intelligence (AI)
Coronary Artery Disease
Forecast Model
TabNet
catBoost
Electrocardiograms (ECG)
Blood Pressure Readings
Multimodal Dataset

ABSTRACT

Heart disease is a widespread health problem that poses a significant global challenge. It includes a variety of heart-related conditions such as heart failure, coronary artery disease, and ventricular fibrillation all of which contribute to a significant global morbidity and mortality burden. Poor diet, physical inactivity, smoking, and underlying health conditions such as hypertension and diabetes. To mitigate the impact of this multifaceted problem, comprehensive preventive strategies, early detection through regular medical check-ups, and effective management are required. To promote heart-healthy habits and reduce the prevalence of this widespread health concern, not only individual awareness and behavioral changes are required, but also systemic efforts in healthcare policy, education, and accessible medical services. This study presents a novel coronary artery disease Forecast Model that seamlessly combines the Internet of Medical Things (IoMT) and Artificial Intelligence (AI) in response to the growing global burden of cardiovascular the approach uses advanced techniques, specifically TabNet in conjunction with catBoost, to improve the accuracy and efficiency of heart disease prediction. The IoMT is an important component because it enables seamless gathering of information from a wide range of healthcare devices, like wearables as well as sensors. diseases (CVDs). The approach uses advanced techniques, specifically TabNet in conjunction with catBoost, to improve the accuracy and efficiency of heart disease prediction. The IoMT is an important component because it enables seamless gathering of information from a wide range of healthcare devices, like wearable's as well as sensors. Proposed model employs Internet of Medical Things (IoMT) to collect a wide range of physiological data from connected medical devices, such as continuous heart rate monitoring, electrocardiograms (ECG), and blood pressure readings. TabNet and catBoost Artificial Intelligence (AI) algorithms are critical in processing and interpreting the complex data obtained through IoMT. TabNet, which is well-known for its ability to efficiently handle tabular data, is used for feature selection and extraction. CatBoost, a powerful gradient boosting algorithm, on the other hand, contributes to the model's predictive accuracy by handling categorical features and mitigating overfitting. The combination of these cutting-edge techniques improves precision as well as interpretability, allowing for a more detailed understanding of the factors influencing predictive outcomes. A large dataset with a variety of patient profiles, risk factors, and medical histories is used in the model's training regimen. By fine-tuning this diverse dataset, the model's adaptability to different demographic and clinical scenarios is improved, paving the way for personalized heart disease risk assessments. Furthermore, the proposed model supports immediate processing, allowing for rapid predictions based on streaming IoMT data. Finally, Heart Disease Prediction Model represents a

* Corresponding author.
E-mail addresses: shnathini39453585@gmail.com (K.K. Baseer), sivakumark@gmail.com (K. Sivakumar), duggineni89@gmail.com (D. Veeraiah), gunjanchhabra@gmail.com (G. Chhabra), prasannakumar@gmail.com (P. Kumar Lakineni), Jahir4444@gmail.com (M. Jahir Pasha), ramugandikota9@gmail.com (R. Gandikota), gharikrishnan@gmail.com (G. Harikrishnan).

https://doi.org/10.1016/j.bspc.2024.105988
Received 26 September 2023; Received in revised form 19 January 2024; Accepted 28 January 2024
Available online 17 February 2024

Published by :
http://www.ijert.org

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 13 Issue 4, April 2024

Drip Irrigation System Integration with IOT and Renewable Energy for Sustainable Agriculture

Prof .Gokilavani M
Department of computer science and engineering.
Nehru institute of engineering and technology
Coimbatore

Akash S
Department of computer science and engineering.
Nehru institute of engineering and technology
Coimbatore

Sriganth M
Department of computer science and engineering.
Nehru institute of engineering and technology
Coimbatore

H. Hassan Riyas
Department of computer science and engineering
Nehru institute of engineering and technology
Coimbatore

Kishore B
Department of computer science and engineering.
Nehru institute of engineering and technology
Coimbatore

***Abstract*—This project explores the integration of drip irrigation with Internet of Things (IoT) technology and renewable energy sources to enhance agricultural efficiency and sustainability. The proposed system aims to optimize water usage through real-time monitoring and control of irrigation processes. Utilizing IoT sensors, data on soil moisture levels, weather conditions, requirements are collected, enabling intelligent decision-making for precise irrigation management. Additionally, renewable energy sources such as solar power are incorporated to provide an eco-friendly and cost-effective energy solution for powering the IoT devices and irrigation system. The synergistic combination of drip irrigation, IoT, and renewable energy contributes to resource conservation, improved crop yield, and overall sustainable agricultural practice.**

***Keywords*—Drip irrigation, Node MCU, IOT Microcontroller, moisture sensor, Dht-11, solar power**

OBJECTIVES:

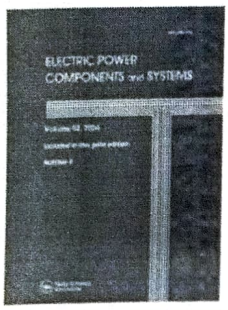
To meet the rising global food demand amid population growth and shifting consumption habits, efficient water management in agriculture is paramount. Traditional irrigation methods often result in wasteful water usage and resource inefficiencies. Addressing these challenges, a solar-powered smart irrigation system employing IoT technology offers a solution to optimize water utilization, cut operational expenses, and foster environmental sustainability.

INTRODUCTION:

Over the years, several development and innovation have come across to further minimize the rapid depleting of natural resources in the environment. Basic necessities such as food and water have an integral part of everyday lives on Earth. Water plays a significant role in the environment. Globally, 70% of water come from natural resources such as groundwater systems, lakes and rivers to support crop irrigations and feeding of livestock. With the irrigation systems, it is important to maximize plant productivity, efficient energy consumption and reduce water wastage. Several approaches have been done by the researchers on how to improve the irrigation systems. With the global energy crisis, initiative for moving towards application of renewable resources carried out as possible solution. Investing on zero-carbon emission and using energy efficient products Energy

Efficiency and Cost-Effectiveness:
GOAL: Create an irrigation system that minimizes energy consumption and operational costs.
APPROACH: Utilize solar panels to harness renewable energy. Eliminate reliance on grid electricity Optimize water usage to reduce overall expenses

Integration of Sensor Parameters:
Goal: Collect relevant data for efficient irrigation management. Sensor Parameters: Soil Moisture Sensors: Measure soil moisture content at different depths. Provide real-time information on soil hydration levels. Enable precise irrigation scheduling. Temperature and Humidity Sensors: Monitor environmental conditions. Temperature affects plant



Taylor & Francis

Electric Power Components and Systems

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/uemp20

Optimum Power Forecasting Technique for Hybrid Renewable Energy Systems Using Deep Learning

Shashank Singh, V. Subburaj, K. Sivakumar, R. Anil Kumar, M. S. Muthuramam, Ravi Rastogi, Vishal Ratansing Patil & A. Rajaram

To cite this article: Shashank Singh, V. Subburaj, K. Sivakumar, R. Anil Kumar, M. S. Muthuramam, Ravi Rastogi, Vishal Ratansing Patil & A. Rajaram (07 Mar 2024): Optimum Power Forecasting Technique for Hybrid Renewable Energy Systems Using Deep Learning, Electric Power Components and Systems, DOI: 10.1080/15325008.2024.2316251

To link to this article: https://doi.org/10.1080/15325008.2024.2316251

Published online: 07 Mar 2024.

Detection and diagnosis of age-related macular degeneration using recurrent neural network with cloud architecture and internet of things

Article type: Research Article

Authors: Alphy, Anna (https://content.iospress.com:443/search?q=author%3A%28%22Alphy, Anna%22%29)[a] | Rajamohamed, (https://content.iospress.com:443/search?q=author%3A%28%22Rajamohamed, %22%29)[b] | Velusamy, Jayaraj (https://content.iospress.com:443/search?q=author%3A%28%22Velusamy, Jayaraj%22%29)[c] | Vidhya, K. (https://content.iospress.com:443/search?q=author%3A%28%22Vidhya, K.%22%29)[d,*] | Ravi, G. (https://content.iospress.com:443/search?q=author%3A%28%22Ravi, G.%22%29)[e] | Rajasekaran, Arun Sekar (https://content.iospress.com:443/search?q=author%3A%28%22Rajasekaran, Arun Sekar%22%29)[f]

Affiliations: [a] Department of Computer Science and Engineering, SRM IST Delhi NCR Campus Ghaziabad, India | [b] Department of ECE, Indra Ganesan College of Engineering, Trichy, Tamilnadu, India | [c] Department of Electronics and Communication Engineering, Nehru Institute of Engineering and Technology, Coimbatore, Tamilnadu, India | [d] Department of Computer Science and Engineering, Karunya Institute of Technology and Sciences, Coimbatore, Tamilnadu, India | [e] Department of ECE, Sona College of Technology, Salem, Tamilnadu, India | [f] Department of ECE, SR University, Warangal, Telangana, India

Correspondence: [*] Corresponding author. K. Vidhya, Department of Computer Science and Engineering, Karunya Institute of Technology and Sciences, Coimbatore, Tamilnadu, India. E-mail: vidhyakkarunya@gmail.com (mailto:vidhyakkarunya@gmail.com).

Abstract: Age-Related Macular Degeneration is a progressive, irreversible eye condition that causes vision loss and impairs quality of life. The lost potential of the optic nerve cannot be regained, but a patient with Age-Related Macular Degeneration must have early diagnosis and treatment in order to prevent visual loss. The diagnosis of Age-Related Macular Degeneration is based on visual field loss tests, a patient's medical history, intraocular pressure, and a physical fundus evaluation. Age-Related Macular Degeneration must be diagnosed early in order to avoid irreparable structural damage and vision loss. The objective of the proposed study is to develop a new optimization-driven strategy-based recurrent neural network using the Internet of Things for the identification of age-related macular degeneration. The Recurrent Neural Network (RNN) classifier is trained using the Particle Swarm Optimization (PSO) technique included into the RNN-IoMT. Initially, the input picture is sent through pre-processing in order to remove noise and artefacts. The generated preprocessed picture is simultaneously sent to optical disc detection and blood vessel detection. In addition, picture level characteristics are extracted from the image that has been preprocessed. Finally, the image-level, optic disc-level, and blood vessel-level features are retrieved and compiled into a feature vector. The acquired feature vector is fed into the RNN classifier, with the suggested PSO used to train the RNN for Age-Related Macular Degeneration detection via the Internet of Medical Things. The suggested PSO+RNN exhibits better performance with enhanced precision of 97.194%, sensitivity of 97.184%, and specificity of 97.2044%, respectively.

Keywords: Wearables, internet of things, teleophthalmology, deep learning, fundus images

ISSN: 2788–7669 *Journal of Machine and Computing 3(3)(2023)*

Kidney Impairment Prediction Due to Diabetes Using Extended Ensemble Learning Machine Algorithm

[1]Deepa Devasenapathy, [2]Vidhya K, [3]Anna Alphy, [4]Finney Daniel Shadrach, [5]Jayaraj Velusamy and [6]Kathirvelu M

[1]Computing & Software Engineering, U.A. Whitaker College of Engineering, Florida Gulf Coast University, USA.

[2] Department of Computer Science and Engineering, Karunya Institute of Technology and Sciences, Coimbatore, India,

[3] Department of Computer Science and Engineering, SRM IST Delhi NCR campus Ghaziabad – 201204, India.

[4]Department of Electronics and Communication Engineering, KPR Institute of Engineering and Technology, India.

[5] Department of Electronics and Communication Engineering, Nehru Institute of Engineering and Technology, India.

[6] Department of Electronics and Communication Engineering, KPR Institute of Engineering and Technology, India.

[1]deepafgcu@gmail.com, [2]vidhyak@karunya.edu, [3]anna.urumbath@gmail.com, [4]finneydaniels@gmail.com, [5]jayarajmevlsi@gmail.com, [6]mkathirvelu77@gmail.com

Correspondence should be addressed to Vidhya K : vidhyak@karunya.edu.

Article Info

Journal of Machine and Computing (http://anapub.co.ke/journals/jmc/jmc.html)

Doi: https://doi.org/10.53759/7669/jmc202303027

Received 10 January 2023; Revised from 16 April 2023; Accepted 20 May 2023.

Available online 05 July 2023.

Abstract – diabetes is the main cause for diabetic kidney disease (dkd), which affects the filtering units of kidneys slowly and stops it's function finally. This consequence is common for both genetic based (type 1) and lifestyle based (type 2) diabetes. However, type 2 diabetes plays a significant influence in increased urine albumin excretion, decreased glomerular filtration rate (gfr), or both. These causes failure of kidneys stage by stage. Herein, the implementation of extended ensemble learning machine algorithm (eelm) with improved elephant herd optimization (ieho) algorithm helps in identifying the severity stages of kidney damage. The data preprocessing and feature extraction process extracts three vital features such as period of diabetes (in year), gfr (glomerular filtration rate), albumin (creatinine ratio) for accurate prediction of kidney damage due to diabetes. Predicted result ensures the better outcome such as an accuracy of 98.869%, 97.899 % of precision ,97.993 % of recall and f-measure of 96.432 % as a result.

Keywords – Kidney Disease, Ensemble Learning, Diabetes, Elephant Herd Optimization.

I. INTRODUCTION

Kidney Disease is one of the major complications caused by diabetes. It is accounted for increased mortality among the population of Type 2 diabetes. Gheith, Osama et al .[1] have surveyed the prevalence and risk factors related to DKD. Microalbuminuria is more common in younger people, but lower GFR is more common in older people with DKD. El-Houssainy et al. [2] used machine learning approaches to detect and forecast the severity stages of chronic renal disease in the early stages. The classification model classifies the phases of CKD based on serum creatinine, blood urea, albumin, age, hemoglobin, and hypertension. Nicholas YQ Tan et al. [3], have analyzed the impact of sleep duration either short or long over the complications of Diabetic Kidney Disease. Yaeni Kim et al. [4], have addressed the complexity and Heterogeneity of diabetic nephropathy and suggested effective therapeutic agents for the management of diabetic nephropathy. Chan, L., Nadkarni et al. [5], have created machine learning based predictive model and tested against the components related to Diabetic Kidney Disease. The diagnosis of kidney infection is based on the patient's age, BMI, and estimated low Glomerular Filtration Rate (GFR), albuminuria, and creatinine, glucose, and hemoglobin concentrations (HbA1c).

MacIsaac RJ et al. [6] have clearly identified that the clinical trials of incretin-modulating drugs have indicated that they can lower albuminuria and possibly halt the rate of GFR of diabetic patients. Nayak et al. [7], applied EHO algorithm for

Biomedical Signal Processing and Control 86 (2023) 105038

Contents lists available at ScienceDirect

Biomedical Signal Processing and Control

journal homepage: www.elsevier.com/locate/bspc

Radial basis function Neural Network optimized with Salp Swarm algorithm espoused paddy leaf disease classification

M. Ramkumar Raja [a,*], Jayaraj V [b], Francis H Shajin [c], E.M. Roopa Devi [d]

[a] Associate Professor, Department of Electrical Engineering, College of Engineering, King Khalid University, Abha, Kingdom of Saudi Arabia
[b] Professor and Head, Department of Electronics and Communication Engineering, Nehru Institute of Engineering and Technology, Nehru Gardens, Thirumalayampalayam, Coimbatore-641105, Tamil Nadu, India
[c] Research and Development, Xpertmindz Innovative Solutions Private Limited, Kuzhithurai, Tamil Nadu, India
[d] Associate Professor, Department of Information Technology, School of communication and computer science, Kongu Engineering College, Tamil Nadu, India

ARTICLE INFO

Keywords:
Radial Basis Function Neural Network (RBFNN)
Salp Swarm Algorithm(SSA)
Paddy leaf disease Classification
Black widow optimization algorithm(BWOA)
K-means clustering method

ABSTRACT

Diseases in rice often cause yield losses of 20–40% in crop production and are closely linked globally. Disease detection is difficult to quickly plan treatments and decrease crop loss. Diagnosis of rice diseases till done manually. Attain AI-assisted detection of disease, here proposed radial function Neural Network optimized with Salp-Swarm approach (PLDC-RBFNN-SSA) for rice leaf disease segmentation. First, we extract rice leaf images from a dataset containing rice leaf disease image samples. Then the preprocessing augmentation process is performed using a random transformation method such as: Simple image rotation as well as mirror functions implemented to every images. B. Rotate Right 90°, Rotate Left 90°, Flip Vertically, Flip Horizontally, Rotate 180°. These preprocessed output images are then passed to Black Widow's k-means clustering method to segment regions of interest (ROI) for rice leaf disease. The segmented output image is then sent to an adaptive grayscale co-occurrence matrix windowing algorithm (GLCMWAA) to extract radiation features. Extracted features then input into a radial function Neural Network optimized with Salp-Swarm algorithm to classify rice leaf images into bacterial blight, blast, brown spot and tungro. The proposed method is implemented in MATLAB and the performance of the proposed PLDC-RBFNN-SSA approach achieves 15.25%, 18.98%, 20.5% and 24.85% higher accuracy. Computation time is reduced by 50.2%, 48.2%, 38.26%, 20.2% compared with existing methods. Finally, the simulation results demonstrate that the proposed PLDC-RBFNN-SSA method is more efficient and accurate to obtain the optimal global solution for detecting and classifying leaf diseases in rice breeding is shown.

1. Introduction

Rice was a staple food in India, which has more rice-planted area than China [1]. Orissa ranks her fourth among Indian states in terms of production of rice [2]. Western part of Orissa, particularly the Sambalpur and Bulgar districts (known as rice bowls of Orissa), are called for their rice production [3]. Here, rice cultivating twice a year during the growing season [4,5]. Caliph season (July to October) depending on monsoons and Rabi season (October to March) depending on Hirakud Dam supply of water reported annually [6–8]. Paddy fields daggered by several diseases and pest invasions [9–11]. Even young farmers with limited agricultural knowledge are unable to recognize the nature of the disease. There is no point in using pesticides without knowing the nature of the disease [12,13]. This situation has motivated continued research to identify rice diseases occurring in the western region of Orissa [14]. West Orissa suffers mainly from 4 kindof rice diseases: bacterial blight, knotweed, brown spot and tungro.

In general, rice disease identification is monitored by visual inspection or laboratory experiments [15,16]. Visual inspections are time consuming as they are only performed by qualified personnel. Laboratory experiments require chemical reagents and complex processes [17–19]. With progress of internet and mobile, several apps have been developingfor assisting farmer [20]. Rice Doctor and Rice Xpertwere mobile applications [21]. "Rice Doctor" is questioning app that supports farmers. Similarly, "Kome no Tatsujin" depicts an unusual picture of rice. The decision to use these mobile his applications to identify rice

* Corresponding author.
E-mail addresses: mmanoharan@kku.edu.sa (M. Ramkumar Raja), jayarajmecse@gmail.com (J. V), shajin.mec@gmail.com (F.H. Shajin), emroopadevi@rediffmail.com (E.M. Roopa Devi).

https://doi.org/10.1016/j.bspc.2023.105038
Received 16 August 2022; Received in revised form 21 April 2023; Accepted 9 May 2023
Available online 7 June 2023
1746-8094/

Energy efficient routing using adaptive elephant herding optimization for IoT-WSN

Article type: Research Article

Authors: Sivakami, K. (https://content.iospress.com:443/search?q=author%3A%28%22Sivakami, K.%22%29)[a;*] | Vijayalakshmi, P. (https://content.iospress.com:443/search?q=author%3A%28%22Vijayalakshmi, P.%22%29)[b]

Affiliations: [a] Department of ECE, Nehru Institute of Engineering and Technology, Coimbatore, India | [b] Department of ECE, Hindusthan College of Engineering and Technology, Coimbatore, India

Correspondence: [*] Corresponding author. K. Sivakami, Department of ECE, Nehru Institute of Engineering and Technology, Coimbatore, 641 105, India. E-mail: sivakamik206@gmail.com (mailto:sivakamik206@gmail.com).

Abstract: WSNs(Wireless Sensor Networks) has been developed with applications in many domains including agriculture, telecommunication, manufacturing industry, healthcare, and surveillance. More specifically, WSN plays a pivotal role in IoT (Internet of Things). The IoT sensors provide information about the physical phenomena in the deployed fields. As the sensors contain only limited resources, the factors like data processing, power consumption, transmission, and storage capabilities adversely affect the efficiency. Thus, the process of routing is necessary for network longevity. The data from IoT-based sensors is routed to the destination through a multi-hop routing system. The Energy aware Routing is motivated by the nature inspired Fuzzy Butterfly Optimization (E2RFBOA). Further a new data aggregation method is introduced in this article customized for IoT based WSN to acquaint higher crop yield in precision farming. Nevertheless, the scalability becomes a primary concern when deployed in larger and denser networks. This is due to the fact that all nodes in IoT and WSN are mostly alive depending on higher usage of bandwidth and power. The primal aim is to build a novel routing protocol developed for IoT-WSN. Apart from this, an Energy aware Clustered Routing that is motivated by Adaptive Elephant Herding Optimization (E2CR-AEHO) is proposed, which sensors collect data and find a group of Cluster Heads (CHs). In the AEHO Algorithm, the formed CH is rotated depending on power consumption. This also prevents frequent re-clustering; at the same time it can effectively adapt to the changes in network topology. According to the AEHOA, the node population comprises of nodes that can choose its CHs among the other nodes. This algorithm takes into account a number of criteria, including power consumption, residual power of Sensor Nodes (SN), network reliability, and data reliability. The suggested approach can efficiently represent the network environment, allowing the routing algorithm to avoid passing over marked zones. Network-specific performances measures including PDRs (Packet Delivery Ratios), NLs (Network Lifetimes), PLRs (Packet Loss Ratios), and AE2E (Average End To End) delay are used to evaluate simulation outcomes. This proposed framework aggregates IoT, which can gradually reduce the amount of data, hence extending network lifetime.

Keywords: Internet of things, swarm intelligence, information fusion, integer linear programming, adaptive elephant herding optimization, wireless sensor networks

DOI: 10.3233/JIFS-224251

Journal: Journal of Intelligent & Fuzzy Systems (https://content.iospress.com:443/journals/journal-of-intelligent-and-fuzzy-systems), vol. 45, no. 4, pp. 5467-5479, 2023

Published: 04 October 2023

Price: EUR 27.50

Received: 13 June 2022 | Revised: 16 September 2023 | Accepted: 10 October 2023

DOI: 10.1002/oca.3067

RESEARCH ARTICLE

WILEY

A BMO-based MRPID controller with optimal control of speed in hybrid stepper motor

S. M. Deepa[1] | C. Venkatesh[2] | V. Nandalal[3]

[1]Department of Electronics and Communication Engineering, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India

[2]Department of Electronics and Communication Engineering, KGiSL Institute of Technology, Coimbatore, India

[3]Department of Electronics and Communication Engineering, Sri Krishna College of Engineering and Technology, Coimbatore, India

Correspondence
S. M. Deepa, Department of Electronics and Communication Engineering, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu 641105, India.
Email: nietdeepa@nehrucolleges.com

Abstract

This paper proposes a Barnacles mating optimizer-based multi-resolution proportional-integral derivative (MRPID) controller for precise speed control of the hybrid stepper motor (HSM). The proposed approach is a barnacle mating optimizer (BMO) control scheme. The main objective of this approach is to use the MRPID controller to improve speed control in particular and uncertain conditions. The BMO is utilized to create the proposed MRPID controller. The proposed converter has a low switching voltage and uses a low input current. The proposed converter supplies a large amount of power to the voltage source inverter (VSI), which converts DC to AC and then supplies it to the HSM. The HSM can be utilized in various settings, including robots and factory applications. Then, the performance of the proposed system has been evaluated in the MATLAB platform and compared with various existing systems. The existing adaptive neuro-fuzzy inference system (ANFIS) and the moth flame optimization algorithm (MFO) methods are used to validate the efficiency of the proposed controller. The proposed system rise time is 0.0007, the settling time is 0.1, the recovery time is 0.221, the AMU is 1.205, the IAE is 0.1034, and the SSE is 0.234. According to the simulation findings, the suggested system is statistically significant.

KEYWORDS

barnacles mating optimizer algorithm, field oriented control (FOC) theory, hybrid stepper motor (HSM), multi resolution proportional-integral derivative (MRPID)

1 | INTRODUCTION

Hybrid stepper motors (HSMs) are often employed in open-loop position control applications.[1] HSMs operating on the controller are subject to mechanical vibrations due to the ripple of the electromagnetic torque. Closed loop control stepper motors should be used in high demand applications.[2,3] Oscillatory feedback in open loop control may alter the HSM's reaction to movement due to inertia.[4] In an open-loop control approach, the HSM may lose its steps, synchronization, and stability, and the HSM speed response may fluctuate. Due to the open-loop construction, there is a constant difference between the positions/speed of the load and the expected value and the rotor cannot approach the new target position/speed.[5–7] As a result, a closed-loop design is needed to collect information on the occurrence of losing step or oscillation to increase the accuracy of trajectory tracking control by decreasing susceptibility to unexpected changes.[8] To overcome a catastrophic situation, stepper motors (and connected drivers), are chosen with at least 50% more torque

Advancements in early detection of diabetes and diabetic retinopathy screening using artificial intelligence

Cite as: AIP Advances 13, 115307 (2023); doi: 10.1063/5.0172226
Submitted: 23 August 2023 • Accepted: 3 October 2023 •
Published Online: 7 November 2023

R. Deepa[1,a] and A. Sivasamy[2]

AFFILIATIONS

[1] ECE, Nehru Institute of Engineering and Technology, Coimbatore, T,N, India
[2] Agricultural Engineering, Nehru Institute of Technology, Coimbatore, T,N, India

[a] Author to whom correspondence should be addressed: ecedeepa@gmail.com

ABSTRACT

This paper explores the synergy between early diabetes detection and artificial intelligence (AI)-based diabetic retinopathy screening. It emphasizes the crucial role of integration for enhancing patient care. Diabetes and its complications, such as diabetic retinopathy, can be better managed with early intervention. AI techniques are revolutionizing medical diagnostics, offering potential for accurate prediction of diabetes risk and automated analysis of retinal images for retinopathy detection. By combining these aspects, we uncover a comprehensive strategy that not only identifies diabetes in its early stages but also ensures timely management of its ocular complications. This integrated approach shows promise for personalized care, improved outcomes, and efficient resource utilization. This paper underscores the need for collaboration between medical and AI experts to maximize the potential of this dual-focused approach for transforming diabetes management.

I. INTRODUCTION

Diabetes mellitus, a global health concern affecting millions worldwide, poses significant challenges to healthcare systems and individuals alike. The implications of diabetes, if not properly managed, extend far beyond glucose control, impacting various organ systems and increasing the risk of serious complications. Among these, diabetic retinopathy (DR) stands as a major cause of visual impairment and blindness. In response to this critical healthcare challenge, advancements in artificial intelligence (AI) have emerged as a transformative force, revolutionizing the landscape of early diabetes detection and diabetic retinopathy screening.

A. Rising prevalence and the need for early detection

The prevalence of diabetes has reached alarming proportions, with estimates suggesting that over 463×10^6 individuals are affected globally. The burden of undiagnosed diabetes and late-stage complications necessitates a proactive approach to identify individuals at risk or in the early stages of the disease. Early detection holds immense promise for preventing or mitigating the progression of diabetes and its associated complications, thereby improving the overall well-being of affected individuals.

B. Role of artificial intelligence in early detection

Artificial intelligence, particularly deep learning algorithms, has demonstrated remarkable potential in analyzing vast volumes of medical data with unprecedented accuracy and efficiency. This capability positions AI as a valuable tool for identifying subtle patterns and deviations that might go unnoticed by human clinicians. The marriage of AI with medical diagnostics is especially relevant in diabetes detection and retinopathy screening due to the complex interplay of clinical data, patient histories, and imaging results.

C. Diabetic retinopathy and visual health

Diabetic retinopathy, a microvascular complication of diabetes, is a leading cause of blindness among adults worldwide. The insidious nature of this condition highlights the critical role of early detection in preserving visual health. Traditional methods of diabetic retinopathy screening involve manual examination of retinal images

Healthcare's new Frontier: AI-driven early cancer detection for improved well-being

Cite as: AIP Advances 13, 115331 (2023); doi: 10.1063/5.0177640
Submitted: 23 September 2023 • Accepted: 30 October 2023 •
Published Online: 30 November 2023

R. Deepa,[1,a] S. Arunkumar,[1] V. Jayaraj,[1] and A. Sivasamy[2]

AFFILIATIONS

[1] Nehru Institute of Engineering and Technology, Coimbatore, TN, India
[2] Nehru Institute of Technology, Coimbatore, TN, India

[a] Author to whom correspondence should be addressed: ecedeepa@gmail.com

ABSTRACT

The realm of healthcare is undergoing a revolutionary transformation through the integration of artificial intelligence (AI) for early cancer detection, ushering in a new era of enhanced well-being. This review paper delves into the paradigm shift brought about by AI, highlighting its potential to identify diseases in their nascent stages, thereby revolutionizing preventive healthcare. Harnessing the computational prowess of AI, this paradigm empowers us to analyze intricate medical data, including internal imagery and health records, facilitating the identification of subtle disease markers imperceptible to the human eye. The key focus lies not only in early detection but also in ensuring diagnostic accuracy. A comprehensive analysis of various studies underscores AI's superiority in comparison to traditional methods, manifesting in quicker and more precise identification of anomalies. This transformation translates to expedited medical interventions and improved patient outcomes. The crux of this evolution lies in AI's capacity to redefine healthcare, transforming it into a proactive endeavor that identifies and addresses health concerns while they remain manageable.

I. INTRODUCTION

Healthcare has transformed remarkably due to technology, changing how we take care of our health. One big focus is spotting diseases early, which means finding them when they are still small. This is super important and can help not just individual people, but also the whole healthcare system.

Finding diseases early is like a guiding light for better patient outcomes. It can change how diseases go, stopping them or even preventing them. When we catch diseases early, the treatments are often easier, safer, and work better. Plus, it helps healthcare systems by not needing complicated and costly procedures when diseases get worse. Saving money is a big deal too. Healthcare costs a lot, and finding diseases late costs even more. If we catch diseases early, it is better for people's wallets and helps healthcare resources. It shifts healthcare from just fixing problems to stopping them before they start.

Now, say hello to artificial intelligence (AI)—a powerful tool that is changing how healthcare works. AI is like smart computers that learn and solve problems like humans. In healthcare, AI is becoming a game-changer. It helps with diagnoses, suggesting treatments, and more. AI is like a super-fast brain. It can look at tons of medical information—from records to complicated images—way faster than a person. This helps doctors make decisions quickly and accurately.

In this comprehensive review paper, we delve into the dynamic synergy between early cancer detection and the transformative capabilities of Artificial Intelligence (AI). Our exploration revolves around the remarkable collaboration of AI and medical science, with a specific focus on their potential to revolutionize healthcare by identifying diseases at their nascent stages.

We embark on a journey through an array of cutting-edge research studies, each serving as a lens into the intersection of AI and early cancer detection. Our primary objective is to dissect the intricate web of findings to unveil the profound impact AI could wield in the realm of disease prevention. Breast, lung, and skin cancers are more prevalent compared to other cancers due to a combination of factors, including lifestyle, genetic predisposition, environmental influences, and screening practices.

AIP Advances REVIEW pubs.aip.org/aip/adv

Early detection of skin cancer using AI: Deciphering dermatology images for melanoma detection

Cite as: AIP Advances 14, 040701 (2024); doi: 10.1063/5.0188187
Submitted: 20 November 2023 • Accepted: 20 March 2024 •
Published Online: 15 April 2024

R. Deepa,[1,a] Ghayth ALMahadin,[2] Prashant G C,[3] and A. Sivasamy[4]

AFFILIATIONS

[1] ECE, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India
[2] Networks and Cybersecurity, Faculty of Information Technology, Al Ahliyya Amman University, Amman, Jordan
[3] Department of Computer Science, Texas Tech University, Lubbock, Texas 79409, USA
[4] Agricultural Engineering, Nehru Institute of Technology, Coimbatore, Tamil Nadu, India

[a] Author to whom correspondence should be addressed: [redacted]

ABSTRACT

This Review explores the transformative impact of artificial intelligence (AI) on the early detection of skin cancer, with a specific focus on melanoma, a potentially lethal form of the disease. Beginning with an overview of traditional diagnostic methods and their limitations, this paper delves into the evolution of AI within dermatology, emphasizing its application in image analysis and pattern recognition. A comprehensive examination of AI algorithms for melanoma detection, including machine learning and deep learning models, is provided. This Review critically assesses the performance metrics, training datasets, and comparative analyses with traditional methods. Addressing challenges such as data quality, interpretability, and ethical considerations, this paper outlines future directions, emphasizing ongoing research, algorithm improvements, and integration with clinical practices. Case studies and success stories highlight the real-world impact of AI in dermatology. This Review concludes by summarizing key findings and underlining the pivotal role of AI in revolutionizing early melanoma detection, with implications for personalized medicine and enhanced patient outcomes.

I. INTRODUCTION

Skin cancer, a prevalent and potentially life-threatening malady, encompasses various types, with melanoma standing out for its aggressiveness. The World Health Organization reports an alarming global incidence of 2–3 × 10^6 non-melanoma skin cancers and 132 000 melanomas annually.[1] This escalating burden underscores the critical need for effective diagnostic measures.

Skin cancer arises from the uncontrolled growth of skin cells, with basal cell carcinoma, squamous cell carcinoma, and melanoma being the primary subtypes. While non-melanoma skin cancers are more common, melanoma is notorious for its propensity to metastasize rapidly, necessitating a heightened emphasis on early detection.[2]

The significance of early detection in skin cancer cannot be overstated. Timely identification allows for less invasive treatments and significantly improves patient outcomes. Traditional diagnostic methods, including visual inspection and biopsy, have long been the mainstay; however, their subjectivity and limitations in achieving early detection have paved the way for the exploration of cutting-edge technologies, notably artificial intelligence (AI), in dermatology.[3]

Dermatologists conventionally rely on visual examination, dermoscopy, and biopsy for skin cancer diagnosis. While these methods are valuable, their efficacy is often contingent on the clinician's expertise and may involve inherent subjectivity. Discriminating between benign and malignant lesions remains a challenge, prompting the quest for more objective and precise diagnostic tools.[4]

The integration of AI represents a groundbreaking evolution in dermatological diagnostics. AI, particularly through machine learning and deep learning algorithms, exhibits remarkable capabil-

AIP Advances ARTICLE pubs.aip.org/aip/adv

Early prediction of cardiovascular disease using machine learning: Unveiling risk factors from health records

Cite as: AIP Advances 14, 035049 (2024); doi: 10.1063/5.0191990
Submitted: 18 December 2023 • Accepted: 9 March 2024 •
Published Online: 27 March 2024

Dr. R. Deepa,[1,a] Vijaya Bhaskar Sadu,[2] Prashant G. C.,[3] and Dr. A. Sivasamy[4]

AFFILIATIONS

[1]ECE, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu 641 105, India
[2]Department of Mechanical Engineering, Jawaharlal Nehru Technological University, Kakinada, Andhra Pradesh, India
[3]Department of Computer Science, Texas Tech University, Lubbock, Texas 79409, USA
[4]Agricultural Engineering, Nehru Institute of Technology, Coimbatore, Tamil Nadu, India

[a]Author to whom correspondence should be addressed: ecedeepa@gmail.com

ABSTRACT

This article focuses on the early prediction of cardiovascular disease (CVD) through the application of machine learning to health records. This study systematically reviews existing literature and employs advanced machine learning algorithms to discern predictive factors within electronic health data. Key findings highlight the significance of genetic predispositions, lifestyle choices, and clinical biomarkers as influential contributors to CVD development. The integration of these factors into machine learning models demonstrates notable accuracy in preemptive risk assessment. The implications of this research are profound, offering potential advancements in preventive healthcare strategies, personalized interventions, and resource allocation for populations at heightened cardiovascular risk.

I. INTRODUCTION

Cardiovascular disease (CVD) stands as a formidable global health challenge, constituting a predominant cause of morbidity and mortality. Its pervasive impact on public health necessitates a nuanced understanding of its complexities and innovative approaches to risk assessment. As a leading cause of premature deaths worldwide, the imperative to address CVD is underscored by the profound socioeconomic implications associated with its prevalence.

Early prediction and intervention emerge as pivotal strategies in mitigating the burden of CVD. Timely identification of individuals at risk allows for targeted preventive measures, fostering a paradigm shift from reactive to proactive healthcare. Recognizing the multifaceted nature of CVD risk factors, the quest for predictive precision has led to the integration of cutting-edge technologies.

In this context, the advent of machine learning (ML) in healthcare heralds a transformative era. Machine learning, with its capacity to analyze vast datasets and discern intricate patterns, holds promise in revolutionizing CVD prediction. This article explores the symbiotic relationship between the significance of CVD, the imperative of early intervention, and the burgeoning role of machine learning in reshaping the landscape of cardiovascular health assessment.

Machine learning (ML) techniques have emerged as powerful tools in healthcare, leveraging diverse algorithms to analyze complex datasets and extract meaningful insights. *Supervised learning* involves training a model on labeled data, enabling it to make predictions or classifications based on patterns identified during training.[1,2] Notable examples include Support Vector Machines (SVM) and random forests. *Unsupervised learning* algorithms work with unlabeled data to identify patterns and relationships. Clustering techniques such as K-means and hierarchical clustering fall under this domain. *Deep learning*, a subset of ML, often involving neural networks with multiple layers, excels in capturing intricate patterns. Convolutional Neural Networks (CNNs) and Recurrent Neural Networks (RNNs) are prevalent in healthcare applications.

Journal of Data Acquisition and Processing

ISSN: 1004-9037
https://sjcjycl.cn/
DOI: 10.5281/zenodo.754721

MODELING AND SIMULATION OF ELECTRIC VEHICLE DRIVE WITH EVALUATING FORCES

P.Sureshkumar
Assistant Professor, Department of Mechanical Engineering, JCT College of Engineering and Technology, Coimbatore.

C.Rajasekar
Assistant Professor, Department of Mechatronics Engineering, Akshaya College of Engineering and Technology , Coimbatore.

Dr.R.Deepa
Professor, Department of Electronics and Communication Engineering, Nehru Institute ofEngineering and Technology, Coimbatore.

S. Selvam
Professor, Department of Mechanical Engineering, Adithya Institute of Technology, Coimbatore.

Dr.V.Saravanan
Associate Professor Department of Aeronautical Engineering, Nehru Institute of Technology, Coimbatore.

ABSTRACT—The traditional way of travel is the use of internal combustion engines (IC engines) that run on fossil fuels such as gasoline, diesel, and other similar products; however, these corporate resources are rapidly decreasing. Furthermore, these fuels contribute to pollution and atmospheric anomalies such as global warming. Electric cars' importance and growth have exploded in recent years, owing to the fact that they are pollution-free and more dependable. MATLAB/SIMULINK is a crucial tool for reducing product development costs by facilitating design and specifications. In this article, the electric vehicle drive is modeled, and simulation is carried out using input signals from the SAEJ227 (Society of Automotive Engineers) Japanese driving cycle and the EUDC (Extra Urban Driving Cycle) European driving cycle.The motor voltage, current, and power curves, as well as the battery voltage, current, power, and SOC (State Of Charge) curves, were plotted after the simulation. The model may be used to evaluate the energy flow and capabilities of an electric drive for various driving cycles.

Keywords—Electric vehicle, SAEJ227and EUDC driving cycles, State of Charge, Propulsion

I. NTRODUCTION

Global warming is currently the most serious threat to our planet. One of the major reasons for this is that sophisticated society relies heavily on petroleum derivative-based conveyance for economic and social advancement. According to estimates, more than 1 billion passenger

INDERSCIENCE PUBLISHERS
Linking academia, business and industry through research

International Journal of Agriculture Innovation, Technology and Globalisation > 2023 Vol.3 No.4

Title: Optimising agricultural practices with machine learning: a comprehensive review

Authors: R. Deepa; A. Sivasamy; S. Selvam

Addresses: Department of Electronics and Communication Engineering, Nehru Institute of Engineering and Technology, Coimbatore – 641105, Tamil Nadu, India ' Department of Agricultural Engineering, Nehru Institute of Technology, Coimbatore – 641105, Tamil Nadu, India ' Department of Mechanical Engineering, Adithya Institute of Technology, Coimbatore – 641107, Tamil Nadu, India

Abstract: The agricultural sector is witnessing a growing utilisation of machine learning (ML) across a range of applications, including yield prediction, crop classification, disease detection, pest monitoring, irrigation management, and soil analysis. ML algorithms can analyse large volumes of data generated from various sources such as remote sensing, weather stations, and soil sensors to provide insights and recommendations that can improve the efficiency and productivity of agricultural systems. The use of AI and deep learning techniques in agriculture has shown promising results in improving crop productivity, disease and pest detection, soil analysis, and irrigation management. In this article, a survey of deep learning and artificial intelligence techniques in agriculture is presented to provide valuable insights into the latest advances and applications. Finally, a conclusion regarding open challenges, and directions for future research are presented. Deep learning and AI have the potential to revolutionise the way we approach agriculture, leading to more efficient and sustainable: 1) crop yield prediction; 2) weed and pest detection; 3) disease detection; 4) precision agriculture; 5) robotic farming. Overall, the use of deep learning and AI in agriculture has the potential to improve efficiency, reduce waste, and increase productivity, leading to a more sustainable and profitable agricultural industry.

Keywords: deep learning; AI; image processing; machine learning; agriculture.

DOI: 10.1504/IJAITG.2023.138116

International Journal of Agriculture Innovation, Technology and Globalisation, 2023 Vol.3 No.4, pp.354 - 369

Received: 15 Jun 2023
Accepted: 03 Feb 2024
Published online: 29 Apr 2024

Dr. P. MANIIARASAN
Principal
Nehru Institute of Engg. & Technology
T.M.Palayam, Coimbatore - 641 105.

International Journal on Applications in Information and communication Engineering
Volume 10 : Issue 1 : March 2024, pp 15 – 17 www.aetsjournal.com ISSN (Online) : 2394 – 6237

Design and Simulation Analysis of Spider Robot

[1]Dr K.Nagarajan, [2]Mrs. M. Jeba Paulin, [3]Mr.T.Prabu , [4]Mr. M. Mohammed Kasim
[1,2]Assistant Professor
[3,4]Assistant Professor(SG)
Department of ECE
Nehru Institute of Engineering and Technology
Coimbatore - 641105
Tamilnadu
Email: Naguambani@gmail.com , jebamaxim@gmail.com , tprabu19@gmail.com , mohammedkasim1983@gmail.com

***Abstract*—**A spider robot, often referred to as a spider-like robot or hexapod robot, is a type of robotic system designed to mimic the movements and characteristics of a spider. These robots typically feature multiple legs arranged in a manner similar to those of a spider, and they can vary in size and complexity. Spider robots are often used in various applications, from research and exploration to industrial tasks and entertainment.

The design of spider robots is inspired by the natural locomotion of arachnids, allowing them to navigate through challenging terrain and perform tasks that traditional wheeled or tracked robots may find difficult. These robots are equipped with sensors, actuators, and sometimes cameras to interact with their environment and carry out specific functions. Depending on their purpose, spider robots can be autonomous or remotely controlled

***Keywords*—** spider robot, various applications, sometimes cameras etc.

I. INTRODUCTION

Spider robots have found applications in areas such as search and rescue operations, where their agility enables them to navigate disaster-stricken environments, as well as in industries like agriculture for tasks such as crop monitoring and inspection. Additionally, they are used in educational and research settings to study locomotion principles and robotics.

As technology advances, spider robots continue to evolve, becoming more capable, versatile, and adaptable to various tasks. Their unique design and capabilities make them a fascinating field of study and a promising tool in many areas of robotics and automation.

II. OBJECTIVES:

1. *Agile Locomotion*: Spider robots are designed to move through challenging terrains with agility and stability. One primary objective is to achieve efficient and adaptable locomotion, allowing them to navigate uneven surfaces, climb walls, or traverse difficult environments.

2. *Search and Rescue*: In disaster scenarios, the primary objective is often to use spider robots to locate and assist survivors in hard-to-reach or hazardous locations, improving search and rescue operations' effectiveness.

3. *Exploration*: Spider robots can be used for exploring areas that are inaccessible or unsafe for humans, such as caves, crevices, or extraterrestrial environments like Mars. The objective is to gather data and images from these environments.

4. *Agriculture*: In agriculture, spider robots are employed for crop monitoring, pest control, and harvesting. The objective is to increase crop yields, reduce resource use, and improve overall farm efficiency.

5. *Inspection and Maintenance*: Spider robots can inspect and maintain infrastructure such as bridges, pipelines, and industrial equipment. The objective is to enhance safety and reduce the cost of manual inspections.

III. METHODOLOGY- PROPOSED SYSTEM:

1. *Project Initiation*:
- Define the project's objectives, goals, and scope.
- Establish a project team with members who have expertise in robotics, electronics, software development, and relevant domains.

2. *Research and Planning*:
- Conduct a thorough literature review to understand existing spider robot designs, algorithms, and technologies.
- Define the system's specifications, including size, weight, locomotion capabilities, sensors, and actuators.
- Develop a project plan with timelines, milestones, and a budget.

3. *Design Phase*:
- Design the mechanical structure of the spider robot, considering factors like leg arrangement, materials, and flexibility.
- Select the necessary sensors (e.g., accelerometers, gyroscopes, proximity sensors) and actuators
(e.g., motors, servos) for motion and perception.
- Create a 3D model or prototype of the robot for testing and validation.

4. *Electronics and Hardware*:

Dimensions. Int. J. Comput. Sci. Issues (IJCSI) 2016, 13, 24.

[3] Pasupa, K.; Sunhem, W.; Loo, C.K. A hybrid approach to building face shape classifier for hairstyle recommender system. Expert Syst. Appl. 2019, 120, 14–32. [CrossRef]

[4] W. Rawat and Z. Wang, Deep convolutional neural networks for image classification: A comprehensive review, Neural Computation, vol.29, no.9, pp.2352-2449, 2017.

[5] Jiankang Deng, Shiyang Cheng, NiannanXue, Yuxiang Zhou, and StefanosZafeiriou. Uv-gan: Adversarial facial uv map completion for pose-invariant face recognition. In CVPR, pages 7093–7102, 2018.

[6] Victoria FernándezAbrevaya, AdnaneBoukhayma, Stefanie Wuhrer, Edmond Boyer. A Decoupled 3D Facial Shape Model by Adversarial Training. ICCV 2019 - International Conference on Computer Vision, Oct 2019, Seoul, South Korea. pp.9418-9427, ff10.1109/ICCV.2019.00951ff. ffhal-02064711v3

[7] Young, S, Natalia, F, Sudirman, S and Ko, CS (2019) Eyeglasses frame selection based on oval face shape using convolutional neural network. ICIC Express Letters, Part B: Applications, 10 (8). pp. 707-715. ISSN 2185- 2766, 2019

[8] 16, 1105. [CrossRef] [PubMed] 56. Aldibaja, M.A.J. Eye Shape Detection Methods Based on Eye Structure Modeling and Texture Analysis for Interface Systems. Ph.D. Thesis, Toyohashi University of Technology, Toyohashi, Japan, 2015

Dr. P. MANIIARASAN
Principal
Nehru Institute of Engg & Technology
T.M.Palayam, Coimbatore - 641 105.

International Journal on Applications in Engineering and Technology
Volume 9 : Issue 4 : October 2023, pp 43– 44 www.aetsjournal.com ISSN (Online) : 2455 - 0523

Centralized Monitoring System for Street Light Fault Detection and Location Tracking

[1]Mr.T.Prabu , [2]Mr. M. Mohammed Kasim, [3]Dr K.Nagarajan, [4]Mrs. M. Jeba Paulin
[1,2]Assistant Professor (SG)
[3,4]Assistant Professor
Department of ECE
Nehru Institute of Engineering and Technology
Coimbatore - 641105
Tamilnadu
Email: tprabu19@gmail.com , mohammedkasim1983@gmail.com , Naguambani@gmail.com , jebamaryms@gmail.com

***Abstract*—**Managing urban street lighting poses a significant financial challenge for cities, requiring a fresh approach to curbing energy consumption and bolstering environmental stewardship while maintaining operational efficiency. To address this imperative, we introduce an innovative automated street lighting system, which seamlessly incorporates state-of-the-art sensors and wireless modules. At its core, a Light Dependent Resistor (LDR) diligently monitors ambient lighting conditions, orchestrating streetlight activation and deactivation in response to the environment. This LDR-centric approach not only enhances energy conservation but also incorporates a robust fault detection mechanism. Furthermore, a GSM module ensures timely notification of light faults to designated users, while a cloud-based infrastructure, accessible via a Wi-Fi module, permits real-time monitoring and system management, transcending geographical and temporal limitations.

***Keywords*—** Managing urban street lighting, Light Dependent Resistor, GSM module etc.

I. INTRODUCTION

This pioneering initiative represents the convergence of cutting-edge technology aimed at delivering a sustainable solution for urban infrastructure management. Through the optimization of energy efficiency, heightened environmental responsibility, and streamlined administrative oversight, our groundbreaking street lighting system stands poised to make a substantial impact on the urban infrastructure landscape

II. OBJECTIVES:

The primary objective of this project is to deploy an advanced automated control and fault detection system for street lamps, optimizing energy efficiency and ensuring cost-effective street lighting while offering a swift response to faults and mitigating errors associated with manual operation. Leveraging the Internet of Things (IoT), the system incorporates real-time weather data to determine optimal ON/OFF states using a Light Dependent Resistor (LDR) sensor for light detection. Daylight triggers an OFF status, conserving energy, while darkness activates the street lights. The system continuously monitors the lamps, generating alerts if deviations occur. SMS notifications are then sent to ward members and service engineers for quick fault resolution. Data from LDR sensors is securely stored in the cloud, allowing remote access for monitoring, analysis, and optimization, contributing to safer and energy-efficient urban lighting.

III. METHODOLOGY- PROPOSED SYSTEM:

a. System Architecture and Weather Sensing:

The system is underpinned by meticulously designed Arduino programming, enabling precise control of street lighting. It incorporates a Light Dependent Resistor (LDR) to continuously monitor ambient light levels. This LDR data is used to distinguish between daytime and nighttime conditions, facilitating informed decisions for street lamp activation.

b. Automated Street Lamp Control:

The system automates street lamp control, eliminating the need for manual operation. During nighttime, it activates street lights, enhancing energy conservation and safety. In contrast, during daylight hours, the system intelligently deactivates street lamps to reduce energy consumption when natural light is sufficient.

c. Fault Detection and Alerting:

Beyond control, the system offers fault detection by monitoring LDR values. When non-functional street lamps are identified, the system promptly sends alert messages via a GSM module to predefined recipients, ensuring swift maintenance and enhancing urban safety.

d. Cloud-Enabled Remote Access and Data Storage:

The system connects to cloud storage through a Wi-Fi module, providing users with real-time access to the street lighting system's status from anywhere. The Wi-Fi module also serves as a data storage solution, ensuring secure storage of sensor data for efficient management and historical data retrieval.

e. Innovative Urban Street Lighting Solution:

This methodology represents a transformative innovation in urban street lighting, characterized by energy-efficient

AUTOMATIKA
2024, VOL. 65, NO. 3, 852–865
https://doi.org/10.1080/00051144.2024.2321807

Removal of salt and pepper noise using adaptive switching modified decision-based unsymmetric trimmed median filter optimized with Hyb-BCO-FBIA

S. Mohan[a] and B. Paulchamy[b]

[a]Department of Electronics and Communication Engineering, Nehru Institute of Engineering and Technology, Coimbatore, Tamilnadu, India; [b]Department of Electronics and Communication Engineering, Hindusthan Institute of Technology, Coimbatore, Tamilnadu, India

ABSTRACT

An intriguing area in the IP (image processing) is the recovery of noisy photographs from the noise caused by the salt and pepper. As the mistake rate rises and the image format varies, the issue with the current task does not go away. In this study, Salt and Pepper Denoising, Hybrid Balancing Composite motion Optimization with Adaptive Switching Modified Decision based Unsymmetric Trimmed Median Filter and Forensics-Based Investigation Algorithm is proposed (R-SPN-ASMD-UTMF-Hyb-BCO-FBIA). Initially, the input images are obtained from boat-types-recognition dataset, cat-breeds-dataset, cars-image-dataset, butterfly-images 40-species dataset and birds-200 dataset. The images are pre-processed through an ASMD-UTMF filter. ASMD-UTMF does not expose any adoption of optimization systems to calculate the optimal parameters. Therefore, the proposed Hyb-BCO-FBIA is employed for optimizing the ASMD-UTMF weight parameters. The suggested system is implemented on MATLAB and the assessment metrics as Mean Square Error (MSE), Structural similarity index measurement (SSIM), Peak signal to noise ratio (PSNR), Normalized cross-correlation (NC), Image Enhancement Factor (IEF), Mean Square Error (MSE) are analysed. The proposed method attains higher PSNR, NC related with other SOTA (State-Of-The Art) methods.

ARTICLE HISTORY
Received 27 October 2023
Accepted 16 February 2024

KEYWORDS
Adaptive switching modified decision based unsymmetric trimmed median filter; balancing composite motion optimization; forensic-based investigation algorithm; salt and pepper noise

1. Introduction

In the digital world, a general difficulty is that images with noise are degraded during transmitting, receiving and storage periods. There are several noises acquired in the images particularly SPN (Salt and Pepper Noise), which alters grey values and affects the pixels of the images so it does not show the grey values to the nearby locality [1]. These noises are caused due to the error that occurs in the transmission channel or noisy sensors. Generally, the SPN is reduced through their high energy and small duration of impulse noise [2]. There are several approaches employed for removing the SPN from the pictures. There are two main techniques in the removal of noise. One is a linear filter and the other is a non-linear filter. A linear filter (LF) is used for blurring the images and a non linear filter (NLF) is used to remove the noise [3]. A small amount of noisy pixels is replaced through the median value at a low density of noise but it fails to replace with a higher density of noise because it needs a larger window size to degrade the noise. Hence the correlation between the replaced and noisy median values is less compared to the low density of pixels. In this technique, the corrupted pixels are replaced with the median pixel values of a filtering window, which finds out the nearby locality of pixels by keeping the filtering window size fixed to calculate a median intensity level for replacing the pixel value. Image noise removal has been taken as a significant task in image processing. During the pre-processing stage in the IP, image denoising may look after edges, textures, and other image details [4]. SAP noise generally exists on natural images, and pixels contaminated by SAP noise take the maximal or minimal value that may be denoted from black or white points.

To eliminate Salt-and-Pepper noise, many computational systems have been presented. These filtering techniques may restore image detail well at low noise intensity, but execute poorly at high noise intensity. As a result, the earlier strategies raised the rate of mistakes and failed to achieve sufficient efficiency by removing salt and pepper noise in the original image, which motivated us to carry out this work.

In this manuscript, the removal of salt and pepper noise with ASMD-UTMF optimized with hybrid balancing composite motion optimization and a forensic-based investigation algorithm is proposed. Initially, the input images are taken from the boat-types-recognition dataset, cat-breeds-dataset, cars-image-dataset, butterfly-images40-species dataset and birds-200 dataset. The images received from the data centre

CONTACT S. Mohan smohan2507@gmail.com Department of Electronics and Communication Engineering, Nehru Institute of Engineering and Technology, Coimbatore, Tamilnadu, 641105, India

Published: 2024-06-20

DOI: https://doi.org/10.56294/sctconf2024934

Enhancing industrial security with iot-based passive intrusion detection and segmentation

By Arunkumar S., Gowtham M.S., Revathi N., Krishnaprasath V.T.,

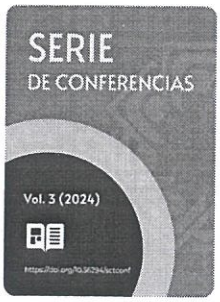
PDF (ESPAÑOL (ESPAÑA))

HTML

Abstract

Introduction: Passive intrusion detection in industrial environments can be challenging, especially when the area being monitored is vast. However, with the advent of IoT technology, it is possible to deploy sensors and devices that can help with mass segmentation of passive intrusion. Hence, this approach deploys ML (Machine Learning) algorithm as improvised (Convolutional Neural Network) CNN support for identifying and avoid illegal access to critical areas in real time, ultimately improving security and safety in industrial environments. Methods: In turn the proposed algorithm can detect patterns and anomalies that could indicate a passive intrusion. In order to discover the patterns and connections between the various sensor data points, DL (Deep Learning) techniques like CNNs, Recurrent Neural Networks (RNNs), and Autoencoders (AE) may be trained on massive datasets of sensor data.
Results: Then, the robust technique DL (Deep Learning) can be utilized for ID (Intrusion Detection) the industrialized settings, when specifically combined with other IoT devices like sensors and alert systems. Thus, the model is trained and tested. Finally, it achieved 98.51% and 94.85% accuracy accordingly.
Conclusion: These frameworks after the completing training phase can be employed for the novel sensor data's actual analysis and also for the anomalies detection as it reveals a potential ID.

Keywords: Convolutional Neural Networks (CNN), IoT, Recurrent Neural Networks (RNN), Passive (ID) Intrusion Detection,



Vol. 3 (2024)

SEE FULL ISSUE

How to Cite

MORE CITATION FORMATS

1.
Arunkumar S, Gowtham M, Revathi N, Krishnaprasath V. Enhancing industrial security with iot-based passive intrusion detection and segmentation. Salud, Ciencia y Tecnología - Serie de Conferencias [Internet]. 2024 Jun. 20 [cited 2024 Jul. 20];3:934. Available from: https://conferencias.saludcyt.ar/index.php/sctconf/article/view/934

COPY

Dr. P. MANIIARASAN
Principal
Nehru Institute of Engg. & Technology
T.M.Palayam, Coimbatore - 641 105.

Copyright Notice

Article metrics

Google scholar: See link

Metrics

PDF views	20
HTML views	1

(RNN) y codificadores automáticos (AE) en conjuntos de datos masivos de datos de sensores.
Resultados: luego, la técnica robusta DL (Aprendizaje profundo) se puede utilizar para la identificación (detección de intrusiones) en entornos industrializados, cuando se combina específicamente con otros dispositivos de IoT como sensores y sistemas de alerta. Así, el modelo se entrena y prueba. Finalmente, logró una precisión del 98,51 % y del 94,85 % en consecuencia.
Conclusión: estos marcos después de completar la fase de capacitación se pueden emplear para el análisis real de los datos del nuevo sensor y también para la detección de anomalías, ya que revela una identificación potencial.

Palabras clave: Redes Neuronales Convolucionales (CNN); IoT; Redes Neuronales Recurrentes (RNN); Detección de Intrusiones Pasivas (ID).

INTRODUCTION

The method of avoidance of illegal activities, or loss, or stealing or leaking data of the industrial methods, Net, and properties can be defined as IS (Industrial security). The risk of cyber-attacks is growing in the interconnected world nowadays. Then, it will lead to crucial attacks with loss of efficiency, and affecting the sensitive data.

An effective technique that has the potential for the IS advancements was IoT-based solutions. It can be employed for monitoring and data collection from IS, and also deliver actual time insights in the potential security risks. Monitoring network traffic for the malicious activity despite of creating additional traffic can be accomplished by passive ID. It is the efficient way for the security risks detection and reduction.

The method of segmenting a net into more compressed and isolated can be named as segmentation. It will support in the improvements of IS thereby diminishing the vulnerable attack area, also having the potential breach impacts.

Industrial organizations may improve their protection against those security risks with the IoT-based solutions utilization of the passive ID and segmentation. It will ensure prompt monitoring and reacts to the security risks, and enhancing the total safety status of industrial systems.

IS is paramount in safeguarding against unauthorized access, data breaches, and other malicious activities that could disrupt operations or compromise sensitive information. With the increasing interconnectedness of industrial systems, the risk of cyber-attacks has become a significant concern. In response to these threats, innovative approaches leveraging Internet of Things (IoT) technology have emerged as promising solutions for enhancing industrial security. By deploying sensors and devices throughout industrial environments, organizations can gather real-time data and insights, enabling proactive measures to mitigate security risks. One such approach is passive intrusion detection (ID), which involves monitoring network traffic and identifying potential threats without generating additional traffic or causing disruptions. Passive ID is particularly effective in industrial settings where maintaining operational efficiency is crucial. Segmentation, the process of dividing a network into smaller, isolated segments, plays a vital role in enhancing industrial security. By reducing the attack surface and limiting the potential impact of breaches, segmentation strengthens overall defense mechanisms. In this study, suggesting a novel approach to passive ID in industrial environments with IoT-based solutions and machine learning (ML) algorithms. Specifically, employing CNNs, RNNs, and AEs to analyze massive datasets of sensor data and detect patterns indicative of unauthorized access or anomalies.

Critics study

At the very beginning of the decade, study on the security risks related to IoTat was led by Atzori et al.[1] and Weber[2]. IoT privacy and security issues were briefly discussed by Atzori et al.[1], with an emphasis on RFID and wireless sensor networks (WSNs). Conversely, Weber[2] concentrated on RFID and IoT security laws, privacy laws, and private information safety. Information privacy, safety, and confidence regarding IoT security were discussed by Miorandi et al.[3]

Ziegeldorf et al.[4] researched IoT privacy risks and problems in detail. From the perspective of IoT architecture, Zhao and Ge[5] divided IoT into perception, transport, and application layers and discussed the security issues surrounding each layer. Jing et al.[6] examined each layer's characteristics, security issues, and remedies. IoT security discussions evolved, researchers began to focus on specific technologies and scopes. For instance, Fremantle and Scott[7] we investigated the IoT security middleware, whereas Granjal et al.[8] The investigation pertained to the security aspects of communication protocols utilised in the Internet of Things (IoT). The analysis encompassed the physical and medium access control layers, as well as the IPv6 over Low Power Wireless Personal Area Networks (6LoWPAN) and routing protocol for (LLN) Low power and Lossy Networks RPL. Nguyen et al.[9] focused on the protection against assaults and the security of IoT and

https://doi.org/10.56294/sctconf2024934

Efficient malicious node detection by multi-objective energy trust aware hybrid optimization based maximizing lifetime of wireless sensor networks

Article type: Research Article

Authors: Parthiban, P. (https://content.iospress.com:443/search?q=author%3A%28%22Parthiban, P.%22%29)[*] | Vaisakhi, V.S. (https://content.iospress.com:443/search?q=author%3A%28%22Vaisakhi, V.S.%22%29)

Affiliations: Department of Electronics and Communication Engineering, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu

Correspondence: [*] Corresponding author. P. Parthiban, Assistant Professor, Department of Electronics and Communication Engineering, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu. E-mail parthibanmephd@gmail.com (mailto:parthibanmephd@gmail.com).

Abstract: Wireless sensor network (WSN) collect and detect data in real time, but their battery life limits their lifetime. The CH selection process increases network overhead and reduces lifetime, but it considers node processing and energy limitations. To solve that problem this research methodology proposed Multi Objective Energy trust - Aware Optimal Clustering and Secure Routing (MOETAOCSR) protocol. At first, the trust factors such as direct and indirect factors are calculated. Thus, the calculated values are given as input to the SDLSTM to detect the malicious node and normal node. Here, the network deployment process is initially carried out and then the cluster is formed by HWF-FCM. From the clustered sensor nodes, the cluster head is selected using Golden Jackal Siberian Tiger Optimization (GJSTO) approach. Then, the selection of CH the paths are learned by using the Beta Distribution and Scaled Activation Function based Deep Elman Neural Network (BDSAF-DENN) and from the detected paths the optimal paths are selected using the White Shark Optimization (WSO). From the derived path sensed data securely transferred to the BS for further monitoring process using FPCCRSA. The proposed technique is implemented in a MATLAB platform, where its efficiency is assessed using key performance metrics including network lifetime, packet delivery ratio, and delay. Compared to existing models such as EAOCSR, RSA, and Homographic methods, the proposed technique achieves superior results. Specifically, it demonstrates a 0.95 improvement in throughput, 0.8 enhancement in encryption time, and a network lifetime of 7.4.

Keywords: Four point curve cryptographic and rivest shamir adleman (FPCCRSA), Haversine with weighted function based fuzzy c-means clustering (HWF-FCM), wireless sensor network, Cluster head (CH), sigmoid deep long short term memory (SDLSTM)

DOI: 10.3233/JIFS-236739

Journal: Journal of Intelligent & Fuzzy Systems (https://content.iospress.com:443/journals/journal-of-intelligent-and-fuzzy-systems), vol. Pre-press, no. Pre-press, pp. 1-15, 2024

Published: 04 May 2024

Price: EUR 27.50

Dr. P. MANIIARASAN
Principal
Nehru Institute of Engg & Technology
T.M.Palayam, Coimbatore - 641 105.

IETE Journal of Research >
Latest Articles

40 Views | 0 CrossRef citations to date | 0 Altmetric

Research Article

Firebug Optimized Modified Bee Colony Algorithm for Trusted WSN Routing

M. Alamelumangai & S. Suresh

Published online: 24 Aug 2023

Cite this article https://doi.org/10.1080/03772063.2023.2228749 Check for updates

Abstract

Wireless sensor networks (WSNs) have become a crucial technology because they are used in several contexts, such as public safety, environmental monitoring, healthcare, military operations, and surveillance systems. The applications of WSNs have been increased because they can be deployed in areas where cable and power supply are difficult to use. However, a variety of security assaults can easily penetrate these networks. To solve this problem, a Firebug Optimized Modified Bee Colony algorithm (FOMBC) has been proposed, which achieves the maximum network security goal with lower energy consumption in WSN. The proposed method is carried out into two phases namely Secure node selection and Orthogonal Routing (OR). In the first phase, secure node among the WSN's initial nodes is selected based on characteristics such as trust, delay, and Quality of Services. In the second phase, Firebug Optimized Modified Bee Colony (FOMBC) Optimization technique is used to find optimal route based on factors like trust, distance, latency, and quality of service. The effectiveness of the proposed FOMBC

ScienceDirect

Groundwater for Sustainable Development

Volume 25, May 2024, 101098

Research paper

Mapping of groundwater availability in dry areas of rural and urban regions in India using IOT assisted deep learning classification model

Senthilkumar S [a], A. Basi Reddy [b], Anna Alphy [c], Jayaraj Velusamy [d], Indra J [e], Manikandan Rajagopal [f]

Show more

https://doi.org/10.1016/j.gsd.2024.101098

Get rights and content

Highlights

- DL-GWCM-IoT improves groundwater in arid zones of rural and urban Indian areas.
- To enhance the precision and effectiveness of groundwater availability mapping.
- WQI evaluates the quality of water resources, improves secure and enduring utilization.
- Improves cost-efficient IoT sensors, data quality and accessibility of groundwater resources.

Abstract

Groundwater is a crucial resource for fulfilling the water requirements of India's rural and urban areas. The heterogeneous nature of geological, hydrological, and climatic factors results in substantial variability in the accessibility of groundwater across disparate regions. The present investigation centers on the cartography of groundwater accessibility in arid zones of rural and urban Indian areas using a Deep Learning Classification Model (DL-GWCM) supported by the Internet of Things (IoT). The introductory section underscores the importance of groundwater in India, where groundwater sources cater to around 80% of rural and 50% of urban water demands. The text highlights statistical data derived from surveys that indicate a notable decrease in groundwater levels. This underscores the pressing necessity for implementing effective monitoring and management strategies. The DL-GWCM is a proposed solution that aims to enhance the precision and effectiveness of groundwater availability mapping by incorporating IoT technology and Deep Learning Classification. The DL-GWCM comprises multiple constituent elements, such as Groundwater Prediction, Water Quality Index, and Conventional Neural Network- Bidirectional Long Short-Term Memory (CNN–Bi LSTM) classification. The process of Groundwater Prediction involves the utilization of past data and environmental factors to make precise forecasts of groundwater levels. The Water Quality Index evaluates the quality of subsurface water resources, guaranteeing their secure and enduring utilization. The Deep Learning Classification Model with IoT technology was implemented for groundwater accessibility mapping in Indian arid zones. It integrates Groundwater Prediction, Water Quality Index, and CNN–Bi LSTM classification. The model makes precise forecasts using past data and environmental factors, ensuring secure water quality. Using the CNN–Bi LSTM classification model improves the precision of groundwater availability mapping due to its resilient classification capabilities. These findings suggest that the DL-GWCM outperforms conventional approaches. The mean values of all five metrics for the proposed method are presented as follows: The performance metrics of the model are as follows: Root Mean Square Error (RMSE) of 0.77%, Mean Absolute Error (MAE) of 2.13%, Relative Absolute Error (RAE) of 8.72%, Root Relative Squared Error (RRSE) of 0.92%, and Correlation Coefficient (CC) of 0.92. The results of the proposed methodology facilitate the discernment of regions with abundant or scarce groundwater accessibility, thereby supporting the sustainable management and planning of groundwater resources.

Graphical abstract

Dr. P. MANIARASAN
Principal
Nehru Institute of Engg & Technology
T.M.Palayam, Coimbatore - 641 105.

The Scientific Temper (2023) Vol. 14 (3): 909-915
Doi: 10.58414/SCIENTIFICTEMPER.2023.14.3.54
E-ISSN: 2231-6396, ISSN: 0976-8653
https://scientifictemper.com/
RESEARCH ARTICLE

Assessment of noise levels by using noise prediction modeling

Santosh K. Sahu[1*], B. R. S. Kumar[2], Y. A. Parvez[3], Ashish Verma[4]

Abstract

The third-most dangerous type of pollution, after air and water pollution, according to the World Health Organization, is noise pollution. Brief and prolonged exposure to noise pollution can have negative consequences on people, including psychological disorders, including anxiety and depression, hypertension, hormonal imbalances, and a rise in blood pressure that can result in cardiovascular disease. The WHO estimates that up to 40% of individuals in Europe are currently exposed to loud noises. This study makes an effort to predict noise levels in and around the School of Architecture and Planning (SAP) campus using data on traffic volume and flow, vehicle speed, and geometric mean of the road. Additionally, it does a comparison between the expected and actual noise levels and offers workable noise reduction techniques. A mathematical model that takes into consideration has been used to forecast the equivalent noise level. By comparing the expected and actual noise levels, it was found that all values are beyond the permitted limits. Five different locations within SAP were used to assess the amount of noise present. The Lobby recorded the highest and lowest noise levels, respectively, at 75.63 and 74.15 dB (A). There were 73.05, 71.01, 71.81, and 70.5 dB (A) accordingly as the strongest noises in the classroom and auditorium. The maximum noise levels in the library was 63.76 and 64.54 dB (A), respectively. A maximum noise level of 75.29 and 68.14 dB (A) was recorded for the studio.

Keywords: Observed and predicted noise levels, Noise pollution, Modeling.

Introduction

The majority of vehicle noise emissions that harm people's physical and mental health are traffic noise emissions, which are on the rise due to increased car ownership and urbanization. Ondo's central business district (CBD) has been continuously subjected to commercial activity and road traffic due to the growth and expansion of the economy, which has raised the traffic noise level. The amount of traffic was found to be greater than the WHO-permitted level, which resulted in an increase in traffic noise. At the ondo CBD, traffic noise models were created using empirical methods from the calculation of road traffic noise (CoRTN) model and the statistical multiple linear regression (MLR) modeling approaches where the roadside location has been evaluated at 90% more than the allowed limit by the WHO (Fidem 2022).

The increase in urban populations worldwide has led to the growth of cities that are essential for offering employment, housing, and sustainable livelihoods. Sun, He, Zhang, & Wang (2016); Zhou, Chen, & Zhang (2016); Forman & Wu (2016); He *et al.* (2018); Peng (1997). It is not always given the attention it needs to the impacts of noise pollution on a healthy urban lifestyle. The increasing noise levels in urban settings require greater investigation due to their site-specific character to apply efficient control measures or enhance municipal land use planning (Masum 2021). The annex III rule, which was created in response to the most recent WHO recommendations about the negative health impacts of noise pollution, also specifies procedures for determining the severity of sickness brought on by exposure to various levels of noisy surroundings. Policymakers now have a new concern: the estimation of the disease burden related to background noise. The cost of this problem has not yet been completely understood, and interdisciplinary approaches and solutions will be necessary to address it 2020 for Caesar Asensi.

[1]Department of Mechanical Engineering, Veer Surendra Sai University of Technology, Burla, Odisha, India.

[2]Department of Aeronautical Engineering, Nehru Institute of Engineering And Technology, Coimbatore, Tamil Nadu, India.

[3]Department of Mechanical Engineering, SNS College of Technology, Coimbatore, Tamil Nadu, India.

[4]Department of Physics, Dr. Harisingh Gour Vishwavidyalaya, Sagar, Madhya Pradesh, India.

***Corresponding Author:** Santosh K. Sahu, Department of Mechanical Engineering, Veer Surendra Sai University of Technology, Burla, Odisha, India, E-Mail: sahunitrkl@gmail.com

How to cite this article: Sahu, S.K., Kumar, B.R.S., Parvez, Y.A., Verma, A. (2023). Assessment of noise levels by using noise prediction modeling. The Scientific Temper, **14**(3): 909-915.

Doi: 10.58414/SCIENTIFICTEMPER.2023.14.3.54

Source of support: Nil

Conflict of interest: None.

Received: 10/07/2023 **Accepted:** 05/08/2023 **Published:** 25/09/2023

The Scientific Temper (2023) Vol. 14 (3): 826-833
Doi: 10.58414/SCIENTIFICTEMPER.2023.14.3.41
E-ISSN: 2231-6396, ISSN: 0976-8653
https://scientifictemper.com/
RESEARCH ARTICLE

Synthesis and characterization of ZnO, ZnO doped Ag_2O nanoparticles and its photocatalytic activity

V. Samuthira Pandi[1*], B. R. Senthil Kumar[2], M Anusuya[3], Annu Dagar[4]

Abstract

Zinc oxide (ZnO) has a variety of characteristics, including optical, electrical, mechanical, thermal, and structural. Nanoparticles (NPs) play a big part in many different industries. The current research focuses on producing ZnO Nps for photocatalytic dye degradation activities. Ag_2O-doped ZnO was produced together with three other different types of ZnO NPs. Nps as well as pure ZnO nanocrystals, were recovered using chemical and biological methods. The SEM study supported the chemical evolution of the ZnO nanorod-like structure, which exhibits enhanced photocatalytic activity. It was predicted that chemically produced ZnO Nps would have 34 nm, the typical particle size. X-ray diffraction analysis was used to identify Ag_2O/ZnO nanoparticles in their hexagonal configuration. The particle size ranged from 16 to 17 nm, which was shown to be the norm. The findings of the SEM study further demonstrate that the created Ag_2O doped ZnO Nps agglomerated into hexagonal forms, stuck together as bulks and rods, and grew in size in proportion to the Ag nanofluids. We conclude that hexagonal and rod-shaped Ag2O/ZnO Nps aggregates work well as photocatalytic catalysts. Approximately 25 mL of ZnO-doped Ag_2O nanofluid is a powerful photocatalyst for oxidizing organic dyes and is suitable for large-scale applications.

Keywords: TEM, Photocatalysis, Doping, Zinc oxide, Nanoparticles.

Introduction

As a result of their diverse applications in science as well as their unique characteristics, NPs have recently received a lot of attention (Alhokbany *et al.*, 2022). The behavior of materials at the nanoscale, which is commonly discovered to have particularly desirable characteristics, is influenced by size confinement, the dominance of interfacial processes, and quantum effects. Zinc oxide (ZnO) is an n-type semiconductor with a significant exciton binding energy of roughly 60 meV and a large direct band gap of 3.37 eV (Chakraborty, U *et al.*, 2021). This has created numerous new opportunities for numerous applications, including piezoelectric transducers, photocatalysts, and light-emitting diodes. Many scientists are now fascinated by the photocatalytic and antibacterial characteristics of ZnO particles (Rosman N *et al.*, 2019). Radiation exposure causes ZnO's valence band and conduction band to produce two positive holes and electrons (Noelson E. *et al.*, 2022). The positive hole and electron cause OH radicals to form as a result of their secondary interactions (Ding *et al.*, 2019). Degradation of organic pollutants occurs when they interact with the potent oxidant OH radical. ZnO cannot be used as a photocatalyst under visible light due to its 3.3 eV wider band gap (Khalid *et al.*, 2021).

Numerous methods, which may be further broken down into physical, biological, and chemical processes, can be used to create ZnO nanocrystals (Rosman *et al.*, (2018). Chemicals, including zinc nitrate, sodium hydroxide, ammonium hydroxide, organic amines, and zinc acetate dehydrate, are often used in solution-based synthesis methods (Shume, W. M. *et al.*, (2020). Scientists are hunting

[1]Centre for Advanced Wireless Integrated Technology, Chennai Institute of Technology, Chennai, Tamil Nadu, India
[2]Department of Aeronautical Engineering, Nehru Institute of Engineering And Technology, Coimbatore, Tamil Nadu, India.
[3]Department of Physics, Indra Ganesan College of Engineering, Tiruchirappalli, Tamil Nadu, India.
[4]Department of Electrical and Electronics Engineering, Maharaja Surajmal Institute of Technology, Janakpuri, New Delhi, India
***Corresponding Author:** V. Samuthira Pandi, Centre for Advanced Wireless Integrated Technology, Chennai Institute of Technology, Chennai, Tamil Nadu, India, E-Mail: samuthirapandiv@citchennai.net

How to cite this article: Pandi, V.S., Kumar, B.R.S., Anusuya, M., Dagar, A. (2023). Synthesis and characterization of ZnO, ZnO doped Ag2O nanoparticles and its photocatalytic activity. The Scientific Temper, **14**(3): 826-833.
Doi: 10.58414/SCIENTIFICTEMPER.2023.14.3.41
Source of support: Nil
Conflict of interest: None.

Received: 05/07/2023 **Accepted:** 13/08/2023 **Published:** 25/09/2023

Irish Angelin Scwartz, Naren Shankar Rathakrishnan*, Sathish Kumar Kumar, Vijayaraja Kengaiah and Rathakrishnan Ethirajan

Effect of velocity ratio and Mach number on thin lip coaxial jet

https://doi.org/10.1515/tjj-2023-0086
Received October 6, 2023; accepted October 17, 2023;
published online November 16, 2023

Abstract: The effect of nozzle lip thickness and velocity ratio on coaxial subsonic jet mixing, at different Mach numbers, has been studied experimentally and numerically. Decay of coaxial subsonic jets emanating from coaxial nozzles of lip thickness 0.7, 1.7 and 2.65 mm with velocity ratio (VR) from 0.2 to 1.0 at primary jet exit Mach numbers of 0.6, 0.8 and 1.0 has been studied. Free jet without co-flow (VR0) was also studied for comparison. Jet centerline Mach number decay, turbulence and velocity variation in the radial direction are analyzed. The results show that mixing the coaxial jet at a low-velocity ratio is better than a high-velocity ratio, at all Mach numbers of the present study. The nozzle lip thickness has a significant influence on the secondary jet. Mixing of the jet in the presence of VR0.2 coaxial jet is found to be the highest. Characteristic decay of Mach 0.8 and 1.0 jet for lip thickness 1.7 and 2.65 mm is faster than lip thickness 0.7 mm. For a given lip thickness, increasing of velocity ratio is found to retard the mixing between primary and secondary jets.

Keywords: coaxial flow; velocity ratio; thin lip thickness; jet spread; shear layer

***Corresponding author: Naren Shankar Rathakrishnan**, Professor, Department of Aeronautical Engineering, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Chennai, India, E-mail: rnarenshankar@gmail.com. https://orcid.org/0000-0002-3363-4478
Irish Angelin Scwartz, Department of Aeronautical Engineering, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Chennai, India, E-mail: irishangelin@gmail.com. https://orcid.org/0000-0002-7708-0227
Sathish Kumar Kumar, Department of Aeronautical Engineering, Nehru Institute of Engineering and Technology, Coimbatore, India, E-mail: satz_aero@yahoo.com
Vijayaraja Kengaiah, Department of Aeronautical Engineering, KCG College of Technology, Chennai, India, E-mail: kvijayraja@gmail.com
Rathakrishnan Ethirajan, Department of Aerospace Engineering, Indian Institute of Technology, Kanpur, India, E-mail: erath@iitk.ac.in

List of abbreviations

CDR	Characteristic decay region
CFD	Computational fluid dynamics
CFJ	Co-flow jet
FDR	Fully developed region
FMZ	Fully merged zone
IMZ	Initial merging zone
IZ	Intermediate zone
k-ω	Turbulent kinetic energy in joule – turbulent dissipation in joule
LT	Lip thickness
PCFJ	Percentage co-flowing jet
PCL	Potential core length
RSM	Reynolds-stress model
SA	Spalart-Allmaras
SST	Shear-stress transport
VR	Velocity ratio

1 Introduction

Subsonic and correctly expanded sonic coaxial jets, due to the presence of primary and secondary jet flow, generate a complex flow structure in the near field. Coaxial jets result in the formation of three regions namely; the initial merging zone (IMZ), intermediate zone (IZ) and fully merged zone (FMZ) as shown in Figure 1. The IMZ extend to the potential core of the secondary jet, IZ extends till the secondary and primary jets merge and thereafter coalesce to form combined jet in some axial extend, resulting in the formation of fully merged zone Ko and Kwan [1]. Several studies have been done on correctly expanded subsonic and sonic jets to understand the complex flow physics Papamoschou and Roshko [2], Zaman and Papamoschou [3], Papamoschou and Nish Kerley [4], Papamoschou [5], Zaman and Dahl [6]. In co-flow jets (CFJ), the lip thickness that separates the primary and the secondary nozzle plays an important role in dictating the characteristic features of co-flowing jets. There is no proper definition to distinguish between thick and thin lips. A thick lip (approximately greater than or equal to around 3 mm) has a wake-dominant flow at the lip region whereas in a thin lip (from lip 0.7 mm to around lip 3 mm) coaxial nozzle the flow near the lip behaves as a shear-dominant flow. The finite lip CFJ results in the formation of a recirculation zone on the nozzle wall. This recirculation zone extends as the lip

Investigation of slanted perforation diameter in tabs for supersonic jet control

Ezhilmaran G.
Department of Aeronautical Engineering, Mangalore Institute of Technology and Engineering, Moodabidri, India and
Department of Mechanical Engineering, Rajalakshmi Engineering College, Chennai, India

Sekar S.
Department of Mechanical Engineering, Rajalakshmi Engineering College, Chennai, India

Sathish Kumar K.
Department of Aeronautical Engineering, Nehru Institute of Engineering and Technology, Coimbatore, India, and

Thanigaiarasu S.
Department of Aerospace Engineering, Madras Institute of Technology, Anna University, Chennai, India

Abstract

Purpose – This study aims to investigate the effect of slanted perforation diameter in tabs for the control of Mach 1.4 underexpanded supersonic jet flow characteristics.

Design/methodology/approach – Numerical investigation was carried out for NPR 5 to analyze the effect of slanted perforation diameter in tabs to control the Mach 1.4 jet. Four sets of tabs with slanted circular perforation geometries (Φ_p = 1, 1.5, 2 and 2.5 mm) were considered in this study. The inclination angle of 20° (α_P) with reference to the jet axis was maintained constant for all the four tabs considered.

Findings – Determined value indicates there is a 68%, 71%, 73% and 75% drop in supersonic core for the Φ_p = 1, 1.5, 2.0 and 2.5 mm, respectively. The results show that the tabs with 2.5 mm perforation diameter were found to be efficient in reducing the supersonic jet core in comparison with other tab cases. The reduction in supersonic core length is due to the extent of miniscule vortices exuviating from slanted small and large diameter perforation in the tabs.

Practical implications – The concept of slanted perforation can be applied in scramjet combustion, which finds its best application in hypersonic vehicles and in noise suppression in fighter aircraft.

Originality/value – Slanted perforation and circular shapes with different diameters have not been studied in the supersonic regime. Examining the effect of circular diameter in slanted perforation is an innovation in this research paper.

Keywords Slanted perforation, Mixing, Shear layers, Impingement, Momentum transfer

Paper type Research paper

Nomenclature

p_{0X} = Stagnation pressure along *X/D* location;
p_{0Y} = Stagnation pressure along *Y/D* location (normal to tab axis);
p_{0Z} = Stagnation pressure along *Z/D* location (along the tab axis);
p_0 = Design stagnation pressure;
L = Length of the tab, mm;
T = Thickness of the tab, mm;
W = Width of the tab, mm;
NPR = Nozzle pressure ratio;
D = Exit diameter, mm;
W = Width of the tab, mm;
Φ_p = Slanted perforation diameter in the tabs, mm;
α_P = Angle of perforation, degree;
X/D = Axial position;
Y/D = Radial position (normal to tab axis); and
Z/D = Radial position (along the tab axis).

1. Introduction

The supersonic jets are not similar to subsonic jets due to presence of shock waves. A faster decay of such jets will happen only if it exploits the better momentum transfer with its still environment. If the decay of such jets confiscates in a slower trend, then it is aggressive to the environment. Jets with agile decay are more enticing for the following reasons: aeroacoustic problems, wobbly pressure loads on the aircraft nozzle and

The current issue and full text archive of this journal is available on Emerald Insight at: **https://www.emerald.com/insight/1748-8842.htm**

Aircraft Engineering and Aerospace Technology

[ISSN 1748-8842]
[DOI 10.1108/AEAT-11-2022-0304]

The financial support provided by University Grants Commission, India (No. F MRP 6149/15, SERO/UGC) is gratefully acknowledged.

Conflict of interest statement: The authors declare no conflicts of interest regarding this article.

Received 15 November 2022
Revised 8 March 2023
3 April 2023
Accepted 12 April 2023

Dr. P. MANIIARASAN
Principal
Nehru Institute of Engg. & Technology
T.M.Palayam, Coimbatore - 641 105.

Sathishkumar et al. 2023. *Int. J. Vehicle Structures & Systems*, 15(6), 773-778
ISSN: 0975-3060 (Print), 0975-3540 (Online)
doi: 10.4273/ijvss.15.6.07

International Journal of Vehicle Structures & Systems
Available online at https://yanthrika.com/eja

Sonic Under-Expanded Co-Flowing Jet Mixing Characteristics with Varying Lip Thickness

K. Sathishkumar[a,c], R. Narenshankar[b], B.R. Shabharish[a], S. Neraiwin[a], S. Poornisha[a] and N. Venkatacharan[a]

[a]*Dept. of Aero. Engg., Nehru Institute of Engg. & Tech., Coimbatore, Tamil Nadu, India*
[b]*Dept. of Aero. Engg., Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Sci. & Tech., Avadi, Tamil Nadu, India*
[c]*Corresponding Author, Email: satz_aero@yahoo.com*

ABSTRACT:

This article presents the jet mixing characteristics of sonic under expanded co-flowing jet by means of varying the lip thickness between the primary and secondary nozzle. The lip thicknesses between the nozzles chosen were $0.3D_p$ and $1.5D_p$ and their jet mixing characteristics is studied numerically for the nozzle pressure ratio of 5. The jet mixing effectiveness in the axial and radial directions were analysed by the total pressure decay plots and contours of Mach number, density gradient and turbulent kinetic energy. The results exhibit that, for the reduced lip thickness of $0.3D_p$, the core of the primary jet is increased due to the encasing given by the surrounding jet. For the dominant lip thickness of $1.5D_p$, the primary jet core is reduced due to the strong interaction between the primary and co-flowing jet. The various jet mixing phenomenon like shear layer between surrounding jet and atmosphere, recirculation zone and Mach disk were also analysed from the contour plots.

KEYWORDS:

Control; Turbulence; Lip thickness; Wake; Shear layer; Co-flow; Recirculation; Mach disk; Shock

CITATION:

K. Sathishkumar, R. Narenshankar, B.R. Shabharish, S. Neraiwin, S. Poornisha and N. Venkatacharan. 2023. Sonic Under-Expanded Co-Flowing Jet Mixing Characteristics with Varying Lip Thickness, *Int. J. Vehicle Structures & Systems*, 15(6), 773-778. doi:10.4273/ijvss.15.6.07.

1. Introduction

Jet control is essential to improve the performance of many engineering systems working with fluids. It was noted that jet control leads to the increased rate of mixing with the ambient fluid thereby reducing the jet noise of aerospace thrusters. Active control of jets involves external sources like air tabs [1, 2]. Passive control of jets uses geometric modifications. Some commonly used passive control methods are chevrons [3], castellation [4], subsonic co-flow with varying lip thickness [5-10], supersonic co-flow with tabs [11-18], notched or grooved nozzles [19-21], cross wires at nozzle exit [22-23], etc. The sonic under-expanded jet has a complex shock cell structure at the jet core due to the pressure imbalance leading to the formation of expansion waves at the jet exit. These expansion waves are reflected as weak compression waves after meeting the jet boundary. The weak compression waves, when united forms intercepting shocks, leaving a periodic shock cell structure in the under-expanded jet core [2]. Co-flowing jet is considered one of the viable passive control techniques. The jet surrounded by an annular jet is termed as a co-flowing jet. The distance between the primary nozzle and secondary duct is called the lip thickness.

The flow leaving the rocket nozzle, missiles, aircraft engine and fuel injectors, into the flow at a finite velocity are some of the aerospace applications of co-flowing jets. The co-flowing jet alters the jet structure without or minimum thrust loss when compared with the placement of mechanical tabs at the nozzle exit; to gain the mixing efficiency owing to no blockage offered by tabs. The co-flowing jet alters the jet near field shock structure to a greater extent [24]. They reported that the co-flowing jet elongates the core of the primary jet of about 104%, inhibiting the jet mixing for the over-expanded case. Papamoschou [25] studied co-flowing jets with 0.7mm lip thickness and observed 80% increase in core length compared to single free jet. The bypass ratio chosen for the study is 6, which is typically used in turbofan engines. Papamoschou [26] studied the mixing characteristics of co-flowing jet and documented the suppression of Mach wave emission because of the surrounding jet. Lovaraju and Rathakrishnan [27] analysed subsonic and sonic under-expanded co-flow jet with lip thickness of 2.65mm. The authors reported that the core length increase only 40% for correctly expanded sonic jets. This core length has been lower than previous case [25] because of increased lip thickness (2.65 mm) and reduced velocity of only 40% of that of main jet.

Srinivasarao et al [28] analysed co-flow jet from orifices, with lip thickness 1.5 mm and 4.5 mm. They concluded that 4.5 mm lip is a better mixing promoted than 1.5 mm. Srinivasarao et al [29] studied co-flowing jets with $0.3D_p$ and $1.5D_p$ lip similar to the present work. However, their bypass ratio is very low value less than unity. For NPR 7, 50% reduction in potential core is achieved (from 160 mm to 80 mm). Authors [5-10] also

Sathishkumar et al. 2023. *Int. J. Vehicle Structures & Systems*, 15(4), 505-509
ISSN: 0975-3060 (Print), 0975-3540 (Online)
doi: 2010.4273/ijvss.15.4.10

International Journal of Vehicle Structures & Systems
Available online at https://yanthrika.com/eja

Jet Mixing Characteristics of Ventilated Chevron Nozzles

K. Sathishkumar[a], S. Nigamanth, V. Sneha, S. Vigneswaran and B. Sharan

Dept. of Aero. Engg., Centre for Computer Aided Engg. Res., Nehru Inst. of Engg. and Tech., Coimbatore, Tamil Nadu, India
[a]Corresponding Author, Email: satz_aero@yahoo.com

ABSTRACT:

This article presents the numerical investigation on jet mixing characteristics of ventilated chevron nozzles. The ventilations provided at the root of the chevron petal are called root ventilated chevron nozzle and the ventilation provided at the tip of the chevron petal is called tip ventilated chevron nozzle. To measure the jet mixing effectiveness of the root ventilated and tip ventilated nozzles, the results were compared with the plain chevron nozzle without ventilation. Total pressure decay profiles and turbulent kinetic energy profiles along the jet axis were studied for all the cases of the jet. The reduction in the core for the root and tip ventilated chevron nozzle when compared to the plain chevron nozzle is 21.5% and 14.4%. Radial total pressure profiles at different axial locations of the jet and total pressure contours were also studied. From the pressure profiles and contours, it is evident that root ventilated chevron nozzle enhances the mixing, when compared to other chevron configurations. The mixed size vortices generated from the root ventilated chevron edges are more capable to enhance the mixing when compared to other cases.

KEYWORDS:

Ventilation; Root; Tip; Chevron nozzle; Mixing

CITATION:

K. Sathishkumar, S. Nigamanth, V. Sneha, S. Vigneswaran and B. Sharan. 2023. Jet Mixing Characteristics of Ventilated Chevron Nozzles, *Int. J. Vehicle Structures & Systems*, 15(4), 505-509. doi:10.4273/ijvss.15.4.10.

1. Introduction

The Latin word "chevron" refers to the saw-tooth-like structure seen in contemporary jet engines along the perimeter of the nozzle exhaust and finishing in a triangular shape. Its design is straight forward, a lightweight frame serves as a jet noise-cancelling mechanism. Modern jet engines have chevrons, which are zigzag or bare teeth shapes with pointed points at the trailing edge of the nozzle. Chevrons are a type of dynamic gas equipment used to smoothen vertical flow and reduce noise caused by flow interactions. They work by mixing two flows with different velocities, creating stream-wise vortices in the shear layer and promoting mixing through triangle cuts along the nozzle's trailing edge. This shortens the duration of the jet plume and increases the rate of turbulent shear layer mixing with the surrounding air, reducing low frequency mixing noise caused by extremely turbulent flows. The issue of jet mixing and noise reduction is covered in a sizable and technically sound body of literature. From early studies that demonstrated the importance of nozzle design in reducing jet noise to the most recent advancements in the study of chevrons. Research in this area has advanced significantly utilizing contemporary simulation methods. Therefore, knowledge of these improvements is essential for comprehending the mechanisms used in jet noise reduction and for knowing the extent of future efforts.

Mullick [1] used STAR-CCM+ to study and compare the baseline nozzle and investigated the effects of new chevron models in subsonic jets. The outcomes of a particular nozzle's numerical analysis are then contrasted with its PIV outcomes. Author reported that the magnitude of noise produced directly correlates with turbulent kinetic energy. The twisted chevron nozzles showed the highest reduction peak in the amount of turbulent kinetic energy produced in the fluid domain. Zaman et al [2] offered a comprehensive analysis of the development of jet noise reduction technology over time. Typically, aggressively penetrating tabs were the ancestor of chevron nozzles. The tabs were extensively explored for mixing augmentation in jets throughout 1980s and 1990s. In the 1990s, Zaman created the first delta tabs and a chevron vortex generator prototype. The authors resemble the modern chevron because they are essentially triangular tabs inclined downstream and have lower penetration angles than conventional tabs. The tab was tilted backward, or towards downstream flow, having a favourable impact. Thus the optimum delta tabs for creating vortices were discovered. NASA studied chevrons in 1990s and discovered that slight penetration decreases thrust loss. The prototypes were eventually applied to actual aircraft.

Parametric testing on chevrons on single-flow hot jets was studied by James et al [3]. Different geometric parameters that approximated diverse flow characteristics and far-field noise were tested. Each model also has varied chevron symmetry, length, penetration angle and count. The 850°F heated air in the single-flow hot jet variant includes nozzles installed on 150mm diameter inlet pipes with a 5° lip section. For measuring, utilizing a microphone and adopting particle image velocimetry (PIV), far-field acoustics were needed. The positive impact of the increased chevron penetration was observed. The insensitivity of centerline

International Journal of Heat and Fluid Flow 107 (2024) 109386

Contents lists available at ScienceDirect

International Journal of Heat and Fluid Flow

journal homepage: www.elsevier.com/locate/ijhff

Effect of increasing bypass ratio on supersonic co-flowing jet with finite lip thickness

V.G. Ganesan [a], R. Naren Shankar [b], K. Satish Kumar [c], Naveen Kumar Gupta [d], R. Balaji [e], Rahul Kumar [e], Tabish Alam [f], Dan Dobrotă [g,*]

[a] Kumaraguru Centre for Industrial Research and Innovation, Kumaraguru College of Technology, Chinnavedampatti, Coimbatore, Tamil Nadu, India
[b] Department of Aeronautical Engineering, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Avadi, Chennai, Tamil Nadu, India
[c] Department of Aeronautical Engineering, Nehru Institute of Engineering and Technology, T.M Palayam, Coimbatore, Tamil Nadu, India
[d] Harcourt Butler Technical University, Kanpur 208002, Uttar Pradesh, India
[e] School of Mechanical Engineering, Lovely Professional University, Phagwara, Punjab 144001, India
[f] Architecture, Planning and Energy Efficiency, CSIR-Central Building Research Institute, Roorkee 247667, Uttarakhand, India
[g] Faculty of Engineering, Department of Industrial Engineering and Management, Lucian Blaga University of Sibiu, 550024 Sibiu, Romania

ARTICLE INFO

Keywords:
Supersonic core length
Bypass ratio
Co-flow jet
Lip thickness
Nozzle pressure ratio

ABSTRACT

The article presents the investigation on the effect of increasing bypass ratio on a supersonic co-flowing jet with finite lip thickness for a jet exit Mach number of 2.0. Co-flowing jets of differing bypass ratios (BR = m_s/m_p, where m_s and m_p are the mass flow rate of secondary and primary jets, respectively) 3.69, 9.0, and 16.0 were employed to explore the impact of high bypass secondary jets on the primary jet. A single-jet BR 0 is used for comparison. The supersonic core lengths of the single jet and the co-flow jet for BR 3.69, BR 9.0, and BR 16.0 were metrics for quantifying the mixing. The surrounding jet enhances the wake dominance in the nozzle lip, and the supersonic core length shortens. High bypass co-flowing jets are extremely efficient at shortening the supersonic core length compared to the low bypass counterpart, and hence, the jet mixing increases. The radial Mach number profiles quantitatively represent different zones in the co-flowing jet. The variation of these zones with bypass ratios highlights the dynamic interaction between the primary and secondary jets. The physical reason for apparent jet mixing and flow categories has been discussed based on considerations about changes in the flow field and shock structure.

1. Introduction

Recently, supersonic passenger/cargo aircraft have needed the hour and are under development. Around half of the aircraft noise comes from the supersonic turbofan engine exhausts (Supersonic-plane-travel-concorde). Passive control methods like lobes (Bridges and Wernet, 2021), tabs (Perumal et al., 2020), rectangular-shaped co-flowing nozzles (Murugesan et al., 2021), and triangular-shaped co-flowing nozzles (Sureshkumar and Sridhar, 2019). Arun Kumar Perumal et al. (Perumal et al., 2020) experimentally analyzed the supersonic (Mach 1.4) inner jet and surrounding sonic jet with and without the presence of tabs. Lip thickness in this study was 3.2 mm, with a bypass ratio of around 1.9 to 2.5. Due to the appearance of surrounding flow, the primary jet core elongated without tabs because the surrounding jet diminishes the primary shear layer's growth. Tabs in the main nozzle were more efficient than tabs in both nozzles.

Sureshkumar and Sridhar (Sureshkumar and Sridhar, 2019) conducted supersonic co-flow jet experiments with Mach 1.8 inner nozzle and outer duct (width 7.3 mm) with lip thickness LT = 11.135 mm. Compared to a single free jet (Potential Core Length = 7.45 D_p), the co-flowing jet reduces the potential core of the plane (Potential Core Length = 4.13 D_p), which is an 80.43 % contraction in potential core length (PCL). In the lip region, they observed a wave system and vortices. This region interacts with the primary supersonic jet, reducing the supersonic core length. Similarly, triangular core jet experienced pronounced core length reduction compared to circular counterparts.

Co-flowing jets are used in dual-mode scramjets. A recent study showed that the co-flowing nozzle rim (lip thickness) acts as a flame-holding device for better mixing (Sarathkumar Sebastin et al., 2021). Before two and a half decades, Papamoschou (Papamoschou, 1997) described that high bypass outer flow is more affordable in reducing jet

* Corresponding author.
E-mail addresses: ngupta@hbtu.ac.in (N. Kumar Gupta), tabish.iitr@gmail.com (T. Alam), dan.dobrota@ulbsibiu.ro (D. Dobrotă).

https://doi.org/10.1016/j.ijheatfluidflow.2024.109386
Received 30 September 2023; Received in revised form 12 April 2024; Accepted 14 April 2024

Journal of the Brazilian Society of Mechanical Sciences and Engineering (2024) 46:30
https://doi.org/10.1007/s40430-023-04615-x

TECHNICAL PAPER

AA4032-TiC-h-BN-related composites: a machine learning model-based experimental study with performance prediction

T. S. Senthilkumar[1] · R. Muralikannan[2] · M. Sridharan[3] · S. Senthil Kumar[3] · S. Rathinavel[4] · V. Vignesh Kumar[1]

Received: 10 December 2022 / Accepted: 23 November 2023

Abstract
This study attempts to investigate the geometrical tolerance of AA4032-based metal matrix composites (MMC) machined using EDM. Two variants of AA4032-based composites are created with titanium carbide (TiC) and boron nitride (BN) using stir casting method. Before machining through EDM, the composites are examined for mechanical properties. Eighty-one experiments are designed and conducted to explore the geometrical tolerance recorded during EDM under the considered operating conditions. From the experiments, it is inferred that adding TiC particles to AA4032 base composites increases the tensile and hardness. At the same time, geometric tolerance decreases with the addition of TiC wt% and increases with the BN wt% towards the base composites. As a secondary objective, this study designed and developed two neural network-based machine learning models to predict the geometric tolerance recorded by the real-time EDM. For this, current, pulse on time, and gap voltage are considered as input. Circularity, cylindricity, perpendicularity and overcut are considered as the outputs. Both the proposed models recorded an overall prediction accuracy of around 99%. To ensure the results predicted by NN models, validation experiments are conducted and compared with the model-predicted results. The results of validation experiments are in line with the results predicted by the model.

Keywords Geometrical tolerance · Mechanical properties · EDM · Neural network model · Prediction and accuracy

1 Introduction

Researchers identified geometric tolerance as the most significant concern in the product development process [1]. In manufacturing industries, tolerance is considered an important term and thus tolerance should take into account the constrained capabilities of the manufacturing process that are required. Generally, in industries, the manufacturing of automobile parts, i.e. cylinder liners is extremely developing at an exponential rate, hence there is a necessity in focusing on the accuracy of the parts [2, 3]. Moreover, the machining of composite materials of complex geometry shapes with higher accuracy has also been taken into account in industries. The accuracy of the parts and machining of composite materials are incapable in the traditional machining process [4]. Modern unconventional machining technologies, such as electrical discharge machining (EDM), can achieve precision on such vehicle parts and the machining of composite materials [5]. Because the cavity obtained in the workpiece is just a replica of the shape of the tool [6]. Hence, no post-finishing is required for the materials machined through the EDM process.

The pulse on time and discharge current are the most important input factors on the geometric tolerance of the borehole, according to Risto et al. [7]. According to Dhanabalan et al. [8], as the pulse current increases, the EWR increases as well, affecting electrode tolerance. The tolerance of the machined hole was also impacted as a result of this. Using multi-hole Cu electrodes, Sandeep

Technical Editor: Izabel Fernanda Machado.

✉ S. Senthil Kumar
senthilkr.d19@gmail.com

1 Department of Mechanical Engineering, K. Ramakrishnan College of Technology, Tiruchirappalli, Tamil Nadu 621 112, India

2 Department of Mechanical Engineering, Sethu Institute of Technology, Pullor, Tamil Nadu 626 115, India

3 Department of Mechanical Engineering, SRM Institute of Science and Technology, Tiruchirappalli Campus, Tiruchirappalli, Tamil Nadu 621 105, India

4 Department of Aeronautical Engineering, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu 641 105, India

Published online: 15 December 2023

Biomass Conversion and Biorefinery
https://doi.org/10.1007/s13399-023-04669-w

ORIGINAL ARTICLE

Cellulosic fiber extraction and characterization from derris scandens (Roxb.) benth root for polymer composite reinforcements

M. Prithiviraj[1] · Rathinavel Subbiah[2] · P. Manimaran[3] · K. Kannan[4]

Received: 25 April 2023 / Revised: 13 July 2023 / Accepted: 19 July 2023

Abstract

The utilization of natural lignocellulosic fibers as reinforcements in polymer composites has become increasingly popular in recent years. This research focuses on investigating the potential of Derris scandens (Roxb.) benth root fiber (DSBFs) as a reinforcing material in thermosetting polymer composites. The study begins by analyzing the properties and composition of DSBFs, using standardized testing methods. The single fiber tensile strength of DSBFs is determined to be 423 Pa at a strain rate of 4.01%, and they exhibit a Young's modulus of 79.45 GPa. Chemical analysis reveals that DSBFs are composed of helically coiled cellulose microfibrils, constituting 72.59 wt.%, held together by an amorphous lignin matrix and contain 9.69 wt.% hemicellulose and a low wax content of 0.3 wt.%. Thermal stability (TGA) analysis demonstrates that the fibers exhibit stability up to 340 °C, with a mass loss of 43.78%. X-ray diffraction analysis confirms the crystalline index of 18.16 nm and a crystalline size of 49.28%. 13C (CP-MAS) NMR spectroscopy yields the evidence for the presence of cellulose, hemicellulose, and lignin in DSBFs. Fourier-transform infrared spectroscopy (FTIR) identify functional groups and elemental composition of DSBFs. Surface morphology is analysed by atomic force microscopy (AFM) and optical microscopy. These findings suggest that DSBFs can find applications beyond their traditional use in Thai medicine.

Keywords *Derris scandens (Roxb.) benth* root fiber · Characterization · AFM · NMR · Optical microscopy · FTIR

1 Introduction

At present, there is a high demand for natural fiber-oriented materials due to their renewability and problem-free disposal. Although natural fibers show some lack of repeatability, they are more ecological and offers various other benefits when compared to synthetic fibers [1]. As such, natural fibers are being proposed as an appropriate alternative to synthetic fibers for many end products [2]. Natural fibers have significant features such as being low cost, biodegradable, light in weight, having a high strength-to-weight ratio, abundant availability, lower energy requirements for processing, low density, recyclability, non-corrosiveness, eco-friendliness, ease of handling, and lack of health-hazard components compared to synthetic fibers [2, 3]. Owing to these factors, natural fiber-based polymer composites have found major applications in the automobile, industrial, packaging, home appliances, construction, aeronautics, and naval industries [4] (Singh et al. 2018).

Natural fibers can be extracted from different parts of plants like barks, stems, leaves, roots, fruits, flowers, and seeds. Some previously experimented examples of plants from which fibers extracted are Azadirachta indica, Cordia dichotoma, Sida Cordifolia, Grewia optiva, Grewia tiliifolia, Prosopis juliflora, Sansevieria ehrenbergii, Luffa cylindrica, and Furcraea foetida [5]. These fibers have been found to be of great strength in polymer composites from various studies [6].

The length, diameter, and arrangement of cellulose in natural fibers from plants with longer lifespans are usually have a low spiral angle [7]. These plants grow

✉ M. Prithiviraj
m.v.prithiviraj@gmail.com

1 Department of Mechanical Engineering, Kamaraj College of Engineering and Technology, Virudhunagar, Tamilnadu, India

2 Department of Aeronautical Engineering, Nehru Institute of Engineering & Technology, Coimbatore, Tamilnadu, India

3 Department of Mechanical Engineering, Karpagam Institute of Technology, Coimbatore, Tamilnadu, India

4 Department of Mechatronics Engineering, Kamaraj College of Engineering and Technology, Virudhunagar, Tamilnadu, India

Published online: 01 August 2023

Biomass Conversion and Biorefinery
https://doi.org/10.1007/s13399-023-04658-z

ORIGINAL ARTICLE

Development and analysis of environmental friendly biocomposite films with pomegranate peel as filler for conventional applications

S. Rathinavel[1] · T.S. Senthilkumar[2] · S.S. Saravanakumar[3] · S. Senthil Kumar[4] · J. Prinsula[1] · Claudia Barile[5]

Received: 1 June 2023 / Revised: 14 July 2023 / Accepted: 17 July 2023

Abstract

The work aims to probe the chances of utilizing the waste of pomegranate peel powder as a filler material alongside the polymer matrix. PVA is used as a polymer matrix in this study and the improvisation of its properties are the main objective by utilizing the pomegranate peel powder. By solution casting method, PVA/PP biocomposite films were prepared with varying weight % (0%, 5%, 10%, 15%, and 20%) of pomegranate peel powder and are examined with FTIR, XRD, morphological studies, thermal analysis, tensile property, antibacterial test, and degradation test. The biodegradable films' tensile strength was discovered to be 18.5 MPa, a 35% increase over films devoid of essential oil. The use of essential oil improved the thermal stability as well; the beginning degradation temperature increased by 40% to 210°C. Additionally, antimicrobial tests showed a 92% decrease in bacterial growth, demonstrating the essential oil's effectiveness as an antibacterial agent. In order to evaluate the barrier qualities of the films, water vapor permeability was tested. It was discovered that the water vapor transfer rate was 2.3 g/m^2/day, demonstrating remarkable resistance to moisture permeability. The aforementioned tests indicate that the use of pomegranate peel powder and PVA in biocomposite films results in improved biodegradation, as well as antibacterial activity, and that can be utilized in various eco-friendly applications. In the same way, they show improved tensile as well as thermal properties which suggest the utilization as packaging materials.

Keywords Biofilm · Degradation property · Water vapor permeability · Polyvinyl alcohol · Tensile property

1 Introduction

From the usage of plastics, human society has gained many advantages. Because plastics provide tremendous flexibility and manufacturability, although it has become more harmful to the environment [1]. Moreover, the plastic materials get infected by food materials while packaging and biological substances, so the recycling process is difficult. Hence, it is a necessity to employ an alternative material that causes negligible effects to the environment and for food packaging application [2]. Keeping this statement in mind, at present the researchers have focused on developing biodegradable polymer materials [3]. The reason for focusing on the area of biodegradable polymers is due to application for food packaging materials in the form of composite films, layer-by-layer films, active films, etc. [4].

To form such biodegradable polymer films, at least one biopolymeric material is required as a matrix phase. The most used matrix materials are poly(oxyethylene), polysaccharides, polypropylene carbonate, polyvinyl alcohol (PVA), hydroxyl ethyl alcohol polylactic acid, etc. [5]. From the above-said categories of matrix materials, PVA is used in the food packaging application because of its excellent properties such as enhanced mechanical properties, physical absorption, polarity and biocompatibility in nature [6, 7]. PVA is synthetic and water-soluble which is obtained from vinyl acetate polymerization [8].

✉ S. Rathinavel
rathinavelaero59@gmail.com

1 Department of Aeronautical Engineering, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu 641 105, India

2 Department of Mechanical Engineering, K. Ramakrishnan College of Technology, Tiruchirapalli, Tamil Nadu, India

3 Department of Mechanical Engineering, Sree Sowdambika College of Engineering, Aruppukottai, Tamil Nadu 626 134, India

4 Department of Mechanical Engineering, SRM Institute of Science and Technology, Tiruchirapalli Campus, Tiruchirappalli, Tamil Nadu 621 105, India

5 Dipartimento di Meccanica, Matematica e Management, Politecnico di Bari, viale Japigia 182, 70126 Bari, Italy

Published online: 27 July 2023

Biomass Conversion and Biorefinery
https://doi.org/10.1007/s13399-023-04435-y

ORIGINAL ARTICLE

Utilization of bio-waste material pomegranate peel powder along with silver nitrate and polyvinyl alcohol to form a hybrid biofilm

S. Rathinavel[1] · S.S. Saravankumar[2] · T.S. Senthilkumar[3] · Claudia Barile[4] · S. Senthil Kumar[5] · M. Prithviraj[2]

Received: 29 March 2023 / Revised: 29 May 2023 / Accepted: 31 May 2023

Abstract
This work aims to convert the bio-waste material into a fruitful product. This prepared product can be a solution for environmentally hazardous materials like polymer bags and plastic food wrappers. The prepared material is composed of bio-waste pomegranate peel powder and environmentally friendly polyvinyl alcohol. To extend its functionality in food wrappers, the silver nitrate solution is incorporated. The prepared samples were undergone various performance studies. The prepared films show high thermal with standing capacity and tensile properties and especially show better results in biodegradability as well as antibacterial activity. Among the fabricated films, the 5 mM $AgNO_3$-fabricated film shows that the thermal stability up to 331 °C also possesses higher tensile strength of 25.7 MPa. These results make the possibilities of the fabricated PP/PVA/5 mM AgNPs film as an alternative for conventionally used plastic-based food wrappers.

Keywords Films · Thermal properties · Polyvinyl alcohol · Biodegradability · Antibacterial

1 Introduction

Polymers have been used for a long time of period as a packaging material due to their flexibility, lightness, transparency, and softness. Moreover, there are serious ecological issues because of their non-biodegradability which causes hazards to human health [1]. Hence, the world is moving to an eco-friendly polymer material which has biodegradable properties for packaging applications. Moreover, the polymer material possesses compostability property which allows it to dispose of in the soil after usage [2]. Therefore, in this study, we have planned to prepare an eco-friendly bio-based polymer material with biodegradable and compostability properties for packaging applications.

The bio-based polymer materials are used as a matrix for the preparation of biofilm as food packaging. As discussed above, the selection of polymer material is significant which means that it possesses the property such as biodegradability or compostability. Furthermore, bio-based polymers should have excellent mechanical and physical absorption properties. Naturally, these two properties are present in polyvinyl alcohol (PVA) polymer [3, 4]. Moreover, the PVA material is a synthetic, water-soluble material made by polymerizing vinyl acetate with excellent film formation capacity [5]. Hence, PVA is used as matrix material in this study for the preparation of food packaging film. Furthermore, to enhance the biodegradability, composability property, and mechanical properties, the matrix material is combined with a variety of biodegradable filler materials, including inorganic fillers (clay, calcium carbonate, etc.), natural fillers (plants, waste from wood, and fruits), metallic (palladium, silver, gold, nickel and cobalt) fillers, and nonmetallic (graphene, CNT) fillers [6]. PVA's characteristics and utilizations have been improved by the addition of various biodegradable filler ingredients [7–9].

✉ S. Rathinavel
rathinavelaero59@gmail.com

1 Department of Aeronautical Engineering, Nehru Institute of Engineering & Technology, Coimbatore, Tamil Nadu, India

2 Department of Mechanical Engineering, Kamaraj College of Engineering and Technology, Virudhunagar, Tamil Nadu, India

3 Department of Mechanical Engineering, K. Ramakrishnan College of Technology, Tiruchirappalli, Tamil Nadu, India

4 Dipartimento di Meccanica, Matematica e Management, Politecnico di Bari, viale Japigia 182, 70126 Bari, Italy

5 Department of Mechanical Engineering, SRM Institute of Science and Technology, Tiruchirappalli Campus, Tiruchirappalli, Tamil Nadu 621 105, India

Published online: 07 June 2023

Evaluation of Mechanical, Microstructural and Tribological Properties of ADC-12 Composite Reinforced With TiO_2 and WC

J Arun Prakash [1,3, a)], S Tamil Selvan [1], A Arulkumar [2], K Kousika [2]

[1]*Hindusthan Institute of Technology, Coimbatore, Tamil Nadu, India - 641028*

[2] *Karpagam Academy of Higher Education, Coimbatore, Tamil Nadu, India - 641021*

[3]*Nehru Institute of Engineering and Technology, Coimbatore - 641105, Tamil Nadu, India.*

[a)] *Corresponding author: arunprakash@live.in*

Abstract In this study, the stir casting method is used to create a unique composite and its properties were analysed. This composite consists of pure Aluminium (melting point of 660.4 °C) as the base or matrix metal and Titanium dioxide as reinforcement along with Tungsten Carbide as a compound binder manufactured by the stir casting method. This casting process is relatively inexpensive, simple, and adaptable to large amounts of production. Here the reinforcements TiO_2 and WC (in powder form) have been added to the heated aluminium metal in its molten state to form the composite. The fabricated specimens are subjected to mechanical and tribological tests. The findings are compared to pure aluminium and analysed. The study showed that the mechanical properties of ADC12 + 6% WC + 6% TiO_2 composite material are high in terms of tensile strength, compressive strength, and hardness.

INTRODUCTION

Aluminium has a low density, is lightweight, has high thermal conductivity, easy to cast and has excellent corrosion resistance. The most important cast aluminium alloy system is ADC 12 with a composition of Silicon < 12 % [1]. The major drawback of aluminium alloys is their performance at high temperatures and inferior wear resistance. The major solution that is employed to overcome the drawbacks in aluminium alloys is by reinforcing them with ceramic particles, known as metal matrix composites (MMCs) [2]. A composite material is a constitution of two or more materials. Materials with dissimilar chemical and physical properties are combined to form a new material with different properties. Composite materials applications range from buildings, boats, aircraft, automobiles etc., When three materials are intended to form a new material, it is called hybrid material. ADC 12 is a composite matrix that is a composition of aluminium alloy and silicon. ADC 12 is lightweight, ductile, and has high thermal conductivity and corrosion resistance. Titanium dioxide and tungsten carbide are used as reinforcement to increase the possibilities of improving the mechanical properties of Al to meet the requirement of various applications. In this study, Tungsten Carbide and Titanium dioxide are added to Aluminium. Tungsten Carbide in the ratios of 2%, 4%, 6% and Titanium dioxide in the ratios of 3%, 6% and 9% by weight to form a composite and then to test and analyse its mechanical, tribological and microstructural properties so that it proves to overcome the limitations of ADC 12.

LITERATURE SURVEY

The Mechanical properties of HAMNCs (Hybrid Aluminium matrix Nano Composites) such as microhardness yield strength, ultimate tensile strength, percentage of elongation and ultimate compression strength on hybrid nanocomposites resulted in elevated properties [3]. The increase in the percentage of reinforcements resulted in a reduction in wear resistance in contrast with base alloy and matrix and reinforcements showed a strong bonding around the grain boundaries where there is a homogenous distribution of reinforcements. Graphene Nanoparticles

International Conference on Minerals, Materials and Manufacturing Methods (ICMMMM)
AIP Conf. Proc. 2861, 040004-1-040004-8; https://doi.org/10.1063/5.0159876
Published by AIP Publishing. 978-0-7354-4601-4/$30.00

RESEARCH ARTICLE

DOI: 10.54392/ijmrd2422

INDIAN JOURNAL OF
MULTILINGUAL RESEARCH AND DEVELOPMENT

Tamil Architecture Technology

தமிழர்களின் கட்டிடக்கலை தொழில்நுட்பம்

A. Deepak [a,*]

[a] Department of Science and Humanities, Nehru Institute of Engineering and Technology, Coimbatore-641105, India.

*Corresponding author Email: deepakani@gmail.com

DOI: https://doi.org/10.54392/ijmrd2422

Received: 30-01-2024; Revised: 21-04-2024; Accepted: 27-04-2024; Published: 10-05-2024

Abstract: No one can dispute the fact that the Tamil race is a tribe with a distinct culture which reached the pinnacle of cultural development centuries ago. The Tamils had attained a high status in the fields of language, literature and art even in the pre christian centuries and had been settled in a particular land for a very long time. There is no doubt that many buildings have been constructed. Tamil architecture is the art and science of designing ancient Tamil buildings. The study of Tamil architecture and technology is multidimensional in-depth and contains a wide range of intellectual concepts. In this article, we will study in detail the history, technological advancements of Tamil architecture and their cultural significance.

Keywords: Culture, Tamil Architecture, Intellectual Concepts, Ancient Tamil

Language: Tamil

முன்னுரை

தமிழினம் தனித்துவம் வாய்ந்த ஒரு பண்பாட்டைக் கொண்டதும், பல நூற்றாண்டுகளுக்கு முன்பே பண்பாட்டியல் வளர்ச்சியில் உச்சத்தைத் தொட்டதுமான தொல்குடி என்பதில் யாருக்குமே மாற்றுக் கருத்து இருக்க முடியாது, மொழி, இலக்கியம், கலை போன்ற துறைகளில் கிறிஸ்துவுக்கு முந்திய நூற்றாண்டுகளிலேயே உயர்நிலை எட்டியிருந்தவர்கள் தமிழர்கள், மிக நீண்ட காலமாகவே ஒரு குறிப்பிட்ட நிலப்பகுதியில் நிலையாக வாழ்ந்துவருபவர்கள் இத்தகைய பின்னணியிலே, மக்கள் வாழ்வதற்கான இல்லங்களும், அரசர்களுக்கான மாளிகைகளும்,

←Climbing Adaptation of Kalithogai

RESEARCH ARTICLE

DOI: 10.54392/ijot2422

Asian Research Association

INDIAN JOURNAL OF TAMIL

கலித்தொகை சுட்டும் ஏறுதழுவல்

அ. தீபக் [அ,*]

[அ] அறிவியல் மற்றும் இதர மானிடவியல் துறைகள், நேரு பொறியியல் மற்றும் தொழில்நுட்பவியல் நிறுவனம், கோயமுத்தூர்-641105, இந்தியா

Climbing Adaptation of Kalithogai

A. Deepak [a,*]

[a] Department of Science and Humanities, Nehru Institute of Engineering and Technology, Coimbatore-641105, India.
*Corresponding author Email: deepkani@gmail.com
DOI: https://doi.org/10.54392/ijot2422
Received: 04-03-2024; Revised: 02-05-2024; Accepted: 12-05-2024; Published: 19-05-2024

Abstract: Kalittokai is one of the ancient Tamil literature collections of Ettuthogai. Kalithogai, a compilation of poems by many poets, contains 150 poems composed of caliphate composed of sound melodious and taravu, tazhisa, monosol and suritakam. Tolkappiyar mentions the Kalippa and the Paripadal as the appropriate forms of texting in the field of subjects. Kalithokai is a book sung by a song and known for its hymns. Kaikkilai, Perunthinai and Madaleruthu, which are not mentioned in other Akatthinai texts, occur only in Kalithogai. It can also be said to be a lover's introduction. Through these songs, the earliest moral traditions, events, traditions and also the glorious adaptation of Tamil and Tamils are found in Kalithogai.

Keywords: Kalittokai, Tamil literature, Traditions, Kalippa

முன்னுரை

கலித்தொகை தொன்மை காலத் தமிழிலக்கியத் தொகுதியான எட்டுத்தொகை நூல்களுள் ஒன்றாகும். பல புலவர்களின் பாடல்கள் அடங்கிய தொகுப்பு நூலான கலித்தொகையில் ஓசை இனிமையும், தரவு, தாழிசை, தனிச்சொல், சுரிதகம் என்னும் சிறப்பான அமைப்புகளால் அமைந்த கலிப்பாவினால் ஆன 150 பாடல்கள் உள்ளன. அகப்பொருள் துறை பாட ஏற்ற யாப்பு வடிவங்களாக கலிப்பாவையும், பரிபாடலையும் தொல்காப்பியர் கூறுகிறார். துள்ளலோசையால் பாடப்பட்டு

Inorganic Chemistry Communications
Volume 162, April 2024, 112197

Short communication

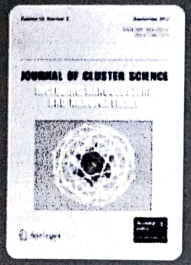
Photocatalytic degradation of tetracycline hydrochloride using pure and copper-doped magnesium ferrite nanoparticles: Efficiency, kinetics and mechanism

L. Rajadurai [a], Chandra Sekhar Dash [b], S. Revathi [c], A. Tony Dhiwahar [d], M. Sundararajan [e], Parkavi Ravisankar [f], Jagadeesh Kumar Alagarasan [g],

Investigation of Visible Light Driven Photocatalytic Activity of Mn Doped $CuFe_2O_4$ Nanoparticles

Original Paper | Published: 27 November 2023

Volume 35, pages 779–798, (2024) Cite this article



Journal of Cluster Science

Aims and scope →

Submit manuscript →

A. Tony Dhiwahar, S. Revathi, N. Mohamed Basith, Jothi Ramalingam Rajabathar, Hamad Al-Lohedan, M. Kamalakannan, M. Sundararajan, Chandra Sekhar Dash, R. Srimathi, Gulja S. Nair, Muthusamy Karnan & J. Rajadurai

Dr. P. MANIARASAN
Principal
Nehru Institute of Engg. & Technology
T.M.Palayam, Coimbatore - 641 105.

WORLD JOURNAL OF PHARMACY AND PHARMACEUTICAL SCIENCES

ISSN 2278-4357 Impact Factor : 8.025 www.wjpps.com editor@wjpps.com

ISO 9001: 2015 Certified Journal

Publication Certificate

This is to certify that Article entitled

"EFFICACY OF NANOPARTICLE SYNTHESIZED SPINACH VARIETY IN BIOREMEDIATION OF COPPER FROM CONTAMINATED WATERS"

With Manuscript no. **WJPPS/27195/13/2024** By

Y. Sameena

has been published in **WORLD JOURNAL OF PHARMACY AND PHARMACEUTICAL SCIENCES**

(**VOLUME 13, MAY ISSUE 5**) after getting reviewed by three reviewers.

Editor in Chief

World Journal of Pharmacy and Pharmaceutical Sciences ★ WJPPS

Dr. P. MANIIARASAN
Principal
Nehru Institute of Engg & Technology
T.M.Palayam, Coimbatore - 641 105.

Managing Editor

Technische Sicherheit ISSN NO: 1434-9728/2191-0073

Nanophysics: Exploring the Quantum at the Small Scale

P.Periasamy, N.Sathiyapriya

Department of Physics, Nehru Institute of Engineering and Technology, T.M.Palayam, Coimbatore-641105, Tamil Nadu, India

Keywords: Nanophysics, Nanostructures, Quantum structure, Information science

Abstract

Exploring the Quantum at the Small Scale takes us on an exciting journey into the unexplored world of quantum events on the nanoscale. This domain is where traditional laws of physics no longer dominate, and the mysterious quantum realm takes precedence. The unusual behaviors of matter at the nanoscale are coming to light, challenging our conventional knowledge of what occurs worldwide. The review embrace of quantum physics offers a portal to a universe with unmatched promise. In this domain, particles dance in quantum entanglement, superpositions confound the imagination, and uncertainties blur the distinction between wave and particle. Through cutting-edge research and groundbreaking experiments, readers will explore the complex interaction of atoms, molecules, and nanoscale structures. Nanophysics encompasses various subfields, such as quantum computing, nanoelectronics, quantum optics, and nanomaterials. Exploring these subfields sheds light on the intriguing applications that have the potential to transform computing, communication, and medicine. Discovering answers to questions like quantum coherence, decoherence, and tunneling processes may lead to a comprehensive comprehension of the most fundamental laws that govern nature. The ramifications of nanophysics go beyond just satisfying scientific curiosity. As we consider the moral and philosophical implications of quantum technologies, we must proceed with extreme caution as we traverse the unknown seas of quantum security and privacy to create a quantum future that is both responsible and egalitarian.

1. Introduction

1.1.The World of Nanoscale Phenomena

Nanoscience and nanotechnology are cutting-edge sciences that investigate and manipulate matter on a nanoscale, leading to a wide range of technical improvements and novel applications. The study of phenomena and the manipulation of materials at the nanoscale, which generally ranges from one to one hundred nanometers, is known as nanoscience. The development of nanotechnology includes the conceptualization, development, and use of resources and systems that perform at the nanoscale. It is important to note that "nano" originates from the Greek word for "dwarf," which highlights the very minute proportions involved. In his presentation given in 1959, Richard Feynman presented the idea of nanoscience for the first time. In the 1980s, the discovery of the scanning tunneling microscope (STM) made it possible for scientists to see and control the behavior of individual atoms, which led to the development of nanotechnology[1].

Nanoscale materials display distinctive properties and behaviors, requiring fundamental concepts for understanding nanoscience and technology.

- **Quantum Effects**: Quantum mechanics significantly impacts nanoscale behavior, influencing particle behavior and electromagnetic interactions, resulting in novel phenomena and properties.

Dr. P. MANIIARASAN
Principal
Nehru Institute of Engg & Technology
T.M.Palayam, Coimbatore - 641 105.

ISSN NO: 1434-9728/2191-0073

The Role of IoT Technology in Modern Day-To-Day Life Process: A Critical Review

P.Periasamy & N.Sathiyapriya

Department of Physics, Nehru Institute of Engineering and Technology, T.M.Palayam, Coimbatore-641105, Tamil Nadu, India

Abstract

An new paradigm known as the Internet of Things (IoT) makes it possible for electrical devices and sensors to communicate with one another via the use of the internet in order to make our lives easier. In order to deliver new solutions to a wide range of difficulties and problems that are associated with a variety of businesses, governments, and public/private enterprises all over the globe, the Internet of Things (IoT) makes use of smart devices and the internet. The Internet of Things (IoT) is gradually becoming an essential component of our lives that can be felt in every nook and cranny of our surroundings. Taking everything into consideration, the Internet of Things (IoT) is a technological advancement that brings together a wide range of intelligent frameworks, smart systems, and sensors. Moreover, it takes use of quantum and nanotechnology in terms of storage, sensing and processing speed which were not possible prior. For the purpose of illustrating the possible efficacy and application of Internet of Things changes, extensive research investigations have been conducted and are accessible in the form of scientific publications and press reports, both on the internet and in the form of printed materials. It might be used as a preparation task prior to the creation of fresh and inventive company concepts, taking into consideration the interoperability, security, and assurance.

Keywords: Internet of Things (IoT), Smart homes, automation, Healthcare technology, Industrial IoT

Dr. P. MANIIARASAN
Principal
Nehru Institute of Engg & Technology
T.M.Palayam, Coimbatore - 641 105.

IJNRD.ORG ISSN : 2456-4184
INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG
An International Open Access, Peer-reviewed, Refereed Journal

Review on Biogenic synthesis of ZnO Nanoparticles and their Characterization and Applications

S.Shalini,[a] D.Tharani,[a] Greeshma[b] and S.Muthulingam[b]*

[a] Department of Chemistry, Nehru Institute of Engineering and Technology, Coimbatore - 636005, Tamilnadu, India

[b] Department of Chemistry, Sri Ramakrishna College of Arts and Science (SRCAS), Coimbatore - 641006, Tamilnadu, India

ABSTRACT

Nanotechnology is the area of contemporary material science, concentrated on the investigation of structure, creation, portrayal and use of materials with nanoscale level. Nanoparticle is a strong molecule that has at any rate one measurement in the nanorange (1-100 nm). Sonochemical based process have been projected as a successful technique for the union and synchronous covering of ZnO, either as smaller scale or nanoparticles, onto grids. This technique has been accomplished by blending ZnO particles with the guide of ultrasonic dealing. The substance initiation during the ultrasonic helped blend strategy is given through the vitality from cavitation bubble breakdown. By giving ultrasonic usage, arrangement, development, and implosive breakdown of air pockets consistently happen in a solvent medium.

KEY WORDS: *ZnO Nanoparticles, Sonochemical based process, Plant Extract, Biogenic Synthesis, SEM, and EDX Analysis.*

1.0 INTRODUCTION

1.1 BIOGENIC SYNTHESIS OF NANOPARTICLES

At the beginning phase, a microscopic organism was utilized for combination of nanoparticles and later continues with the utilization of infection, growths and actinomycetes and now the specialists have been concentrating on the common sources. Plant intervened engineered strategy is outstanding amongst other technique for the long-scale blend and nanoparticles delivered from plant removes are progressively steady with quicker manufactured rate contrasted and microorganism combination .Also, it includes simple accessibility, ease, green methodology, more straight forward down gushing preparing and so on. A solitary advance plant intervened

SHANLAX
International Journal of English

The Impact of Social Media on the Evolution of Language and Communication Trends

C. Alice Evangaline Jebaselvi
Professor, Department of English
Nehru Institute of Technology, Coimbatore, Tamil Nadu, India

K. Mohanraj
Professor, Department of English
Vivekanandha College of Arts and Sciences for Women (Autonomous)
Tiruchengode, Namakkal, Tamil Nadu, India

A. Thangamani
Assistant Professor
Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India

M. Ramesh Kumar
Assistant Professor, Department of English
JCT College of Engineering and Technology, Pichanur, Coimbatore, Tamil Nadu, India

OPEN ACCESS

Manuscript ID:
ENG-2022-12016725

Volume: 12

Issue: 1

Month: December

Year: 2023

P-ISSN: 2320-2645

E-ISSN: 2582-3531

Received: 08.10.2023

Accepted: 16.11.2023

Published: 01.12.2023

Citation:
Jebaselvi, C. Alice Evangaline, et al. "The Impact of Social Media on The Evolution of Language and Communication Trends." *Shanlax International Journal of English*, vol. 12, no. 1, 2023, pp. 41–44.

DOI:
https://doi.org/10.34293/english.v12i1.6725

Abstract

Social media has an unquestionable impact on every aspect of our lives in the quickly changing digital world of the twenty-first century. These social media sites, such as Facebook, Twitter, Instagram, and TikTok, have changed how we interact with one another and permanently altered the way we speak and interact with one another. "The Impact of Social Media on the Evolution of Language and Communication Trends" is a thorough investigation of the complex interaction between the digital world and how we communicate. In addition to giving people a platform to communicate their ideas, opinions, and experiences with a large audience, social media has also sparked the birth of brand-new language in the current digital era, social media has permeated every aspect of our daily lives and significantly impacted how we communicate and the development of language. This abstract examines the complex relationship between social media and the development of language, illuminating how online platforms have shaped communication styles. Social media, linguistic development, and communication styles. The emergence of social media sites like Facebook, Twitter, Instagram, and TikTok has completely changed how we communicate with one another. This change has had a lasting impact on the structure of language itself in addition to the modalities of communication. Language has evolved more quickly thanks to social media's quick distribution of information. With character constraints and instant messaging, abbreviations, acronyms, and emojis have grown ubiquitous, streamlining communication. We investigate how these language advancements are altering how we communicate our thoughts and feelings online. Social media allows for connections between users from different language backgrounds despite geographical barriers. Due to this, hybrid languages have emerged, in which users combine components of many tongues to produce a distinctive digital vernacular. We investigate how linguistic variety is being woven into the fabric of globalization through social media. Communication habits have changed as a result of social media's accessibility and immediate nature. The way we interact with one another now happens in real-time, influenced by threaded discussions, multimedia content, and viral trends. We examine how these altering communication styles impact knowledge sharing, interpersonal interactions, and even societal discourse. This abstract highlights how social media has had a significant impact on linguistic development and communication styles. Language is now a dynamic and developing phenomenon that is being influenced by billions of users throughout the world thanks to the digital age's facilitation of linguistic innovation as well as its democratization.

SHANLAX
International Journal of English

For linguists, communication academics, and anybody interested in the constantly changing nature of human communication in the twenty-first century, understanding the relationship between social media and language evolution is crucial.

Keywords: Social Media, Language, Communication, Networks, Interpersonal, Connecting People.

The way individuals communicate has changed as a result of the expansion of social media platforms during the past two decades. These platforms have given people new ways to interact and exchange society and culture at large.

Abbreviations and acronyms like "LOL" (laugh out loud) and "BRB" (be right back) have become commonplace on social networking sites. These

10

International Journal on Applications in Engineering and Technology
Volume 9 : Issue 4 : September 2023, pp 14 – 18 www.aetsjournal.com ISSN (Online) : 2455 - 0523

Impact of Nautical References in Joseph Conrad Works

A.Thangamani[a*], P.Sheeba[b]

[a] *Department of English, Nehru Institute of Engineering and Technology, Coimbatore-641105*
[b] *Department of English, Kovai kalaimagal college of arts and science, Coimbatore – 641109*

**corresponding author e-mail: searchthangamani@gmail.com*

Abstract

The 18th century saw a dominance of maritime or (nautical writing), which was followed by 19th-century authors. These books explore how human activity affects the environment, society, and economy. This study found that some well-known nautical novels with noteworthy incidents or theories were correlated with the concept approach to the interdisciplinary theory with connection to people's thoughts about the sea, their religious or holistic approaches, and the gender description given to describe the sea to prove that the plot characteristics may differ but the themes relating to such sea novels/aquatic novels are more or less similar to each other One of the best novelists to have written in the English language is Joseph Conrad. Despite receiving British citizenship in 1886, he always identified as a Pole. He was a superb prose stylist who infused English literature with a distinctly non-English sensibility. He writes stories and novels in his native tongue, many of them have a naval backdrop and show the struggles of the human spirit in the face of an unyielding, opaque cosmos. Struggle for identity and allegiance in Joseph Conrad's works is the major topic of this research study.

Keywords: sea, identity, nautical, voyages, narration, maritime

Introduction

Historically, the switch from sail to steam occurred in the middle of the nineteenth century, but it wasn't until the beginning of the twentieth century that the extinction of sail in nautical fiction became more and more apparent, especially in Joseph Conrad's sea novels, which represent the usurpation of the steamship. In a nutshell, when ships switched from sailing to steam propulsion, sailors and sails were replaced by engineers and engines. In charge of loading the ship, navigating,

Dr. P. MANIIARASAN
Principal
Nehru Institute of Engg & Technology
T.M.Palayam, Coimbatore - 641 105.

China Petroleum Processing and Petrochemical Technology

ANALYSIS OF THE OPTICAL CHARACTERISTICS OF POROUS SILICON AND POROUS SILICON MODIFIED WITH POLYMERS

Dr K Kulathuraan, Dr T Jayaprakash, Dr T Arivazhagan, Mrs V Ramya, Mrs A Lakshmi Priya

Abstract

Crystalline, microcrystalline and amorphous silicon have been playing a very important role in many aspects of fundamental and applied research fields as a result of the well-established and relatively cheap technology of this semiconductor element. However, with an energy gap of 1.1 eV, silicon remained up till recently unapplied into optoelectronics, which was reserved to compound semiconductor technologies of which are relatively difficult and, usually, very costly. The discovery of the visible electroluminescent phenomenon in porous silicon (PS) even at room temperature stimulated a great deal of interest. With an energy gap of 0.5 eV greater than its crystalline counterpart, this semiconductor opened up many other application fields such as opto, micro, and nano-electronics. The chapter describes the theoretical calculation of optical properties of porous silicon and polymers treated porous silicon. The Optical properties of porous silicon and polymers treated porous silicon were also depending upon the porosity. It is concluded that the theoretical calculation is a simple way to confirm the experimental results.

Keywords

China Petroleum Processing and Petrochemical Technology

EVALUATING THE ELASTIC PROPERTIES OF POROUS SILICON AND POROUS SILICON SUBJECTED TO POLYMER TREATMENT

Dr K Kulathuraan, Dr T Arivazhagan, Dr K Sivakumar, Dr T Jayaprakash, Mrs S Jenisha

Abstract

The performance of materials in many engineering applications is significantly influenced by their mechanical behavior. Due to its special nanoscale structure and potential for a variety of uses, including microelectronics and sensors, porous silicon has become a material of interest. To realize its full potential, it is essential to comprehend and improve its mechanical qualities. Polymer treatment is a viable method for enhancing porous silicon's mechanical properties. Because of their mechanical adaptability and plasticity, polymers are a good choice for altering the characteristics of porous silicon. We seek to examine the effects of various treatments on the elastic properties of porous silicon, such as stiffness and resilience. In this study, we conduct a thorough analysis of the elastic characteristics of porous silicon that has not been treated and porous silicon that has been modified using polymers. With chances for innovation and technological advancement, our study aims to offer useful insights into the possible enhancements and applications of these materials in the fields of materials science and engineering. The chapter describes the theoretical calculation of elastic properties of porous silicon and polymers treated porous silicon. The Elastic properties of porous silicon and polymers treated porous silicon were also depending upon the porosity. It is concluded that the theoretical calculation is a simple way to confirm the experimental results.

Keywords

Porous Silicon (PS), Polymers treated porous silicon, Elastic Property, Etching time, PMMA & PVC Concentrations

Full Text:

PDF

Dr. P. MANIARASAN
Principal
Nehru Institute of Engg & Technology
T.M.Palayam, Coimbatore - 641 105.

VOLUME 46 • SPECIAL ISSUE • JUNE, 2023

ISSN 0971-3034

THE INDIAN JOURNAL OF TECHNICAL EDUCATION

Published by
INDIAN SOCIETY FOR TECHNICAL EDUCATION
Near Katwaria Sarai, Shaheed Jeet Singh Marg,
New Delhi - 110 016

Dr. P. MANIIARASAN
Principal
Nehru Institute of Engg. & Technology
T.M.Palayam, Coimbatore - 641 105.

Inorganic and Nano-Metal Chemistry >
Latest Articles

Research Article

Interaction of Atorvastatin-loaded magnetic iron oxide nanoparticles with DNA

Sameena Yousuf

a Department of Science and Humanities, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India

ed online: 22 Oct

https://doi.org/10.1080/24701556.2023.2274457

Check for updates

HOST-GUEST INCLUSION COMPLEXATION BETWEEN B-CYCLODEXTRIN AND SOME CHROMENONES: 2D ROESY INVESTIGATION

Y SAMEENA
Department of Science and Humanities, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu

ISRAEL V M V ENOCH
Centre for Nanoscience & Genomics, Karunya Institute of Technology and Sciences (Deemed University), Coimbatore, Tamil Nadu

ABSTRACT

Cyclodextrin can act as a host and form Host: Guest inclusion complexes with chromenones. The spectroscopic response, crystallite size, and the structural orientation of β-cyclodextrin-Chromenones inclusion complex are resolved by fluorescence, X-ray diffractometry, and nuclear magnetic resonance spectroscopy. The bond length and width of the chromenones for their encapsulation towards β-cyclodextrin are checked by Rasmol 2.7.5.2. Concrete evidences of the Host: Guest inclusion complexes formed between β-cyclodextrin and chromenones are acquired from Two dimensional rotating-frame nuclear over-hauser effect correlation spectroscopy and the supported structures are reported.

Keywords : β-cyclodextrin, Chromenones, Inclusion complex, Structure, 2D ROESY

INTRODUCTION

Flavonoids are plant-derived pharmacologically active compounds. They possess a sound medicinal value and attract interest as effective anti-cancer molecules [1, 2]. Primarily, flavonoids contain phenolics that is responsible for its antioxidant properties. Research work has been made to comprehend the connections between structure, action and pharmacokinetics of bioactive flavonoids [3]. The molecular encapsulation of flavanone, flavone, and flavonols in free-, β-cyclodextrin (β-CD) complexed forms is reported by us and other research groups [4-9]. The inclusion complex assists in the sustained release of therapeutically interesting guest molecules. A nanocomposite of macromolecules made out of β-CD has been reported by Heydari et al, 2018 [10]. β-CD offers a hydrophobic interior that enables the formation of Host:Guest inclusion complexes with drug molecules [11]. β-CD is employed to extract the guest molecule loaded in the magnetic nano particles [6-8]. The stoichiometry and geomtery of the β-CD in the inclusion complex play a crucial role in deciding the strength and the site of the molecule that bind to the macromolecules. The present work deals with the validation of structure of some β-CD bound Chromenones (CHRs) viz., 2'-hydroxyflavanone (2-hydroxyphenyl-2,3-dihydro-4H-Chromen-4-one, HC), Hesperetin (5,7-dihydroxy-2-(3-hydroxy-4-methoxyphenyl) -2, 3 dihydro-4H chromen-4-one, DC), Naringenin (5,7-dihydroxy-2-(4-hydroxyphenyl)-2, 3-dihydro-4H- chromen-4- one, DHC), Naringin (5-hydroxy-2-(4-hydroxyphenyl)-4-oxo-3,4-dihydro-2H-chromen-7-yl-2-O-(6-deoxy-α-L-mannopyranosyl)-β-D-Glucopyranoside, HHCG), 6-methoxyflavone (6-methoxy-2-phenyl-4H-Chromen-4-one, MC) (Fig. 1) by two dimensional rotating-frame nuclear over-hauser effect correlation spectroscopy (2D ROESY). The β-CD bound CHRs are prepared and studied by different methods and is characterized applying spectral techniques [12-14]. In general, utilizing UV-Visible absorption and fluorescence procedures, the stoichiometry of the Host-Guest inclusion complex is proposed. But 2D ROESY is a brilliant method to support the structure of the inclusion complex by finding the guest atoms involved for their interactions with β-CD [15]. Since the atoms that interact with β-CD play a role in strength of binding, the validation of the β-cyclodextrin–chromenones inclusion

Journal of Advanced Zoology

ISSN: 0253-7214
Volume 44 Issue 04 Year 2023 Page 23:27

Research of Physical-Chemical and Ecological Characteristics of Ukkadam Lake Water Coimbatore District, Tamil Nadu, India

M.Sadhasivam[1*], S.Kanchana Devi[2], Nagaveni Arumugham[3], M.Swathika[4], C. Sivakumar[5], Y.Sameena[6]

[1]*Asst. Professor, Department of Civil Engineering, JCT College of Engineering and Technology, Coimbatore*
[2]*Associate Professor, Department of Science & Humanities, JCT College of Engineering and Technology, Coimbatore*
[3] *Research Scholar, Department of Chemistry, Kongunadu Arts and Science College, Assistant Professor, Department of Science & Humanities, JCT College of Engineering and Technology, Coimbatore*
[4]*Assistant Professor, Department of Science & Humanities, JCT College of Engineering and Technology, Coimbatore*
[5]*Faculty of Engineering, Department of Chemistry, Karpagam Academy of Higher Education, Coimbatore*
[6] *Assistant Professor (SG), Nehru Institute of Engineering and Technology, Coimbatore*

**Corresponding author's: M. Sadhasivam*

Article History

Received: 06 June 2023
Revised: 15 Sept 2023
Accepted: 30 Oct 2023

Abstract

Degradation of lake water quality has been seen for many years, particularly in lakes close to urban areas with human activity. The goal of the current inquiry was to identify the various physical, chemical, and biological aspects of the surface water quality of several lakes in Coimbatore, India. The significance of the sampling points was considered when choosing them. Water samples were mostly taken from open wells in and around the Coimbatore district from the following sampling locations: Ukkadam Lake. The physical-chemical characteristics, such as total dissolved solids, pH, electrical conductivity, biochemical oxygen requirement, faeces coliforms, dissolved oxygen, and turbidity, Alkalinity, Sulphate, Nitrate, Phosphate, Chlorides. The findings indicated that lake water samples taken at several locations in and around Coimbatore city were above WHO criteria.

Keywords: *Chemical, Ecological, Water-quality*

1. Introduction

The elixir of life, water, is a priceless gift from nature to us and the billions of other creatures living inhabit the planet. In the vast majority of the world, it is quickly turning into a rare commodity. Nearly 13% of the world's population does not have access to safe drinking water because of urbanisation and growing economic activity 1. By the year 2030, roughly half of the world's population might experience severe water scarcity due to the present trajectory in water consumption. An important aspect of the natural environment, surface water quality is currently a cause for severe worry. In essence, manmade and natural factors combine to cause differences in water quality. Anthropogenic inputs from a number of sources are frequently the main variables impacting the water quality of most rivers, lakes, estuaries, and oceans, especially those that are adjacent to heavily urbanised areas. This is due to the extensive human activities. Numerous studies on anthropogenic pollutants in ecosystems have been done (4-6). In terms of its physical, chemical, and biological properties, water quality is determined. An ecosystem that is balanced cannot exist in polluted surface waters. A balanced ecosystem is one in which interactions between the environment and living things are positive. Water quality is obviously important in this relationship7 since it is essential to maintaining a healthy ecosystem. Important multi-use components exist in lakes, rivers, and tanks, including supplies of drinking water, irrigation, fisheries, and energy generation. These heavily rely on the water's quality; thus, it should be maintained at a specified level. The main sources of the addition of chemicals and nutrients to aquatic ecosystems are thought to be agricultural, industrial, and urban activities8.Due to the occurrence of direct contact between surface and ground water, the quality of surface water in an inland water body has a significant impact on the ground water table and ground water quality of the neighbouring aquifers9. Large-scale

Research of Physical-Chemical and Ecological Characteristics of Ukkadam Lake Water Coimbatore District, Tamil Nadu, India

PDF

Published: Oct 30, 2023

DOI:
https://doi.org/10.17762/jaz.v44i4.1347

Keywords:
Chemical, Ecological, Water-quality

M. Sadhasivam
Asst. Professor, Department of Civil Engineering, JCT College of Engineering and Technology, Coimbatore

S.Kanchana Devi
Associate Professor, Department of Science & Humanities, JCT College of Engineering and Technology, Coimbatore

Nagaveni Arumugham
Research Scholar, Department of Chemistry, Kongunadu Arts and Science College. Assistant Professor, Department of Science & Humanities, JCT College of Engineering and Technology, Coimbatore

M. Swathika
Assistant Professor, Department of Science & Humanities, JCT College of Engineering and Technology, Coimbatore

C. Sivakumar
Faculty of Engineering, Department of Chemistry, Karpagam Academy of Higher Education, Coimbatore

Y. Sameena
Assistant Professor (SG), Nehru Institute of Engineering and Technology, Coimbatore

Proceedings of the International Conference on Sustainable Communication Networks and Application (ICSCNA 2023)
IEEE Xplore Part Number: CFP23DW8-ART; ISBN: 979-8-3503-1398-7

Vehicle Supervision System using Navigation Systems and Internet of Things

A. Shanmugapriya
Assistant Professor(Sr.Gr),
Department of Electronics and Communication Engineering,
Sri Eshwar College of Engineering,
Coimbatore, Tamilnadu,IN.
getshanmugapriya@gmail.com

Dr.S.R.Ashok Kumar
Assistant Professor,
Department of Electronics and Communication Engineering,
Sri Eshwar College of Engineering,
Coimbatore, Tamilnadu,IN.
srashokkumar1987@gmail.com

K.Suganyadevi
Assistant Professor(Sl.Gr),
Department of Electronics and Communication Engineering,
Sri Eshwar College of Engineering,
Coimbatore,
Tamilnadu,IN.
sugan.er.sd@gmail.com

A. Sangeetha Devi
Associate Professor of Mathematics,
Department of Science and Humanities,
Nehru Institute of Engineering and Technology,
Coimbatore, Tamilnadu,IN.
sangeethadevi.a@gmail.com

Abstract: According to statistics, human error leads to 95% of vehicle accidents. Due to humans' inability to recognize these facts and data, the frequency of vehicle accidents is increasing each year. To protect the driver, this research study has proposed a new system with two modules, wherein the first module is a medical monitoring technology, which includes a drowsiness diagnosis unit to ensure that a driver does not drive while sick and the second module includes a cardiac arrest identification device with an integrated GSM transmitter to send an emergency message.

Keywords: Mobile phone, Arduino UNO, relays, LCD display, GSM, Drowsiness detection, Heart monitor.

I. Introduction

An integrated system differs significantly from a computing device in that it frequently needs to react in real time and must follow a number of requirements in order to function within a system that is unique to a certain industry and function. Within nanoseconds, input must be responded to in real-time. In real-time systems, in particular, latency, the information for reaction time is sometimes insufficient. Consider surgical robotics, where, like in gaming, the remotely controlled action must react swiftly and without pause to the doctor's physical directions. Numerous functional factors can affect integrated systems.

Small components in larger, more multipurpose devices make up a substantial portion of embedded systems. Firmware is the term used to describe the written programme instructions that are stored in Read Only Memory (ROM) or flash memory chips for embedded devices. Microprocessors and microcontrollers are the foundation of embedded systems. Domestic as well as industrial applications are seeing an increase in demand for embedded systems. Access to all components is made possible by embedded technology. The amount of time needed to do the work is decreased by embedded systems, and these systems also have extremely few difficulties.

II. Literature Review

In 2009, John H.L Hansen and Pinar Boyraz proposed a research work titled "Active vehicle safety system design based on driver characteristics and behaviour." Although there hasn't been much effort in this area, signals from driver-vehicle interactions offer significant opportunities for complex system design in the establishment of driver adaptive and framework attentive, dynamic protection systems. Greater values of duration are necessary to evaluate the operator's present situation and/or the roadways coming up when employing operator responsive and environment knowing technologies. The work gives a general overview of the systems that can be used for analysing driver-vehicle interaction details throughout duration. These signals can be quickly and cheaply obtained by using the On Board Diagnostic System (OBD) II port on the Controller Area Network (CAN) Bus. Two opportunities are provided for applying in different ways with numerical measurements based on the investigation's outcomes:

1. For context-aware intelligent active safety, manoeuvres can be recognised [1].
2. It is possible to propose models or signal processing techniques to distinguish between normal and safe driving behaviour and driving when distracted or inebriated.

In [11], Non-intrusive ongoing surveillance of crucial physical indicators and behavioural measures has an opportunity to offer distant medical surveillance, indoor investigation, and quick warning of critical occurrences like heart attacks, drops, or breathing difficulties. It additionally supplies test results for a Bluetooth Low Energy, more commonly referred patch sensor that can be used for exercising, running, and get simulation. The implanted sensor consists of two cardiovascular imaging (ECG) electrodes, a microchip, a tri-axial accelerometer, and a Bluetooth

2023 International Conference on Sustainable Communication Networks and Application (ICSCNA) | 979-8-3503-1398-7/23/$31.00 ©2023 IEEE | DOI: 10.1109/ICSCNA58489.2023.10370470

ANVESAK
ISSN: 0378-4568

UGC Care Group-I Journals

COMMUNITY DETECTION IN LARGE-SCALE SOCIAL NETWORKS: A COMPARATIVE STUDY OF GRAPH THEORETICAL APPROACH

Dr. Muhammed Basheer

Assistant Professor of Mathematics, University of Technology and Applied science, Nizwa, Calicut, Kerala.

Dr. A. Sangeetha Devi

Associate Professor of Mathematics, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu.

Dr.M.Sindhu

Assistant Professor of Mathematics, Excel engineering college (Autonomous) Komarapalayam, Namakkal, Tamil Nadu.

Dr.N.Praba

Professor, E&C department, Ghousia college of Engineering, Ramanagara, Karnataka.

Mrs. J. Manimekalai

Assistant Professor of Mathematics, Al Ameen Engineering College (Autonomous), Erode, Tamil Nadu.

ABSTRACT

In networks, community detection is utilized to get insight into the framework of the network and comprehend its fundamental architecture. The lack of canon solutions makes it difficult to evaluate the structures that have been found. In this research, we examine and contrast many community detection methods using actual datasets from known networks and synthetic data sets created using the Girvan-Newman (GN) benchmark technique. So, the testing of created algorithms on various data sets is necessary for validation. For this comparison research, networks of various sizes and mixing parameters from fully separable to extremely mixed are generated using the GN criteria. We compare the efficacy of various cutting-edge community detection techniques against the newly created upgraded Label Propagation method (ULPA) method. The results showed that when every algorithm performs differently when applied to actual datasets, the ULPA performs better on synthetic datasets than comparable methods. These results are applied to a range of datasets to expand the possible uses of community detection techniques.

KEYWORDS: Community Detection, Girvan-Newman (GN), Graph Theory, Shortest Path, Label Propagation Method (ULPA)

INTRODUCTION

In the vast context of social networks, the task of community detection is critical as it seeks to identify node clusters or groups that are denser in the network compared to the overall network. These communities form the basic foundation of social capital, close-knit groups of people with similar attributes, interests, or behaviors. Looking at its operational definition, community discovery can be viewed as a complex process that employs various algorithms and methods aimed at exploring the patterns of interaction and association based on extensive

Dr. P. MANIIARASAN
Principal
Nehru Institute of Engg. & Technology
T.M. Palayam, Coimbatore - 641 105.

Physica B 652 (2023) 414654

Contents lists available at ScienceDirect

Physica B: Condensed Matter

journal homepage: www.elsevier.com/locate/physb

Solvothermal synthesis of magnetically separable Co–ZnO nanowires for visible light driven photocatalytic applications

Sridhar Sampath [a,*], Rohini V. [b], Karthik Chinnasamy [c], Parasuraman Ponnusamy [d], Sivasakthi Thangarasau [e], Woo Kyoung Kim [f,**], Vasudeva reddy minnam reddy [f,*], Mohd Shkir [g,h,i], F. Maiz [h,j]

[a] Department of Physics, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology (Deemed to Be University), Avadi, Chennai, 600 062, Tamil Nadu, India
[b] Department of Science and Humanities, Nehru Institute of Engineering and Technology, T.M. Palayam, Coimbatore, 641 105, Tamil Nadu, India
[c] Department of Engineering Mathematics, Koneru Lakshmaiah Education Foundation (Deemed to Be University), Vaddeswaram, Andhra pradesh, India
[d] Department of Physics, Bannari Amman Institute of Technology, Sathyamangalam, Erode, 638 401, Tamil Nadu, India
[e] Department of Electronics and Communication Engineering, Sri Sairam Engineering College, Chennai, 600 044, Tamil Nadu. India
[f] School of Chemical Engineering, Yeungnam University, Gyeongsan, 38541, Republic of Korea
[g] Research Center for Advanced Materials Science (RCAMS), King Khalid University, Abha 61413, P.O. Box 9004, Saudi Arabia
[h] Department of Physics, Faculty of Science, King Khalid University, P.O. Box 9004, Abha, Saudi Arabia
[i] University Center for Research & Development (UCRD), Chandigarh University, NH95, Chandigarh-Ludhiana Highway, Gharuan, Mohali, Punjab, 140413, India
[j] Laboratory of Thermal Processes, Center for Energy Research and Technology, Borj-Cedria, BP:95 Tunisia

ARTICLE INFO

Keywords:
ZnO
Wurtzite
Band gap energy
Coercivity
Retentivity and methyl orange

ABSTRACT

Magnetically retrievable Cobalt doped ZnO nanowires were synthesised by simple solvothermal method. The prepared Co–ZnO nanowires were analysed with several characterization instruments such as FESEM, XRD, FTIR, VSM, UV–vis spectroscopy, XPS and PL spectroscopy. No other phase has been identified besides wurtzite phase, according to the structural analysis of pure ZnO and Co–ZnO nanowires. As the concentration of Co doping increased, ZnO nanowires' band gap energy dropped. Moreover, ZnO's absorption peak has a minor wavelength shift toward longer wavelengths. Green light emission was detected by PL analysis of ZnO nanowires and also the PL intensity of ZnO nanowires was decreased after cobalt doping. Co–ZnO nanowires exhibited ferromagnetic property. The coercivity and retentivity of Co–ZnO nanowires were increased with increase of Cobalt concentration. Improved visible light photocatalytic activity for the breakdown of methyl orange dye was achieved by Co–ZnO nanowires.

1. Introduction

Water contamination is a significant environmental issue and concern to human health in the modern world. This is brought on by the quickening development of the economies, industries, and people. In comparison to other water contaminants, organic dyes are one of the most significant sources of environmental contamination. A number of sectors, including those that generate paper and paperboard, rubber and plastic, process food, make textiles, and tan leather, utilise more than 100,000 commercial dyes annually. In many nations, highly coloured dyeing effluent has been a significant environmental problem. Dye wastewater has been treated using a variety of techniques, including adsorption, membrane separation, coagulation, advanced oxidation, etc. The Advanced Oxidation Processes, a typical form of heterogeneous photocatalysis, offer promising strategies for removing organic contaminants and transforming them into non-toxic chemicals when exposed to UV/Vis light. Heterogeneous photocatalysis, which uses sun energy, is widely regarded as an effective, practical, and environmentally acceptable process for breaking down organic molecules that are water contaminants [1,2].

After the discovery of TiO_2 photocatalytic water splitting by Fujishima et al. various metal oxides such as ZnO, Fe_2O_3, WO_3, $NiMoO_4$ etc had been employed to investigate their photocatalytic activity [3,4]. Various modifications of metal oxides such as doping metals, nonmetals,

* Corresponding authors.
E-mail addresses: sridharbkp@gmail.com (S. Sampath), wkim@ynu.ac.kr (W.K. Kim), drmvasudr9@gmail.com (Vasudeva reddy minnam reddy).

https://doi.org/10.1016/j.physb.2023.414654
Received 6 October 2022; Received in revised form 28 December 2022; Accepted 8 January 2023
Available online 10 January 2023

Dr. P. MANIIARASAN
Principal
Nehru Institute of Engg & Technology
T.M.Palayam, Coimbatore - 641 105.

Contents lists available at ScienceDirect

Chemical Physics Letters

journal homepage: www.elsevier.com/locate/cplett

Development of C_3N_4 embedded Bi_2WO_6 heterostructure for the improved toxic Cr(VI) reduction performance

Sridhar Sampath [a], V. Rohini [b], Sunitha Muralidharan [c], Durgadevi Nagarajan [d], K.S. Balamurugan [e], Chinmaya Kumar Pradhan [f], A.R. Ravikumar [g], Subbiah Rammohan Chitra [h,*], Vasudeva Reddy Minnam Reddy [i,*], Woo Kyoung Kim [i,*], Aslam Khan [j]

[a] Department of Physics, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology (Deemed to Be University), Avadi, Chennai 600 062, Tamil Nadu, India
[b] Department of Science and Humanities (Physics), Nehru Institute of Engineering and Technology, Coimbatore 641105, Tamil Nadu, India
[c] Department of Chemistry, Sri Eshwar College of Engineering, Coimbatore 641202, Tamil Nadu, India
[d] Department of Chemistry, Mangayarkarasi College of Arts and Science for Women, Madurai 625402, Tamil Nadu, India
[e] Department of Electronic and Communication Engineering, Karpaga Vinayaga College of Engineering and Technology, Chengalpattu, Tamilnadu 603308, India
[f] Department of Electronic and Communication Engineering, Vignan's Lara Institute of Technology and Science, Guntur, Andhra Pradesh 522213, India
[g] Department of Mechanical Engineering, Sri Shakthi Institute of Engineering and Technology, Coimbatore, Tamil Nadu 641062, India
[h] Department of Physics, PKN Art's and Science College, PKN Nagar, Thirumangalam, Madurai 625706, Tamil Nadu, India
[i] School of Chemical Engineering, Yeungnam University, Gyeongsan 38541, Republic of Korea
[j] College of Science, King Saud University, Riyadh 11451, Saudi Arabia

ARTICLE INFO

Keywords:
C_3N_4
Bi_2WO_6
Heterostructure
Cr(VI) reduction

ABSTRACT

C_3N_4 embedded Bi_2WO_6 hierarchical microsphere was successfully synthesized in this study using a simple hydrothermal approach and characterized using sophisticated instruments. In comparison to C_3N_4 and Bi_2WO_6 systems, the C_3N_4 embedded Bi_2WO_6 system exhibits excellent photocatalytic Cr(VI) reduction activity after 150 min of UV–vis illumination. The remarkable efficiency of the fabricated photocatalyst can be ascribed to the creation and electronic contact between Bi_2WO_6 with C_3N_4, thereby enhancing its charge transfer by the increased surface active sites. Our research demonstrates a simple and successful method for fabricate an effectual catalyst for the effective reduction of Cr (VI).

1. Introduction

Accelerated urbanization and industry growth has resulted in catastrophic environmental degradation, resulting in many sorts of air and water contamination [1–4]. Because air and water are essential to the survival of all life on Earth, this topic has recently become the most popular subject of research [5]. As the environment worsens, green chemistry methods need to be developed to make clean environment and growth of human civilization. Visible light driven semiconductor photocatalysis is a potential technique among the several green chemical approaches [6–10]. TiO_2 is the ideal photocatalyst, which is non-toxic, affordable, fairly stable, commercially available, and has high photocatalytic effectiveness, is unquestionably an ideal catalyst for the degradation of organic/inorganic and heavy metal pollutants in the presence of ultraviolet light. TiO_2 can only be activated by UV radiation due to its larger band gap of 3.2 eV and absorbing region of less than 400 nm [11–14]. Recently, heterostructure photocatalysis utilized as an excellent strategy towards the environmental clean-up due to the cost-effective and environmentally friendly technique. The formation of a heterostructure by connecting two semiconductor materials with a short band gap has sparked the attention of several researchers as a new way for overcoming two shortcomings in conventional photocatalysts [5]. Due to the fact that both semiconductors contain a smaller energy band gap, a coupled system enables photocatalysts to absorb large amount of photons than conventional pristine photocatalysts. Moreover, the recombination of photoinduced electron with hole also significantly inhibited by means of interfacial charge transfer between two junctions. Notwithstanding the benefits of heterostructure, constructing such a junction is difficult since the energy positions of the interfacing junction must had a well overlaying band positions.

* Corresponding authors.
E-mail addresses: jaicitra@yahoo.co.in (S.R. Chitra), drmvasudr9@gmail.com (V. Reddy Minnam Reddy), wkim@ynu.ac.kr (W.K. Kim).

https://doi.org/10.1016/j.cplett.2023.140804
Received 6 July 2023; Received in revised form 21 August 2023; Accepted 24 August 2023
Available online 28 August 2023

Journal of Xidian University https://doi.org/10.5281/Zenodo.11066648 ISSN No:1001-2400

A Study on Tenses (Simple Present, Present Continuous, Simple past and Past Perfect) and its Difficulties Experienced by the L_2 Learners of First Year Engineering Students

Dr. R. Deepa
Associate Professor of English
Nehru institute of Engineering and technology
Coimbatore

Abstract:

This study is about the tenses and its uses for the L_2 learners, as tense is the foundation for the second language learners from first level to second level in learning and comprehending the grammar because tense is the base mark for the level one learner to write effectively by avoiding mistakes.

For this study the data has been collected from the first year Mechatronics Engineering Students to identify their knowledge in placing the tenses and the difficulties experienced by the L_2 learners.

The total target of the first-year engineering students for this study is **35** from first year Mechatronics Engineering

Key words: comprehending, base mark, knowledge, foundation, difficulties.

Dr. P. MANIIARASAN
Principal
Nehru Institute of Engg & Technology
T.M.Palayam, Coimbatore - 641 105.

Issn No : 0391-6715

A STUDY ON ROLE OF COMMUNICATION SKILLS DURING INTERVIEWS ITS PATH AND CHALLENGES FOR THE LEARNERS

Dr. R. DEEPA

Associate professor of English

Nehru Institute of Engineering and Technology

T.M.Palayam

Coimbatore-641105

ABSTRACT:

This paper is focused on need of communication skills for the learners during interview and its role. The students from Tamil Medium Background face lot of problems at the time of interview and struggle to answer for simple Questions raised by the Interviewers. The Interview is a turning point in one's life to lead a successful career. Therefore, this paper high-lights some tips for the students from Vernacular medium and it would give confidence to the learners to face the Interview without fear.

Key words:

Learners Confidence, successful career, communication skills, fearless.

Dr. P. MANIIARASAN
Principal
Nehru Institute of Engg & Technology
T.M.Palayam, Coimbatore - 641 105.

ISSN NO : 2347-3150

23

A Study on One Compound Complex Sentence for Constructive Learning Platform of L_2 Learners

Dr. R. Deepa

Department of English & Nehru Institute of Engineering and Technology, Coimbatore

Tamil Nadu, India – 641105

ABSTRACT

This study is about the one compound complex sentence for constructive learning platform for the L_2 learners to construct the sentences in a meaningful way and also it would facilitate the L_2 learners while writing reports which are essential for the informants in their higher studies and also at their career to lead convenient style by writing effectively for good platform.

For this study, the data has been collected from the first year Mechatronics Engineering Students to identify their problems and their difficulties experienced by the second language (L_2) learners. The total target of the first year engineering students for this study is 35.

KEY WORDS: Difficulties in sentence construction, Less Practice, compound complex sentence structure, structural formation.

1. INTRODUCTION

Language is one of the wonderful creations of man. Language plays a vital role in everyone's life and serves a number of purposes on an everyday basis. With language at his side, man can do wonderful things in life - send an artificial satellite to Earth's natural satellite and record its voice, or travel back thousands of years to understand the cultures of Greek and Indus valley civilization and the way they communicated, or to create a rich literature which impart legacies, or even to fulfill the regular day to day things such as thinking, creating ideas, convincing, cajoling, negotiating, motivating, etc.

2. WRITING SKILL

Writing as a skill can be defined in various ways. It can start with the mechanics of writing which need to be taught at the primary stages as the holding of the pen, positioning of the paper, the proper way to illuminate the desk, and other similar features. This further leads to the production of single letters of the alphabets, their combination to form words and sentences, and the use of punctuation. But we are concerned with this. What we are concerned is writing as total.

Dr. P. MANIIARASAN
Principal
Nehru Institute of Engg & Technology
T.M.Palayam, Coimbatore - 641 105.

Indian Journal of Natural Sciences www.tnsroindia.org.in ©IJONS

Vol.14 / Issue 80 / Oct / 2023 International Bimonthly (Print) – Open Access ISSN: 0976 – 0997

RESEARCH ARTICLE

Qualitative Behavior of Fourth Order Neutral Difference Equations

S. Kaleeswari and M.Buvanasankari*

Department of Mathematics, Nallamuthu Gounder Mahalingam College, Pollachi, Tamilnadu, India - 642201

Received: 16 Aug 2023 Revised: 30 Aug 2023 Accepted: 04 Sep 2023

*Address for Correspondence
M.Buvanasankari
Department of Mathematics,
Nallamuthu Gounder Mahalingam College,
Pollachi, Tamilnadu, India – 642201.
E.Mail: buvanasankari@gmail.com

ABSTRACT

"The goal of this paper is to illustrate the qualitative behaviour of a fourth order difference equation with neutral terms of the form

$\Delta\left(s_1(\vartheta)\left(\Delta^3 q(\vartheta)\right)^{\beta_1}\right) = s_2(\vartheta)y^{\beta_2}(\vartheta - n + 1) + s_3(\vartheta)y^{\beta_3}(\vartheta + n^*)$

where $q(\vartheta) = y(\vartheta) - s_4(\vartheta)y^{\beta_4}(\vartheta - k)$ Here $\beta_1, \beta_2, \beta_3, \beta_4$ are the ratios of odd positive integers $\beta_1 \geq 1$. s_1, s_2, s_3, s_4 are positive sequences and $n, n^*, k \in N$ are such that $n > 3, n^* > 3$, $k < n - 2$. With the help of comparison techniques, we are able to acquire some novel oscillations results. Examples are given to illustrate the importance of the discoveries.

Keywords : comparison techniques, fourth order, neutral terms, oscillation

INTRODUCTION

Due to the fact that neutral difference equations are used in the study of economics, mathematical biology, and many other areas of mathematics, the issue of establishing oscillation phenomena for these equations has drawn a lot of attention in recent years [1],[2],[11],[12],[17]. The sources cited there as well as [4], [21], [22], [23] provide some fascinating new findings on the oscillatory behavior of second-order differential equations. A examination of the literature reveals that every conclusion made for fourth order difference equations with neutral terms ensures that each solution oscillates or monotonically approaches to zero. As far as we are aware, no conclusions have been drawn for fourth order neutral difference equations that suggest that all solutions are just oscillatory. This study's goal is to provide the equation some revised oscillation restrictions as a result.

$$\Delta\left(s_1(\vartheta)\left(\Delta^3 q(\vartheta)\right)^{\beta_1}\right) = s_2(\vartheta)y^{\beta_2}(\vartheta - n + 1) + s_3(\vartheta)y^{\beta_3}(\vartheta + n^*) \quad (1)$$

Dr. P. MANIIARASAN
Principal
Nehru Institute of Engg & Technology
T.M.Palayam, Coimbatore - 641 105.

64072

25

On Generalized Presemi Closed Sets in Neutrosophic Topological Spaces

Dr.K. Ramesh[1], Dr.N.Vithya[2], Mrs.M.Nagarathinam[1]
[1]Department of Mathematics,
Nehru Institute of Engineering & Technology,
Coimbatore - 641105, Tamilnadu, India.
E-mail: ramesh251989@gmail.com
Email: rathnamathematics@gmail.com
[2]Department of Mathematics,
Nehru Institute of Technology, Kaliapuram, Coimbatore -641105
Coimbatore - 641105, Tamilnadu, India.
E-mail: nvithya.r@gmail.com

Abstract: *The purpose of this paper is to study a new class of generalized closed set namely neutrosophic generalized presemi closed sets and neutrosophic generalized presemi open sets in neutrosophic topological spaces (classical). Also we provide some applications of neutrosophic generalized presemi closed sets.*

Keywords: *Neutrosophic set, neutrosophic topological space, neutrosophic generalized presemi closed sets, neutrosophic points, $NPST_{1/2}$ space and $NPST^{*}_{1/2}$ space.*

2010 Mathematics Subject Classification: 54A40, 03E72.

1. INTRODUCTION

In 1970, Levine [5] introduced the concept of g-closed sets in general topology. In 1965, Zadeh [12] introduced the notion of fuzzy sets [FS]. It shows the degree of membership of the element in a set. Later, fuzzy topological space was introduced by Chang [2] in 1968. Atanassov [1] introduced the concept of "Intuitionistic fuzzy set" as a generalization of fuzzy sets. Coker [3] generalized topological structures in fuzzy topological spaces to "Intuitionistic fuzzy topological spaces" using intuitionistic fuzzy sets. Neutrality the degree of indeterminacy as an independent concept was introduced by Florentin Smarandache [4] He also defined the Neutrosophic set on three components, namely Truth (membership), Indeterminacy, Falsehood (non-membership). In 2012, Salama A. A and Alblowi [7] introduced the concept of Neutrosophic topological space by using Neutrosophic sets. Salama A. A. [8] introduced Neutrosophic closed set and Neutrosophic continuous function. Further the basic sets like regular-open sets, semi-open sets, pre-open sets and α-open sets are introduced in Neutrosophic topological space and their properties are studied by various authors [9], [10], [11]. In this direction, we introduce and study few properties of neutrosophic generalized presemi closed sets and neutrosophic generalized presemi open sets in neutrosophic topological space. Also provide some applications of neutrosophic generalized presemi closed sets.

2. PRELIMINARIES

Throughout the present study, (X, τ) or X denotes the neutrosophic topological spaces (briefly NTS). We recall some basic definitions that are used in the sequel.

2.1. Definition: [7] Let X be a non-empty fixed set. A Neutrosophic set (NS for short) A in X is an object having the form $A = \{\langle x, \mu_A(x), \sigma_A(x), \nu_A(x)\rangle : x \in X\}$ where the functions $\mu_A(x)$, $\sigma_A(x)$ and $\nu_A(x)$ represent the degree of membership, degree of indeterminacy and the degree of

Dr. P. MANIARASAN
Principal
Nehru Institute of Engg. & Technology
T.M.Palayam, Coimbatore - 641 105.

ISSN (e): 2250 – 3005 || Volume, 14 || Issue, 3|| May. - June. – 2024 ||
International Journal of Computational Engineering Research (IJCER)

On Pre Generalized Regular α-Continuous and Irresolute Mappings in Intuitionistic Fuzzy Topological Space

K. Ramesh[1] and C.Sushama[2]
[1&2]Department of Mathematics
Nehru Institute of Engineering and Technology
Coimbator-641105, Tamilnadu, India
Corresponding Author:K. Ramesh

ABSTRACT
In this paper, we introduce and study the notions of intuitionistic fuzzy pre generalized regular α-continuous mappings and intuitionistic fuzzy pre generalized regular α-irresolute mappings and study some of its properties in intuitionistic fuzzy topological spaces.

KEYWORDS: *Intuitionistic fuzzy topology, Intuitionistic fuzzy point, Intuitionistic fuzzy pre generalized regular α-losed sets, Intuitionistic fuzzy pre generalized regular α-continuous mappings and Intuitionistic fuzzy pre generalized regular α-irresolute mappings.*

2010 Mathematics Subject Classification: 54A40, 03F55.
AMS Subject Classification: 05C12.

Date of Submission: 20-05-2024 Date of acceptance: 03-06-2024

I. INTRODUCTION

The concept of fuzzy set[FS] was introduced by Zadeh [14] and later fuzzy topology was introduced by Chang [2] in 1967. By adding the degree of non membership to FS,Atanassov [1] proposed intuitionistic fuzzy set[IFS] using the notion of fuzzy sets. On the other hand Coker [3] introduced intuitionistic fuzzy topological spaces using the notion of intuitionistic fuzzy sets. In this paper we introduced intuitionistic fuzzy pre generalized regular α-continuous mappings and intuitionistic fuzzy pre generalized regular α-irresolute mappings and studied some of their basic properties.

II. PRELIMINARIES

Throughout this paper, (X, τ), (Y, σ) and (Z, γ) (or simply X, Y and Z) denotes the intuitionistic fuzzy topological spaces (briefly IFTS). For a subset A of X, the closure, the interior and the complement of A are denoted by cl(A), int(A) and A^c respectively. We recall some basic definitions that are used in the sequel.

Definition 2.1: [1] Let X be a nonempty set. An intuitionistic fuzzy set (IFS in short) A in X is an object having the form $A = \{\langle x, \mu_A(x), \nu_A(x)\rangle / x \in X\}$ where the functions $\mu_A : X \to [0,1]$ and $\nu_A : X \to [0,1]$ denote the degree of membership (namely $\mu_A(x)$) and the degree of nonmembership(namely $\nu_A(x)$) of each element $x \in X$ to the set A, respectively, and $0 \le \mu_A(x) + \nu_A(x) \le 1$ for each $x \in X$. Denote by IFS(X), the set of all intuitionistic fuzzy sets in X.

Definition 2.2: [1] Let A and B be IFSs of the form $A = \{\langle x, \mu_A(x), \nu_A(x)\rangle / x \in X\}$ and $B = \{\langle x, \mu_B(x), \nu_B(x)\rangle / x \in X\}$. Then

(i) $A \subseteq B$ if and only if $\mu_A(x) \le \mu_B(x)$ and $\nu_A(x) \ge \nu_B(x)$ for all $x \in X$,
(ii) $A = B$ if and only if $A \subseteq B$ and $B \subseteq A$,
(iii) $A^c = \{\langle x, \nu_A(x), \mu_A(x)\rangle / x \in X\}$,
(iv) $A \cap B = \{\langle x, \mu_A(x) \wedge \mu_B(x), \nu_A(x) \vee \nu_B(x)\rangle / x \in X\}$,
(v) $A \cup B = \{\langle x, \mu_A(x) \vee \mu_B(x), \nu_A(x) \wedge \nu_B(x)\rangle / x \in X\}$.

For the sake of simplicity, we shall use the notation $A = \langle x, \mu_A, \nu_A\rangle$ instead of $A = \{\langle x, \mu_A(x), \nu_A(x)\rangle / x \in X\}$.
Also for the sake of simplicity, we shall use the notation $A = \langle x, (\mu_A, \mu_B), (\nu_A, \nu_B)\rangle$ instead of $A = \langle x, (A/\mu_A,$

Dr. P. MANIIARASAN
Principal
Nehru Institute of Engg. & Technology
T.M.Palayam, Coimbatore - 641 105.

ISA Transactions 139 (2023) 322–336

Contents lists available at ScienceDirect

ISA Transactions

journal homepage: www.elsevier.com/locate/isatrans

Research article

Improved indirect instantaneous torque control based torque sharing function approach of SRM drives in EVs using hybrid technique

R. Kannan [a,*], S. Rajasekaran [b], S. Daison Stallon [a], R. Anand [a]

[a] Department of Electrical and Electronics Engineering, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India
[b] Department of Electrical and Electronics Engineering, KSR Institute for Engineering and Technology, Tiruchengode, Tamil Nadu, India

ARTICLE INFO

Article history:
Received 5 September 2022
Received in revised form 3 April 2023
Accepted 3 April 2023
Available online 6 April 2023

Keywords:
Honey Badger Algorithm
Reptile Search Algorithm
Torque control
Electric vehicles
Indirect instantaneous torque control

ABSTRACT

This manuscript proposes an improved indirect instantaneous torque control (IITC) based torque sharing function (TSF) method of switched reluctance motor (SRM) drives in electric vehicles (EVs) using a hybrid system. The proposed hybrid techniques are joint performance of both Reptile Search Algorithm (RSA) and Honey Badger Algorithm (HBA), hence it is named as Enhanced RSA (ERSA) method. Here, an IITC method of SRMs for EVs is utilized. It achieves the requirements of the vehicle, like minimum torque ripple, improved speed range, high effectiveness, and maximal torque per ampere (MTPA). To precisely specify the switched reluctance motor and its magnetic features are measured by the proposed method. The modified Torque sharing function compensates the torque error along with incoming phase, which contains the minimal rate of change of flux linkage. Finally, the ERSA method is implemented to define the best control parameters. Then, the proposed ERSA system is performed on the MATLAB platform and the performance is compared to different existing systems. The MSE for case 1 and case 2 using proposed system attains 0.01093 and 0.01095. The voltage deviation for case 1 and case 2 using proposed system reaches 5 and 5. The power factor for case 1 and case 2 reaches a value of 50 and 40 using the proposed system.

1. Introduction

Electric 2-wheelers are operated by electric energy stored in a battery. But, the capacity of the battery is restricted and these EVs are suffered from the limitations of short range [1]. An improved effective hub-type permanent magnet brushless direct current (PM BLDC) motor is particularly utilized on 2-wheeler electric vehicles [2,3]. For the purpose of regenerating, these easy to regulate motors are used. Usually, when there is no braking time, the mechanical brakes are utilized for stopping the vehicle in 2-wheeler electric vehicles and every kinetic energy are kept in the vehicle [4–6]. Alternatively, in kinetic energy, the vehicle in braking time is transferred again to electric energy is kept in battery as correctly maintained and regulated without occurring any problem to drive electronics, motor, battery [7–10]. Under the regenerative mode of operation, back-electromotive forces are needed to maximize with dc to dc converter [11]. Thus, electric energy is driven again to the battery in a suitable level of voltage [12–15].

For brushless DC motors, the inverter is given to various switching methods to achieve the modes of operation for motor [16,17]. The switching signals are utilized to identify the rotor position in a brushless DC motor [17–19]. Comparisons are suggested to specify the suitability of every motor topology for EV and HEV use [20–25]. Researchers [26] and [27] suggested the performance of IM, SRM and PMSM maps through cumulative trend. At [28], authors reviewed the 2nd generation Prius-IPMSM and evaluated an alternative radial-sort IMMS and Pellegrino et al. suggested the comparison of IPMSM and IM based on power output as well as performance with respect to novel standard European driving cycle [29]. Alike work has been performed at [30]. In [31], the authors claim that the effect of performance distribution on fuel consumption is less when comparing IM, PMSM and SRM. Motor performance comparison and NVH comparison between entire candidates [32]. A fast finite element analysis (FEA) method is followed to consider saturation decision for IM over the entire torque-speed range as well as optimal current path control for greatly nonlinear motor parameters. In addition, the entire design and evaluation results are generated as FEA on ANSYS environment; RMxprt (Magnetic Equivalent Circuit Design), Maxwell (Static and Unsteady FEA Design) and Workbench (Mechanical Vibration Analysis) are reliably preserved. A process generally recognized via industry.

This article proposes an improved IITC-based torque sharing function method of SRM drives in electric vehicles (EVs). The proposed hybrid techniques are both RSA and HBA. The main purpose

* Corresponding author.
E-mail address: nietkannan@nehrucolleges.com (R. Kannan).

https://doi.org/10.1016/j.isatra.2023.04.001
0019-0578/

Article

A Photovoltaic-based Novel Transformerless High Gain Converter for DC Microgrid Applications

February 2024 · Recent Advances in Electrical & Electronic Engineering (Formerly Recent Patents on Electrical & Electronic Engineering) 17(2):147-158
DOI:10.2174/2352096516666230517105239

Authors:

Kannan Ramasamy

Dr. Pragaspathy Subramani
Vishnu Institute of Technology

V. Karthikeyan
National Institute of Technology Calicut

Kalyan Sagar
Shri Vishnu Engineering College for Wor

Show all 6 authors

References (23)

Abstract

Aim A typical microgrid network sourced by renewable energy encounters a technical setback owing to the voltage imbalance across the source integration and load power dissemination. Transformers employed to stabilize the potential may deteriorate the network efficiency and increases the cost and size of the system as well. Introduction Photovoltaic based transformerless high gain DC-DC converter (THG-DC) is proposed here to aid the microgrid infrastructure. Microgrid fuelled by renewable energy sources demands the high gain converter interface to boost low voltage generation. The proposed THG-DC is employed with four switched inductors and three active power switches (IGBT) which are brought together under dual leg configurations. Methods The proposed topology offers dual-duty cycle modes of regulating the active switches to realize the desired output voltage. Moreover, it is reliable to drive the proposed THG-DC with lower values of duty cycles to achieve a higher gain. The voltage stress across the switches is minimized and the magnitude of inductor current ripples is quashed to an extent. The proposed THGDC is simple in architecture and easy to control in all three operating modes. Results The operating characteristics and performance investigation of the novel converter during the continuous and discontinuous modes are elucidated briefly and the comparative analysis on switching stress, gain, and efficiency are executed to justify the standards of the proposed THGDC. Conclusions Finally, the miniature prototype model is experimented with in the laboratory (0.3 kW) and the obtained results are in agreement with the theory. It is evident from the investigations that the proposed THG-DC shows its dominance over other converters on the voltage gain, switching stress, number of components, and overall efficiency.

No full-text available

Received: 24 August 2022 | Revised: 27 December 2022 | Accepted: 25 January 2023

DOI: 10.4218/etrij.2022-0324

ORIGINAL ARTICLE

ETRI Journal WILEY

IoT-based systemic lupus erythematosus prediction model using hybrid genetic algorithm integrated with ANN

Edison Prabhu K[1] | **Surendran D**[2]

[1]Department of Electrical and Electronics Engineering, Nehru Institute of Engineering and Technology, Coimbatore, India

[2]Department of Information Technology, Karpagam College of Engineering, Coimbatore, India

Correspondence
Edison Prabhu K, Department of Electrical and Electronics Engineering, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India.
Email: edisonprabhu@gmail.com

Abstract

Internet of things (IoT) is commonly employed to detect different kinds of diseases in the health sector. Systemic lupus erythematosus (SLE) is an autoimmune illness that occurs when the body's immune system attacks its own connective tissues and organs. Because of the complicated interconnections between illness trigger exposure levels across time, humans have trouble predicting SLE symptom severity levels. An effective automated machine learning model that intakes IoT data was created to forecast SLE symptoms to solve this issue. IoT has several advantages in the healthcare industry, including interoperability, information exchange, machine-to-machine networking, and data transmission. An SLE symptom-predicting machine learning model was designed by integrating the hybrid marine predator algorithm and atom search optimization with an artificial neural network. The network is trained by the Gene Expression Omnibus dataset as input, and the patients' data are used as input to predict symptoms. The experimental results demonstrate that the proposed model's accuracy is higher than state-of-the-art prediction models at approximately 99.70%.

KEYWORDS

artificial neural network, atom search optimization, internet of things, marine predators algorithm, systemic lupus erythematosus

1 | INTRODUCTION

Internet of things (IoT) is a popular communication technology that has the potential to transform many aspects of our daily lives. This "new frontier" comprises various techniques that enable the intelligent operation of everyday objects, owing to the integration of sensors, low-power computing, and wireless communications. Such devices (e.g., clocks, smart bracelets, air conditioners, umbrellas, and refrigerators) maintain their own control and transmission capabilities. Furthermore, they can accept data input from multiple people and even other appliances, passing the compiled data to the internet for collection and analysis. Such scenarios have led to the idea of "ubiquitous computing" [1], which would allow hidden machines to perform scientific reasoning about human living conditions without knowing the identity or personality of the persons being evaluated [2]. Over time, the number of IoT devices and their applications are anticipated to increase [3], as their configurations and utility are already more efficient than employing dedicated high-power phones, laptops, tablets, and medical devices [4].

Article

Optimal Design for Super Capacitor/Battery Power Management Applied in Electric Vehicle Applications: A Hybrid Methodology

November 2021 · IETE Journal of Research 69(9):1-17

DOI:10.1080/03772063.2021.1997354

Authors:

R. Kannan **Paulthurai Rajesh** **Francis H. Shajin**

Citations (4) References (15)

Abstract

This manuscript presents an optimal control system for energy management of the hybrid energy storage system (HESS) as battery and super capacitor (SC) on electric vehicles (EVs). The proposed system is parallel execution of levy flight with Tunicate swarm optimization. The proposed method is improved by levy flight distribution; hence, it is named Improved Tunicate swarm optimization (ITSA). Here, the HESS method calculates the super capacitor reference voltage in terms of load dynamics and improves the power. At first, compute the super capacitor reference voltage assuming real-time load dynamics. Furthermore, diminish the range of battery power magnitude and power loss concurrently. In the proposed system, the Improved Tunicate swarm optimization is merged for generating the probable HESS control signal data set. Furthermore, the proposed method gains the super capacitor voltage, amount of battery current, variation of battery current. Through the proposed method, the hybrid energy storage system parameters are enhanced, and the proposed system gives a reliable solution. The proposed method is performed on the MATLAB/Simulink work platform. The quality of a hybrid energy storage system is compared with that of other methods.

RESEARCH ARTICLE | NOVEMBER 30 2023

Healthcare's new Frontier: AI-driven early cancer detection for improved well-being

R. Deepa ; S. Arunkumar ; V. Jayaraj ; A. Sivasamy

AIP Advances 13, 115331 (2023)
https://doi.org/10.1063/5.0177640

Measurement: Sensors 31 (2024) 100963

Contents lists available at ScienceDirect

Measurement: Sensors

journal homepage: www.sciencedirect.com/journal/measurement-sensors

Performance analysis of battery E-vehicle system using open loop and closed loop application

S. Amosedinakaran [a], M. Mano Raja Paul [b], S. Kannan [c], M. Geetha [d], P. Anitha [e], A. Bhuvanesh [f,*]

[a] Department of Electrical and Electronics Engineering, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology (Deemed to be University), Chennai, Tamil Nadu, India
[b] Department of Electrical and Electronics Engineering, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India
[c] Department of Electrical and Electronics Engineering, Ramco Institute of Technology, Rajapalayam, Tamil Nadu, India
[d] Department of Electrical and Electronics Engineering, Sri Eshwar College of Engineering, Coimbatore, Tamil Nadu, India
[e] Department of Electrical and Electronics Engineering, University VOC College of Engineering, Thoothukudi, Tamil Nadu, India
[f] Department of Electrical and Electronics Engineering, PSN College of Engineering and Technology, Tirunelveli, Tamil Nadu, India

ARTICLE INFO

Keywords:
Sensor
PMAC
speed measurement
E-Vehicle
PID controller
closed loop

ABSTRACT

Electric vehicle (E-vehicle) will be an alternate transportation vehicle in this world due to unavailability of fossil fuel. The CO_2 emissions from fossil fuel based vehicle have been considerably reduced. In this study, E-vehicle has been modelled for both open loop and closed loop using MATLAB/Simulink. The rechargeable lithium-ion battery has been adopted for proposed system, and it has become prominent energy storage device especially for E-vehicle application. Speed sensor has been incorporated in closed loop system. Speedometer also added in both open and closed loop system. Performance of the E-vehicle has been analysed and compared by ratio of output to input motor power. Error deviation has been estimated. The simulation results of closed loop system have been revealed that better stability in dynamic state of input. The proposed closed loop system has been attained the better efficiency than open loop and, moreover fluctuation and harmonic level were within the tolerance level. Through closed loop system, E-vehicle has been attaining the smooth working state at minimum duration than open loop. The E-vehicle parameters such as vehicle speed, travelling distance, torque, efficiency and output power have been estimated for both open and closed loop system. With help of sensor, performance of the closed loop system has been improved.

1. Introduction

Severe environmental issues have been caused by air pollution [1]. Due to air pollution from exposure mainly from auto-mobile vehicles, the health of the human being and state of the living things were severely affected by many diseases [2]. Nearly 14 lakhs of active motorbikes such as car, bike, Lorries and buses are now on the road globally [3]. The effective strategy is necessary to considerably reduce the emissions of pollutants such as Sulphur Oxides, Carbon Oxides, and Nitrogen Oxides by electric vehicles (E-vehicle) systems. E-vehicles have become the alternative system for the automobile. As a result, most of the counties have made policies about the E-vehicle development and implementation system for their country to meet the conditional needs. This has been considered a key economic growth plan. A green vehicle policy has been implemented to encourage E-Vehicle systems from many countries [4]. Nomenclature in this paper is BLDC-Brush less direct current motor; CO_2 -Carbon dioxide; DC/AC- Direct current/Alternative current; E vehicle-Electric vehicle; EMF-Electro motive force; BLDC-Brush less Direct current motor; HP-Horse power; PMAC motor-Permanent magnet alternating current; MAPE- Mean absolute percentage error; Nm- Newton meter; PID-Proportional integral derivative; PI- Proportional integral; SOC-State of charge; I-Ampere; kWh-Kilowatt-hour; V-Voltage; W-Watts.

The number of E-vehicles has been increasing speedily in line with the objective of carbon neutralisation. According to report as globally, 15.26 % of all new E−vehicles have been registered in India as of the end of December 2022 [5]. Old E-Vehicles have been properly handled in such a situation, it is imperative to expedite the creation of an EV closed-loop [6,7]. The effectiveness of an electric vehicle motor or generator is usually measured by its rotational speed. The speed of the

* Corresponding author.
E-mail address: bhuvanesh.ananthan@gmail.com (A. Bhuvanesh).

https://doi.org/10.1016/j.measen.2023.100963
Received 26 July 2023; Received in revised form 24 October 2023; Accepted 12 December 2023
Available online 20 December 2023

IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

LITERATURE REVIEW ON BRUSHLESS DC MOTOR MODELLING, ANALYSIS AND CONTROL METHODS

[1]Nandhini Balavelayutham, [2]Alamelumangai Meyyappan,
[1]Assistant Professor, [2]Assistant Professor,
[1] Department of Electrical and Electronics Engineering,
[1] Nehru Institute of Engineering and Technology, Coimbatore, India

Abstract: Unique Brushless Direct Current (BLDC) motors are progressively being utilized in modern applications and electric vehicles. To plan and control the machine for high unique execution, just as for constant shortcoming determination of the BLDC drives, scientific demonstrating is regularly the principal step. This paper presents a study of various methods of displaying and examination of BLDC motors alongside their control methods. Along with the customary BLDC control, diverse current control calculations like state input control component and novel procedure of IC based control calculation are broadly being utilized for controlling the motor, which are accounted for in the paper as well. BLDC motor is demonstrated and recreated and the reenactments results are remembered for the paper. In conclusion, significant uses of BLDC motors are recorded

Index Terms **-** Brushless Direct Current (BLDC), Electric Power Steering (EPS), Special Electrical Motors**.**

I. INTRODUCTION

The Overall, brushed dc and customary ac electric motors (like acknowledgment and facilitated motors) are being used by and large. Regardless, continuous movements in durable magnet advancement, power devices and controllers have made remarkable electrical motors, as Switched Reluctance Motors (SRM), Permanent Magnet Synchronous Motors (PMSM) and Permanent Magnet Brushless DC Motors (PM BLDC) fundamentally more fitting for capable drive action. These motors are depicted by a higher adequacy, more unmistakable trustworthiness, and more power thickness requiring less upkeep [1]. Dependent upon the necessities, these motors track down applications in various electrical systems. Without a doubt the best components of this motor which make it sensible for world class execution applications are - higher power to motor size extent, high usefulness and long life. In view of these characteristics, BLDC motors are comprehensively used for present day applications and the assessment in this space has experienced a quick improvement of late. Many examination distributions have announced novel strategies for BLDC motor plan and investigation. New control calculations are being created for productive motor. A few ongoing distributions accentuate on the improvement of the proficiency, decrease of force waves and shortcoming determination of BLDC motors.

This paper makes an endeavour to gather applicable data as for the demonstrating and examination of BLDC motors. Different boundary assessment procedures are examined exhaustively too. Alongside the regular control strategies, imaginative control calculations, for example, state feedback control system and novel strategy of IC based control calculation are talked about too. In conclusion the utilization of BLDC motors alongside the advantages of supplanting regular motors with these motors has been depicted.

No Access

An Extended Topology Named Active Switched Capacitor/Switched Inductor Quasi-Z-Source with Multilevel Inverter (ASC/SL-QZSI) for Three-Phase Grid-Tie PV Power System: A SPBO–RBFNN Control Scheme

D. Saravanakumar and K. Deeba

https://doi.org/10.1142/S0218126624501111 | **Cited by:** 2 **(Source: Crossref)**

< Previous Next >

Abstract

In this paper, the controller modelling and design for the Active Switched Capacitor/Switched Inductor Quasi-Z-Source with Multilevel Inverter (ASC/SL-QZSI) related three-phase grid-tied photovoltaic (PV) power system is proposed. The ASC/SL-QZSI control method consists of two phases: these are assessed with the use of the proposed effective controller. The proposed control system is the hybridization of the Student Psychology-Based Optimization (SPBO) and the Radial Basis Function Neural Network (RBFNN), hence it is named SPBO–RBFNN control scheme. The ASC/SL-QZS offers greater boost capability, uses fewer passive components, like inductors and capacitors, and reduces the voltage stress across main inverter switching devices. The expandability of this topology is another advantage. Extra cells can simply be cascaded at the network's impedance if a higher boost rate is required by adding an inductor and three diodes. In the proposed control scheme, SPBO is developed for determining the total PV voltages. The input PV reference voltages and gain parameters of the SPBO are created as output for optimal tuning of the Proportional Integral (PI) controller. RBFNN is trained with offline process and it is used to extract the reference currents of the grid, and the output of RBFNN is provided with SPBO. It delivers the corresponding tuning parameters to accomplish the grid current. With this proper control, the input power is reduced and the current, voltage and frequency conditions of DC-link

Journal of Advanced Zoology
ISSN: 0253-7214
Volume 44 Issue 5 Year 2023 Page 582-592

TRANSPORTATION FOR ELECTRICAL VEHICLES PLAYS A MAJOR ROLE IN THE AUTOMOBILE INDUSTRY

Dr.SP.Arunkumar[1*], Mr.M. Arther Clive[2], Dr.R.Anand[3], Dr.P.Maniiarasan[4], Dr.M.Balakrishnan[5]

[1*] *Associate Professor,Department of Mechatronics Engineering,Nehru Institute of Engineering and Technology, Coimbatore,Mail ID: arungreesma@gmail.com.*
[2] *Assistant Professor ,Department of Mechanical Engineering,Akshaya college of engineering and technology, kinathukadavu, Coimbatore,Mail ID: martherclive@gmail.com.*
[3] *.Associate professor, Department of Electrical and Electronic Engineering, Nehru Institute of Engineering and Technology, Coimbatore, India.Mail ID:anandrb.pk@gmail.com.*
[4] *Professor, Department of Aeronautical Engineering, Nehru Institute of Engineering and Technology, Coimbatore, India. maniiarasan@gmail.com.*
[5] *Assistant Professor, Mechatronics Engineering, Nehru Institute of Engineering and Technology, Coimbatore, India. Mail ID:balakrishnn0002@gmail.com*

***Corresponding author:** Dr.SP.Arunkumar*
** Associate Professor,Department of Mechatronics Engineering,Nehru Institute of Engineering and Technology, Coimbatore,Mail ID: arungreesma@gmail.com*

:

Abstract

In recent years, people have grown to appreciate using electric vehicles as transportation. According to the circumstances, electric vehicle drives have a number of advantages over ICE cars, mainly in terms of reduced local pollutants, increased energy efficiency, and reduced reliance on oil. However, a number of obstacles, such as limitations in battery technology, high purchasing costs, and therefore a lack of recharging infrastructure, are preventing the quick adoption of electric vehicles. To fully replace ICE cars, EVs must first overcome a few significant challenges. The primary focus of this essay is on some crucial details regarding electric vehicles, such as their many types, electrical equipment, and batteries. This paper's goal is to give information on the existing and future state of electric vehicle technology.

Key Words: Types Electric Vehicle (EVs), Batteries & specifications, Motor used in EVs

1. Introduction

Electric vehicles (EVs) and battery technology are constantly improving, but there are still several downsides, including high cost, a small driving range, performance difficulties, a lengthy charge time, and a decreasing number of charging stations. When there are more electric vehicles on the road, we may anticipate better air because they have no tailpipe emissions 3. Less sickness in the globe implies cleaner air equals less strain on hospitals, public health systems, and other institutions. We can conserve the ozone layer and lessen our carbon footprint by reducing greenhouse gas emissions. EVs are nothing if not an honest beginning, and if we can't halt heating, we will undoubtedly slow down the process. Neither oil nor gas must be varied or purchased. You only need to link reception to refill while at work, on the road, or at reception 5.

Measurement: Sensors 31 (2024) 100960

Contents lists available at ScienceDirect

Measurement: Sensors

journal homepage: www.sciencedirect.com/journal/measurement-sensors

Sensorless speed and position control of permanent magnet BLDC motor using particle swarm optimization and ANFIS

N. Hemalatha [a], S. Venkatesan [b], R. Kannan [c], S. Kannan [d], A. Bhuvanesh [e], A.S. Kamaraja [f,*]

[a] Department of Electrical and Electronics Engineering, Francis Xavier Engineering College, Tirunelveli, Tamil Nadu, India
[b] Department of Computer Science and Engineering, Adhiyamaan College of Engineering, Hosur, Tamil Nadu, India
[c] Department of Electrical and Electronics Engineering, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India
[d] Department of Electrical and Electronics Engineering, Ramco Institute of Technology, Rajapalayam, Tamil Nadu, India
[e] Department of Electrical and Electronics Engineering, PSN College of Engineering and Technology, Tirunelveli, Tamil Nadu, India
[f] Department of Electrical and Electronics Engineering, Kalasalingam Academy of Research and Education, Krishnankoil, Tamil Nadu, India

ARTICLE INFO

Keywords:
ANFIS
PSO
PMBLDC motor
Zero crossing point
Sensorless

ABSTRACT

This paper describes the operation of a Permanent Magnet Brushless Direct Current (PMBLDC) motor without a position sensor. In this case, the sensorless operation is enhanced by an effective hybrid technique that detects the back electromotive force (Back EMF) of the zero crossing point (ZCP) from the terminal voltages. The Adaptive Neuro Fuzzy Interference System (ANFIS) controller, which is based on Particle Swarm Optimization (PSO) and uses PSO to train its operation, is combined in the proposed hybrid analysis. The PMBLDC motor's ANFIS controller receives the line voltages as input, and it uses this information to estimate the sample signals that are then sent to the ZCP detection circuit. Appropriate commutation control of the inverter is generated by the ZCP detecting circuit. By varying the ANFIS consequent parameters, the PSO algorithm iterates until the error between the sample output and the real training data reaches a low value. The MATLAB/Simulink platform is utilized to implement the suggested sensorless controller action. To verify the controller's performance, a comparison with the other soft computing methods is also carried out.

1. Introduction

Because permanent magnets (PMs) have minimal excitation losses, a simple structure, increased efficacy, quick dynamic enactment, and a great torque or power, they are preferable to electromagnetic excitation machines in electrical machines [1]. The primary devices based on PM technology are PM synchronous motors (PMSMs) fed by sine wave current and PMBLDC motors fed by square wave current [2]. PMBLDCs are getting more attraction because of their extraordinary efficacy, longer lifespan, quieter working, good dynamic response, and minimum maintenance [3–7].

PMBLDC motors are used in the production of modern electrical machines and have found use in the HVAC industry, medical, engine cooling fan, water pump, air conditioning compressor, heating, ventilation, power steering, aircraft, military equipment, hard disk drive, and electric traction in electric road vehicles and hybrid electric vehicles [8–10]. An inverter is typically needed by a PMBLDC drive in order to complete the commutation procedure for driving [11]. Precise information about the rotor speed and location must be detected or calculated in order for the PMBLDCs to be controlled effectively.

A resolver, absolute encoder, sensors, or other type of position sensor can be used in conventional control methods to determine the rotor position [12,13]. Nevertheless, the nature of high temperature, high humidity, or pressurized environments can alter the rotor position information and upsurge the dimension and cost of motor equipment owing to the sensitivity of these sensing devices [14,15]. As a result, the creation of sensorless controllers is a topic of great research interest. Every sixty degrees, the rotor position is monitored in the sensorless control approach, which is required to guarantee current commutations.

These techniques are based on a number of different tactics, such as flux estimates, back EMF incorporation, recognition of the conduction of freewheeling diodes, motor modification approach, and back EMF voltage sensing in the non-energized coils [16]. The comprehensive harmonic inoculation method, flux observers, model-reference adaptive control, extended Kalman filters, adaptive sliding observers, etc. are some other techniques [9,17–19].

* Corresponding author.
E-mail address: kamaraja.as@gmail.com (A.S. Kamaraja).

https://doi.org/10.1016/j.measen.2023.100960
Received 2 June 2023; Received in revised form 30 October 2023; Accepted 12 December 2023
Available online 18 December 2023

International Journal of Communication Systems / Volume 37, Issue 8 / e5750

RESEARCH ARTICLE

A source location privacy protocol-based energy-efficient and link-reliable multi-scale bifurcated deep Capsnet routing in social Internet of Things

Gowtham Mariappan Sakthivel, Arunkumar Subramanian, Jamaesha Syed Mohammadu, Ramkumar Muthukrishnan

First published: 20 March 2024
https://doi.org/10.1002/dac.5750

Funding information: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Summary

Source location privacy is a developing research topic in the social Internet of Things. Source location privacy holds paramount importance in security critical wireless sensor network applications like tracking and monitoring. Several methods have been proposed for source location privacy in the social Internet of Things, but the existing methods have some issues such as improper path selection, the transmission of duplicate messages, and low network lifetime. To overcome these issues, a source location privacy protocol based on energy-efficient and link-reliable multi-scale bifurcated deep Capsnet routing in the social Internet of Things is proposed in this manuscript. At first, the optimal route for the source is selected with the help of energy-efficient and link-reliable routing, this method helps to avoid improper path selection. To estimate the quality of the selected optimal path, the multi-scale bifurcated deep Capsnet is applied. The introduced method is executed in MATLAB. The introduced method's performance is estimated with the aid of several performances evaluating metrics like sensitivity, energy consumption, network lifetime, safety period, and delay.

Environ Sci Pollut Res Int. 2024 May;31(21):31064-31080. doi: 10.1007/s11356-024-32921-x.
Epub 2024 Apr 16.

Optimal detection and classification of grid connected system using MSVM-FSO technique

Samuel Raj Daison Stallon [1], Ramanpillai Anand [2], Ramasamy Kannan [2], Seenakesavan Rajasekaran [3]

Affiliations

PMID: 38625469 DOI: 10.1007/s11356-024-32921-x

Abstract

This paper, a hybrid method, is proposed for protecting the hybrid photovoltaic (PV) and wind turbine (WT) system. The proposed protecting method is the hybrid wrapper of both the multiple support vector machine (MSVM) and firebug swarm optimization (FSO), commonly named as MSVM-FSO method. The proposed technique is diagnosing the appropriate fault occurring in the hybrid system. The main purpose of the proposed system is to assure the system with lower complexity for the fault diagnosis and detection (FDD) for improving the power quality (PQ) of hybrid method. Here, the MSVM approach is used to detect the fault conditions of grid-tied system. To evaluate the events of voltages, fault and the currents of hybrid systems are analyzed at the feeder of buses. The FSO categorizes the types of fault, which is occurred in grid-connected system. By then, the proposed method's performance is done in the MATLAB software and it is contrasted with different existing methods. From this, the proposed method provides accuracy as 99.7% and efficiency as 98%, which is high compared to existing methods.

Keywords: Accuracy; Buses; Fault detection; Feeders; Grid; Photovoltaic; Power Quality; Wind turbine.

Related information

MedGen

LinkOut - more resources

Full Text Sources

Springer

AIMS Electronics and Electrical Engineering

https://www.aimspress.com/journal/ElectrEng

AIMS Electronics and Electrical Engineering, 8(2): 165–186.
DOI: 10.3934/electreng.2024007
Received: 24 December 2023
Revised: 29 February 2024
Accepted: 07 March 2024
Published: 25 March 2024

Research article

Optimization of position and rating of shunt and series connected FACTS devices for transmission congestion management in deregulated power networks

Vengadesan Alagapuri[1,2], Ashok Bakkiyaraj Radhakrishnan[1] and S. Sakthivel Padaiyatchi[3,*]

[1] Department of Electrical Engineering, Annamalai University, Chidambaram, India

[2] Sri Venkateshwaraa College of Engineering and Technology, Puducherry, India

[3] Department of Electrical and Electronics Engineering, Nehru Institute of Engineering and Technology, Coimbatore, India

* **Correspondence:** Email: sithansakthi@gmail.com; Tel: +91-994-236-4664.

Abstract: Transmission congestions are caused by electricity trading between generators and distribution companies in a deregulated environment. Power system operation and security in liberalized scenarios are maintained by removing branch overloads. A flexible alternating current transmission system (FACTS) controller is installed in a suitable location to redistribute the power flow among the transmission lines so that the power flows are brought within the capacity of the lines. In this work, series-connected thyristor-controlled switched compensators (TCSCs) and shunt-connected Volt-Ampere reactive (VAR) static compensators (SVCs) are installed in appropriate locations to alter the power flow patterns and to remove overloads. It is proposed to reduce the overload of transmission lines by locating series and shunt connected FACTS devices at proper locations. The size and location of TCSC and SVC devices greatly affect their ability to meet a congestion management goal. An optimization process optimizes the location and size of these devices to maximize the congestion mitigation benefits of the TCSC and SVC controllers. In this work, the whale optimization algorithm (WOA) is used to optimize the value of the objective function by appropriately choosing the location and size of the FACTS controllers. This algorithm has a few parameters that are tuned to give the best overall results. A WOA-based method is proposed to optimize the size and location of the FACTS devices and is implemented on the IEEE-30 bus test case. The results were compared and found to be improved with those of other algorithms such as the particle swarm optimization algorithm (PSO) and the firefly algorithm (FFA).

Keywords: congestion management; whale optimization algorithm; FACTS; TCSC; SVC

Received: January 26, 2024. Revised: March 8, 2024.

INASS

International Journal of
Intelligent Engineering & Systems

http://www.inass.org/

Security and Privacy Considerations in Multimedia Resource Management Using Hybrid Deep Learning Techniques in Cloud Computing

Nallasivan. G [1]* Karpagam. T [2] Geetha. M [3] Sankarasubramanian. R. S [4]
Kannan. R [5] Bhuvanesh. A [6] Poojitha. G [7]

[1]Department of Computer Science and Engineering,
Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Avadi, Chennai, Tamilnadu, India
[2]Department of Artificial Intelligence and Data Science,
R. M. K. College of Engineering and Technology, Thiruvallur, Tamilnadu, India
[3]Department of Electrical and Electronics Engineering,
Sri Eshwar College of Engineering, Coimbatore, Tamil Nadu, India
[4]Department of Mathematics, PSG Institute of Technology and Applied Research, Coimbatore, Tamil Nadu, India
[5]Department of Electrical and Electronics Engineering,
Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India
[6]Department of Electrical and Electronics Engineering,
PSN College of Engineering and Technology, Tirunelveli, Tamilnadu, India
[7]Department of Artificial Intelligence and Data Science,
R.M.K. College of Engineering and Technology, Tiruvallur, Tamil Nadu, India
* Corresponding author's Email: udhayanallasivan@gmail.com

Abstract: The management of various multimedia assets, such as photos, videos, audio files, and other rich media content, within a cloud computing environment is referred to as managing multimedia resources in the cloud. To suit the needs of applications and users, this entails the effective storage, retrieval, processing, and distribution of multimedia resources. Given the significance of work planning and managing resources in the cloud computing environment, we present a unique hybrid algorithm in this research. Many cloud-based computing systems have made extensive use of traditional scheduling techniques like ant colony optimization (ACO), first come first serve, etc. The cloud gets client tasks at a high rate, so it is important to handle resource allocation for these tasks carefully. Using the improved pelican optimization algorithm, we efficiently distribute the tasks to the virtual machines in this proposed work. The proposed hybrid algorithm (Improved POA + Improved GJO) is then used to distribute and manage the resources (Memory and CPU) as needed by the tasks. According to experimental findings, the accuracy of the proposed technique increases by 1.12%, 2.11%, and 14.2%, respectively. It shows that the proposed method has good accuracy compared with the existing HUNTER, FT-ERM, and RU-VMM approaches.

Keywords: Deep learning algorithms, Resource management, Load balancing, Virtual machines, Task scheduling.

1. Introduction

A large portion of multimedia services are now supplied over the internet thanks to Web 2.0's rapid expansion. The online multimedia systems include a wide range of functions such media content creation, editing, processing, searching, and storage. Supporting such systems has meant placing heavy and diverse demands on processing, storage, and communication capabilities [1-3]. Cloud computing has gained popularity over the last ten years as a viable platform for supplying multimedia services with the resources they need and the quality of service (QoS) they require. Multimedia social programs, online picture and video editing, cloud-based video and picture sharing, and other cloud-based applications are becoming commonplace [4, 5].

e-Prime - Advances in Electrical Engineering, Electronics and Energy 8 (2024) 100585

Contents lists available at ScienceDirect

e-Prime - Advances in Electrical Engineering, Electronics and Energy

journal homepage: www.elsevier.com/locate/prime

Performance Analysis for Battery Stability Improvement using Direct Air Cooling Mechanism for Electric Vehicles

S. Amosedinakaran [a], R. Kannan [b], S. Kannan [c], A. Ramkumar [d], S. Suresh [e], A. Bhuvanesh [f,*]

[a] Department of Electrical and Electronics Engineering, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology (Deemed to be University), Chennai, Tamil Nadu, India
[b] Department of Electrical and Electronics Engineering, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India
[c] Department of Electrical and Electronics Engineering, Ramco Institute of Technology, Rajapalayam, Tamil Nadu, India
[d] Department of Electrical and Electronics Engineering, Kalasaligam Academy of research and Education, Krishnankovil, Tamil Nadu, India
[e] Department of Electrical and Electronics Engineering, Sri Eshwar College of Engineering, Coimbatore, Tamil Nadu, India
[f] Department of Electrical and Electronics Engineering, PSN College of Engineering and Technology, Tirunelveli, Tamil Nadu, India

ARTICLE INFO

Keywords:
Battery cooling
Temperature
Performance
E-Vehicle
SOC

ABSTRACT

Safety concerns about the battery are primary challenges for the maker of the electric vehicle (EV) system. At continuous work, maintaining the optimal temperature is a crucial scientific issue. It has restricted the widespread use of batteries. Hence, maintaining the optimal temperature for E-vehicles has been analyzed in this study. To achieve more energy density in charging, the discharging cycle and compact structure have been essential. In this study, a direct air-cooling system has been addressed to reduce the temperature of the battery pack, resulting in a significant improvement in system efficiency. The 1.44 kgwatt (kW) battery back has been constructed for the E-vehicle by Simulink diagram to analyze the system. In this study, two various scenarios have been made, such as with air cooling and without cooling, to validate the outcomes. Torque and speed characteristics have been analyzed for this study. Air-cooling-based batteries for e-vehicle simulation have delivered better outcomes, such as high power charging and discharging and a discharge depth of 92%. The differential battery pack temperature has been reduced by increasing the cooling air flow rate to 2 ms^{-1}, 4 ms^{-1}, and 6 ms^{-1}. To attain an even delivery of coolant air flow, a design criterion has been suggested. The outcome of the study has been evaluated through numerical analysis.

1. Introduction

Electric vehicles (EVs) have offered a promising solution to reduce the transportation sector's dependence on fossil fuels and cut down greenhouse gas emissions. The core component enabling their functionality is the lithium-ion batteries powering the electric motors [1]. However, the widespread adoption of e-vehicles faces significant safety concerns, primarily stemming from these batteries. While lithium-ion batteries offer high energy density and efficiency, they also pose various safety risks, including thermal runaway, manufacturing defects, and vulnerabilities in the supply chain. Addressing these safety concerns is crucial for ensuring the reliability, widespread acceptance, and scalability of electric cars within the global automotive industry [2]. Battery manufacturers encounter substantial safety hurdles that affect the extensive acceptance of EVs, largely due to the distinctive characteristics of lithium-ion batteries, which are prevalent in EVs. These obstacles encompass thermal runaway, where overheating can trigger fires and explosions, necessitating meticulous battery pack design and integration to ensure adequate cooling and protection [3]. Maintaining uniform quality in battery production is pivotal for averting defects and disruptions in the supply chain, which could hamper production capacity and safety [3].

After years of continuous effort, new problems and opportunities have emerged in the fight against environmental degradation and the energy crisis [4]. Cleaner technologies have been effectively transforming nuclear, wind, and solar energy into electric energy [5,6]. As a result, electrochemical energy storage (EES) devices have replaced fossil fuel-based propulsion systems in the automobile sector, which is going through a revolution [7]. This revolution in energy storage and propulsion technologies is driving the development of new energy vehicles

* Corresponding author.
E-mail address: bhuvanesh.ananthan@gmail.com (A. Bhuvanesh).

https://doi.org/10.1016/j.prime.2024.100585
Received 15 January 2024; Received in revised form 26 March 2024; Accepted 6 May 2024
Available online 9 May 2024

Journal of Advanced Zoology

ISSN: 0253-7214

Volume 44 Issue 1-3 Year 2023 Page 587:600

PREDICTION AND CLASSIFICATION OF TEA LEAF DISEASES USING DEEP LEARNING TECHNIQUES ELeNet

[1]R.Muruganandham, Associate Professor,
School of Management, Presidency University,Bangalore Muruganandham.r@presidencyuniversity.in
[2]Dr. D. Karthikeswaran, Associate Professor & HOD
Department of Information Technology Nehru Institute of Technology
Coimbatore. karthids@gmail.com
[3]Mrs P Priyadharsini, Assistant Professor,
Computer Science and Business Systems, Nehru Institute of Engineering and Technology,
Coimbatore. privapalanisamy1410@gmail.com
[4] Dr.M.Renuka Devi,Associate Professor,
Presidency University,Bangalore renukadevi.m@presidencyuniversity.in

Article History
Received: 08July2023
Revised: 29 Aug 2023
Accepted:30 Sept 2023

Abstract

Tea is the most critical beverage of people next to the water. So, tea production is essential in India. To increase the crop, yield early-stage diagnosis of tea leaf disease is essential. Generally, Tea leaves are affected by 100 types of diseases, but 15 of which occur in leaf and buds. Among these disease blister blight, anthracnose, brown blight, red leaf spot and fungal leaf spot, white scab, grey blight may affect the quality and quantity of the tea production. So, data mining plays a vital role in the early diagnosis of tea leaf disease and assess the crop yield. Diagnosis of plant disease is typically based on disease characteristics. Developing and implementing a diagnostic structure for tea plant illnesses would, therefore, assist farmers in ensuring precise and timely identification of tea plant illnesses. Such improvements would lead to better techniques of control that would restore problems due to disease economically and efficiently. This research starts the new method to predict and classify the tea leaves disease. Finally, this research forecast crop yield by identifying the major diseases that are limiting yield. For this the following objectives are framed.

International Journal on Applications in Engineering and Technology
Volume 9 : Issue 5 : December 2023, pp 28 – 32 www.aetsjournal.com
ISSN (Online) : 2455 - 0523

An Analysis of Convolutional Neural Network Approach for Face Recognition

Mrs.Priya. B
Assistant Professor
Department of Computer Science and Business Systems (CSBS)
Nehru Institute of Engineering and Technology
Coimbatore
Email Id : priyab.77@gmail.com
Mrs. Sruthi.P.S
Assistant Professor
Department of Computer Science and Business Systems (CSBS)
Nehru Institute of Engineering and Technology
Coimbatore
Email Id : sruthips92@gmail.com

Abstract— Faces represent complex multidimensional mean ingful visual stimuli and developing a computational model for face recognition is difficult. We present a hybrid neural-network solution which compares favorably with other methods. The system combines local image sampling, a self-organizing map (SOM) neural network, and a convolutional neural network. The SOM provides a quantization of the image samples into a topological space where inputs that are nearby in the original space are also nearby in the output space, thereby providing dimensionality reduction and invariance to minor changes in the image sample, and the convolutional neural network provides for partial invariance to translation, rotation, scale, and deformation. The convolutional network extracts successively larger features in a hierarchical set of layers. We present results using the Karhunen–Loeve (KL) transform in place of the SOM, and ` a multilayer perceptron (MLP) in place of the convolutional network. The KL transform performs almost as well (5.3% error versus 3.8%). The MLP performs very poorly (40% error versus 3.8%). The method is capable of rapid classification, requires only fast approximate normalization and preprocessing, and consistently exhibits better classification performance than the eigenfaces approach on the database considered as the number of images per person in the training database is varied from one to five. With five images per person the proposed method and eigenfaces result in 3.8% and 10.5% error, respectively. The recognizer provides a measure of confidence in its output and classification error approaches zero when rejecting as few as 10% of the examples. We use a database of 400 images of 40 individuals which contains quite a high degree of variability in expression, pose, and facial details. We analyze computational complexity and discuss how new classes could be added to the trained recognizer.

Keywords— Photograph Segments, User-friendly environment, Images etc

I. INTRODUCTION

The aim of this project is to develop a system for identifying criminals in any investigation department. The project utilizes a technique where images of known criminals are stored in a database along with their details. These images are segmented into various parts such as eyes, hair, lips, nose, etc. These segmented images are also stored in a separate database.

To identify criminals, eyewitnesses are shown the images or slices that appear on the screen. Using these slices, a composite face is constructed, which can then be compared with the stored images in the database. If there is a match of up to 99%, it is predicted that the person being investigated is the criminal.This project aims to provide a user-friendly environment for operators and eyewitnesses to easily design and identify criminal faces.

A. Problem Area Description

The project focuses on the identification of criminals with the assistance of eyewitnesses. It consists of four main modules: Adding, Deleting, Updating, and Identifying Criminals. There are mainly three roles in the project. They are,

- Administrator
- Operator
- Eyewitness

B. Administrator

The administrator is responsible for providing user IDs and passwords, as well as managing user authentication. They can

ZHUZAO/FOUNDRY

ISSN NO:1001-4977 | editorfoundry@gmail.com | Scopus Active Journal

Dr. P. MANIIARASAN
Principal
Nehru Institute of Engg. & Technology
T.M.Palayam, Coimbatore - 641 105.

Technische Sicherheit(Technical Security)

ISSN:1434-9728/E-ISSN:1436-4948 || Impact Factor 6.1

Volume 24 Issue 2 2024

Arasu Engineering college, Kumbakonam, Tamil Nadu, 609305, India.

PAGE NO: 19-25
DOI:22.8342.TSJ.2024.V24.2.01253

4. Detecting Alzheimer's Disease By Using Retinal Images With A Noval Non – Invasive Method

J.Ruby Elizabeth, Sarojini Yarramsetti, P.Anju, Sruthi P S
Nehru Institute of Engineering and Technology, T.M.Palayam, Coimbatore, Tamil Nadu.

PAGE NO: 26-33
DOI:22.8342.TSJ.2024.V24.2.01254

5. Comparison And Co-relationship Between Academic Achievement And Home Environment Of Children's

Dr.Sudhakar Jadhav
Sundarrao More Arts, Comm. And Science College, Poladpur Dist. Raigad.

PAGE NO: 34-45
DOI:22.8342.TSJ.2024.V24.2.01255

6. From Classroom To Application: A Pedagogical Exploration Of Teaching Marketing Analytics

Dr. Archana Raje, Dr. Ragini N. Mohanty, Dr. Kavita Kalyandurgmath
Prin. L. N. Welingkar Institute of Management and Research, Mumbai.

PAGE NO: 46-66
DOI:22.8342.TSJ.2024.V24.2.01256

7. Ultrasonic Velocities And Viscosity Of Binary System Containing (1,4-dioxane + Octan-1-ol) At T = (298.15, 303.15 And 305.15) K

Dhirendra Kumar Sharma, Chandra Pal Prajapati, Suneel Kumar, Ravi Kant Mishra
Institute of Basic Science, Bundelkhand University, Jhansi (U.P), India.

PAGE NO: 67-78
DOI:22.8342.TSJ.2024.V24.2.01257

8. A Critical Linkage Between Women Empowerment And Gender Discrimination: A Strategic View To Understand Sustainability Of Women's Livelihoods

PLABANI ROY, Dr. PUVVADA GEORGE RAJAKUMAR
Adamas University. West Bengal, India.

PAGE NO: 79-86
DOI:22.8342.TSJ.2024.V24.2.01258

9. Constructing and Analysing Covert Schemes in Hybrid Covert Channels

Kurmi Sandeep, Manisha J Nene

ISSN: 10123407

Enhanced Protocol Testing Using PEX Exploration and Shortest Path Method

ANJU P[1], SAROJINI YARRAMSETTI[2], PRIYA.B[3], SRUTHI P S[4],

1. Nehru Institute of Engineering and Technology, Coimbatore-641105, TamilNadu, India.
2. Nehru Institute of Engineering and Technology, Coimbatore-641105, TamilNadu, India.
3. Nehru Institute of Engineering and Technology, Coimbatore-641105, TamilNadu, India.
4. Nehru Institute of Engineering and Technology, Coimbatore-641105, TamilNadu, India.

Abstract— **Network protocols such as DNS and DHCP are prone to much vulnerability such as security issues, flaws and interoperability issues due to developer mistakes and ambiguous requirements in protocol specifications. Detection of such problems is not easy because many mistakes manifest themselves only after prolonged operation, detection of semantic errors need machine-readable specification and state space of complex protocol implementations are large. The combination of symbolic execution and rule-based specification with the help of PEX to detect flaws in protocol implementations is extremely time consuming. This article presents an approach of shortest path method in PEX exploration to reduce time consumption and to improve efficiency.**

Index Terms— **Symbolic execution, network security, testing, interoperability testing, shortest path**

I. Introduction

Computer network is a collection of autonomous computers interconnected by a single technology. Two computers are said to be interconnected if they are able to exchange information. Connection between systems may be via copper wire, fibre optics, microwaves, infrared, communication satellite etc. networks vary in size, shapes and forms.

Communicating entities require an agreement to exchange information. Network protocol [7] is a set of rules that governs the communications between computers on a network and defines how data is formatted and processed on a network. Protocols for computer networking all generally use packet switching technique to send and receive messages in the form of packets. Some protocols also support message acknowledgement. There is a standard protocol for each network communication task.

Network protocols like DNS and Dynamic Host Configuration Protocol [10] implementations are often prone to errors. Different interpretations of developers from ambiguous network protocol specifications leads to bugs and interoperability issues [17] in corresponding implementations of network protocol services. Since the complexity of network protocols are high, it makes errors which will be difficult to detect even by the well-studied and mature protocols. Errors and mistakes may only manifest themselves after prolonged operation and after complex sequences of network packets. The impact of vulnerabilities like cache poisoning attacks in DNS server implementations will be severe and cost of fixing them will be high.

It is difficult to find errors in network protocol implementations because (1) many bugs manifest themselves after prolonged operation in a production network; (2) finding of semantic errors in network protocol implementations need a machine-readable specification of that specific protocol behavior; and (3) the state space of complex network protocol implementations is large.

The SYMBEXNET [2],[12],[14],[15] approach combines symbolic execution and rule-based specifications to check a network protocol implementation against its specification automatically. It discovers various types of errors which will be hard to detect manually. SYMBEXNET is also used to check the interoperability of different implementations of the same network protocol. Symbolic execution is a program analysis technique which generates input that explores multiple paths in a program. But the approach of combination of symbolic execution and rule-based specification with the help of PEX to detect flaws in protocol implementations is extremely time consuming and of high cost.

This paper deals with shortest path method to reduce the time consumption that has been faced by the SYMBEXNET [1].

II. Preliminaries

Some background details about the operation of network protocols, the basics of symbolic execution for generating test cases and the shortest path method.

A. Network Protocols

A network is a collection of autonomous systems or entities interconnected by communication technologies that enable exchange of information [7]. Communicating entities requires an agreement to exchange information. Network protocol defines a set of rules and conventions for communication between network devices. The network protocol uses packet switching technique. The protocol specification [9], [11] is the document which describes all the information regarding methods, behaviour and packet formats when a network protocol is designed.

ISSN: 2788-7669 Journal of Machine and Computing 4(2)(2024)

Micro-Doppler based Human Activity Recognition using ABOA based Dual Spatial Convolution with Gated Recurrent Unit

[1]Joseph Michael Jerard V, [2]Sarojini Yarramsetti, [3]Vennira Selvi G and [4]Natteshan N V S
[1]School of Computer Science & Engineering, Presidency University, Bangalore, India.
[2]Department of Computer Science and Business Systems, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India.
[3]School of Computer Science and Engineering and Information Science, Presidency University, Bangalore, India.
[4]School of Computing, Kalasalingam Academy of Research and Education, Tamil Nadu, India.
[1]jerard.vedam@gmail.com, [3]vennira.selvi@presidencyuniversity.in, [4]natteshan@gmail.com

Correspondence should be addressed to Joseph Michael Jerard V : jerard.vedam@gmail.com.

Article Info
Journal of Machine and Computing (http://anapub.co.ke/journals/jmc/jmc.html)
Doi: https://doi.org/10.53759/7669/jmc202404042
Received 20 August 2023; Revised from 18 October 2023; Accepted 25 January 2024.
Available online 05 April 2024.

Abstract – The through-wall capability, device-free detection of radar-based human activity recognition are drawing a lot of interest from both academics and industry. The majority of radar-based systems do not yet combine signal analysis and feature extraction in the frequency domain and the time domain. Applications like smart homes, assisted living, and monitoring rely on human identification and activity recognition (HIAR). Radar has a number of advantages over other sensing modalities, such as the ability to shield users' privacy and conduct contactless sensing. The article introduces a new human tracking system that uses radar and a classifier called Dual Spatial Convolution Gated Recurrent Unit (DSC-GRU) to identify the subject and their behavior. The system follows the person and identifies the type of motion whenever it detects movement. One important feature is the integration of the GRU with the DSC unit, which allows the model to simultaneously capture the spatiotemporal dependence. Present prediction models just take into account spatial features that are immediately adjacent to each other, disregarding or just superimposing global spatial features when taking spatial correlation into account. A new dependency graph is created by calculating the correlation among nodes using the correlation coefficient; this graph represents the global spatial dependence, while the classic static graph represents the neighboring spatial dependence in the DSC unit. The DSC unit goes a step further by using a modified gated mechanism to quantify the various contributions of both local and global spatial correlation. While previous models performed worse, the suggested model outperformed them with an accuracy of 99.45 percent and a precision of 97.15 percent.

Keywords – Human Identification, Gated Recurrent Unit, Radar Based Systems, Frequency Domain, Global Spatial Dependence.

I. INTRODUCTION

The many uses of human activity recognition in fields as diverse as healthcare, surveillance, and human-computer interaction have brought it considerable attention in recent years. Assisted living, smart homes, and monitoring are just a few of the many applications that have piqued the interest in human identification and activity recognition (HIAR) [1]. Wearable and contactless modalities are two broad categories into which many have been introduced. Constantly donning and carrying around wearable sensors like ankle monitors and bracelets makes them cumbersome, prone to loss or forgetfulness, and prone to false alarms [2]. Despite these drawbacks, contactless sensing systems have attracted a lot of attention from researchers. Cameras, microphones, and radar systems are the most prevalent types of contactless sensors [3]. When it comes to lighting and blind spots, cameras aren't perfect. Ambient noise interferences can be rather noticeable to microphones [4]. On top of that, when used in residential settings, they both violate people's right to privacy. Because of its ability to preserve privacy, be resistant to light and weather, and achieve high accuracy, radar-based HIAR could be a useful addition to existing technologies [5]. According to [6], the conventional signal processing method for radar-based

ISSN: 10123407

IOT BASED AIR QUALITY MONITORING SYSTEM WITH SERVER NOTIFICATION

SAROJINI YARRAMSETTI [1], PRIYA.B [2]

1. Nehru Institute of Engineering and Technology, Coimbatore-641105, TamilNadu, India.
2. Nehru Institute of Engineering and Technology, Coimbatore-641105, TamilNadu, India.

Abstract— Numerous factors, including population growth, increased automobile use, industrialization, and urbanization, have contributed to the rise in pollution levels over time. These variables have a negative impact on public health and well-being. To monitor the pollution in this paper, we will create an Internet of Things (IOT)-based air pollution monitoring system. We will use the internet to monitor the air quality over a web server and will send an alarm, or message, when the air quality falls or rises above a predetermined level, which indicates when there are enough harmful gases, such as CO2, smoke, alcohol, benzene, and NH3, present in the air. It will show the air quality on the LCD and as well as on webpage so that we can monitor it very easily. In this paper, we can monitor the pollution level from anywhere using your computer or mobile.

Index Terms— IOT, WSN, Arduino, ESP32

1. INTRODUCTION

The primary issue facing all countries, developed or developing, is air pollution. The number of health issues has been increasing, particularly in developing country cities where increased industrialization and traffic volume have resulted in the emission of several gaseous pollutants. Pollution can cause modest allergic reactions like inflammation of the nose, eyes, and throat, as well as more serious conditions including pneumonia, lung infections, bronchitis, and worsened asthma. A survey claims that air pollution causes between 50,000 and 100,000 premature deaths annually in the United States alone, premature deaths per year occur in the U.S. alone whereas in EU number reaches to 300,000 and over 3,000,000 worldwide. Air pollution is the primary cause of both climate change and human health issues. The climate has changed as a result of it, with phenomena including acid rain, storms, overcrowding, drought, global warming, and foggy weather among others. Living organisms both on land and in the ocean face numerous challenges, such as altered lifestyles brought on by inadequate living conditions.

One type of computer system that is primarily made to do several jobs, such as accessing, processing, storing, and controlling data in various electronics-based systems, is called an embedded system. Hardware and software are combined to create embedded systems; the software is typically referred to as firmware and is embedded inside the hardware. One of these systems' most crucial features is that it provides the output within the allotted time. Embedded systems help to improve the efficiency and convenience of work. Thus, embedded systems are widely used in both basic and complicated devices. The majority of embedded system applications are found in everyday objects such as calculators, TV remote controls, microwaves, and homes. The two primary components of an embedded system are hardware and software, which comprise the processor, memory, power supply, output/output circuits, and system application-specific circuits. Embedded systems employ various processors to achieve their intended functions. The uses of embedded systems are many. Smart cards, telecommunications, satellites, missiles, digital consumer electronics, computer networking, etc. are a few specific examples of embedded system applications.

2. RELATED WORKS

J. J. Caubel, T.E. Cados, T.W. Krichstetter, (2018) 'A New Black Crabon Sensor for Dense Air Quality Monitoring Networks', IEEE.Air quality is a very

Dr. P. MANIIARASAN
Principal
Nehru Instit... Engg & Technology
T.M.Paleyam ...batore - 641 105.

Journal of Ceramic Processing Research. Vol. 24, No. 3, pp. 453~460 (2023)
(Received 19 December 2022, Received in revised form 13 February 2023, Accepted 14 February 2023)
https://doi.org/10.36410/jcpr.2023.24.3.453

J O U R N A L O F
Ceramic Processing Research

Experimental investigation and machinability behavior on synthesized titanium composite

R. Vinothkumar[a,*], J. Maniraj[b] and V.S. Thangarasu[c]
[a]*Department of Mechanical Engineering, Nehru Institute of Engineering and Technology, Coimbatore, Tamilnadu 641105, India*
[b]*Department of Mechanical Engineering, Kalaignar Karunanidhi Institute of Technology, Coimbatore, Tamilnadu 641402, India*
[c]*Department of Mechanical Engineering, Indra Ganesan College of Engineering, Tiruchirappalli, Tamilnadu 620012, India*

The current study aims to describe the experimental examination and ultrasonic machinability behavior of the titanium composite, which is synthesized by a casting technique. Tungsten carbide (WC) works as reinforcing particles and adds 6% of the titanium alloy's weight. Material properties, characterization, and alloy composition are examined by mechanical testing, scanning electron microscopy (SEM), and energy dispersive x-ray analysis (EDAX), respectively. Rate of metal removal (RMR) and surface finish (SF) are evaluated by the variation of ultrasonic machining (USM) input constraints such as power rating, slurry concentration, and grit size. Ultrasonic machining parameters and desired responses are optimized using the Taguchi technique. The ultrasonically machined surface and its microstructural analysis are investigated using atomic force microscopy (AFM). The desirable RMR was attained at a power rating of 450 W, a 20% slurry concentration, and a grit size of 400. Surface finish was reached at a power rating of 150 W, 15% slurry concentration, and grit size of 400.

Keywords: Titanium composite, Tungsten carbide, Rate of metal removal, Ultrasonic machining, Atomic force microscopy.

Introduction

Titanium alloy has excellent material properties such as formability, corrosion resistance, and high impact toughness. It is utilized in automobile components, aircraft structural, medical, and marine sectors. Metal removal processes rely on the amplitude of vibration and abrasive concentration. The USM input limitations have enhanced the machining quality characteristics [1]. Controlling the cutting force using ultrasonic vibrations improved the rate of metal removal and surface quality of the machined surface [2, 3]. The rate of metal removal and surface roughness were significantly impacted by vibration and tool feed. Microscopic examination was used to investigate the surface topography of the machined surface [4]. By using several unconventional machining techniques, the machinability properties of titanium and its alloy were studied. The ultrasonic vibrations affected the roughness of the surface [5]. The vibrations generated by the USM transducer determine the tool feed, which has the most impact on the circularity of the holes [6]. The developed model was utilized to predict cutting force and feed. The minimum surface roughness was achieved at lower feed rate [7]. Taguchi optimization was used to improve ultrasonic machining performance and attain the desirable characteristics of the response parameters [8].

This research work is dealing with the ultra sonic machining of synthesized titanium composite and its response factors are optimized by Taguchi approach. The machined surface and its micro structural analysis are investigated by SEM and AFM images.

Experimental Method and Material

Material

A titanium metal matrix composite reinforced with 6% tungsten carbide was fabricated using 99% pure titanium as the base material. Titanium has excellent mechanical strength, machinability, and corrosion resistance. Tungsten carbide was used as a reinforced material, and its size was roughly 40 microns. The chemical composition of the titanium was presented in Table 1.

Methods

Stir casting is the best process to make titanium metal matrix composites enhanced with tungsten carbide particles. Stirrer speed, temperature and composition of alloying elements are affected the fabrication of

Table 1. Elemental composition of Titanium.

Ti	Fe	O	C	N	H
99.32	0.305	0.25	0.08	0.03	0.015

*Corresponding author:
Tel : +919944121507
E-mail: auvinothmech@gmail.com

Investigations and Optimization of process parameters for Improving surface quality in the Internal Grinding of EN31 Steel

S. Jeevanantham[1], N. Manikanda Prabu[2], M. Santhosh[3], S. Nishanth[4], Athisaya Sagaya Rajan.A[5]

Article History: **Received:**19.06.2023 **Revised:** 03.07.2023 **Accepted:** 29.07.2023

ABSTRACT

In an industry Internal Grinding is one of the most important machining processes. In this process surface quality is most expected outcome to obtain the better result. Due to complexity and nonlinearity optimization of grinding process is a challenging task. From the literature, it was noted that many of the researchers were focused on only external surfaces of a component for improving its surface quality. It is identified that very few papers deliberated the characteristics of internal grinding process which indicates that, there is a considerable research potential in improving the product quality and process performance of internal grinding. This paper aims to optimize the internal grinding process parameters to increase the expected surface quality and process performance. Similar to external surface grinding process, internal surface grinding is also influenced by parameters such as cutting speed, feed and depth of cut. Considering the variance in optimized results, different samples of EN31 steel are taken into this experimental study. From the literature, it is identified that commonly used engineering materials in many engineering applications are EN 31 Steel. The various machining parameters such as feed, cutting speed, depth of cut were monitored to analyze the process responses such as surface quality. The effect of input and output parameters was described through the ''signal to noise ratio" (SNR) and ''analysis of variance (ANOVA)" using Minitab 18 software. The machining parameters were optimized through Taguchi method and Genetic Algorithm tools. By analyzing the final results, optimum working conditions are recommended to improved surface quality with respect to selected input process parameters.

[1,3,4,5]Department of Mechanical Engineering, Nehru Institute of Engineering and Technology, Coimbatore, India.

[2]Department of Mechanical Engineering, Mahaguru Institute of Technology, Kattachira, Alappuzha, Kerala India.

Mail: jeevanantham694@gmail.com

doi: 10.48047/ecb/2023.12.10.021

1. INTRODUCTION

George et al., (2013) This seminar presents the experimental work/project done on studying the

ScienceDirect

Materials Today: Proceedings

Available online 5 June 2023

In Press, Corrected Proof ⓘ What's this?

Investigation on the mechanical properties of AA5052/AZ61A by ultrasonic welded joints

N. Rajiv Kumar [a], S. Nishanth [b], S. Karthick [c], T. Ramakrishnan [d], N. Arul [e], Karimulla Syed [f]

Show more

Share Cite

https://doi.org/10.1016/j.matpr.2023.05.608

Get rights and content

Abstract

In this research, Ultrasonic spot welding (USW) was used as a solid-state joining method to strengthen the joints. Magnesium-alloy (AZ61A) and aluminum-alloy (AA5052) welded structures are commonly found in lightweight vehicles. Under this process, plastic deformation was observed in the weld joint at an energy level of 1550J, with increasing welding energies beyond 1550J, and a reaction layer of intermetallic compounds (IMCs) forms, with a thickness of about 17μm. The γ-Mg17Al12+β-Mg2-Al3 phase comprises the majority of the IMCs; the β-Mg2-Al3 phase exhibits a hardness of 6.7 GPa and a classic pop-in phenomenon, while the γ-Mg17Al12 cubic structure phase has an average hardness of 3.5 GPa. For welding energies exceeding 1550J, the rapid formation of these phases can negatively impact the joint's performance. The observed fractures feature multiple secondary cracks, which could indicate a cleavage fracture, although further analysis would be necessary to confirm this.

Introduction

Vehicle weight and fuel efficiency can be drastically improved by switching out the steel frame for one made of aluminum alloys and magnesium alloys [1], [2], [3]. Ultrasonic friction at temperatures between 25 and 70% of the melting point is used in USW technology to facilitate quick metallurgical bonding between metal layers. Because there is no heat involved in the joining process, no residual strain, dimensional change, or metallurgical incompatibility, and no possibility of a liquid–solid phase transition [4], [5], [6]. The linkages between steel, Mg, and Al alloy are challenging, but USW makes it possible. There are not as many IMCs created as in the fusion process because the temperature is lower and there is no liquid phase. There is still an IMC reaction layer formation when these metals come into touch with one another and diffuse into one another [7], [8], [9], [10]. Extremely rapid development is thought to result from an unusually high number of interface IMCs, but the cause of this phenomenon remains a mystery. As the cracks propagate through the IMC layer, the mechanical characteristics, especially the fracture energy, of the next dissimilar metal junctions deteriorate. It is still the IMC layer that is most important for welding.

Both domestic and international researchers have done experimental studies and theoretical models of ultrasonic welding of various metals. Researchers looked at how various welding techniques affected the microstructure and characteristics of welded junctions. The modeling of IMC growth during ultrasonic welding allowed for identifying IMCs' role in joint strength. By optimizing the welding process settings [11], the experimental investigation of

TuijinJishu/Journal of Propulsion Technology
ISSN: 1001-4055
Vol. 44 No. 5 (2023)

Characteristics on Mechanical Possessions of Coconut Fibre Protected with Epoxy and Polyester Mixtures

[1] S. Jeevanantham, [2]V.M.M.Thilak, [3]P.Senthil Kumar, [4]S.Nishanth
[1-3] *Associate Professors, Department of Mechanical Engineering, Nehru Institute of Engineering and Technology, Coimbatore.*
[4] *Assistant Professor, Department of Mechanical Engineering, Nehru Institute of Engineering and Technology, Coimbatore.*

Abstract: Fiber-reinforced polymer composites play a predominant role for a longer time in a wide variety of applications for their high specific strength and modulus. The fibre which serves as reinforcement in reinforced polymer is in the form of natural fibres. Natural fibres are not only strong and lightweight but it also relatively very low cost. The present work deals with comparison on the development and characterization of reinforcing the matrix (Epoxy resin & Polyester resin) with natural fibre (Coconut fibre). The natural fibres were exposed to chemical treatment (NaOH) before manufacturing of laminates and the pretreated fibres are tested and the fibres were chopped into 3mm, 5mm, 7mm and 10mm before reinforcement. Samples of Coconut-Epoxy and Coconut Polyester laminate were manufactured using hand layup method were the fibers are dispersed randomly. Specimens were cut from the fabricated and laminate according to the ASTM standard for different experiments. Tensile test, flexural test, and Impact test samples were cut in the desired shape and its results were observed, compared with epoxy and polyester composites to perceive the properties of composites.

Keywords: *Coconut fibres, Epoxy resin, Polyester resin, hand-layup, compression moulding, Mechanical Properties.*

1. Introduction

A composite is a material made by combining two or more dissimilar materials in such a way that the resultant material is endowed with properties superior to any of its parental ones. Fibre-reinforced composites, owing to their superior properties, are usually applied in different fields like defense, aerospace, engineering applications, sports goods, etc. Nowadays, natural fibre composites have gained increasing interest due to their eco-friendly properties. A lot of work has been done by researchers based on these natural fibres. Natural fibres such as jute, sisal, silk and coir are inexpensive, abundant and renewable, lightweight, with low density, high toughness, and biodegradable. Natural fibre reinforced polymer composites have raised great attentions and interests among materials scientists and engineers in recent years due to the considerations of developing an environmental friendly material and partly replacing currently used glass or carbon fibres in fibre reinforced composites. They are high specific strength and modulus materials, low prices, recyclable, easy available in some countries, etc. **M. Brahmakumar, et al [1]** used Coconut fibre as reinforcement in low density polyethylene. The effect of natural waxy surface layer of the fibre on fibre/matrix interfacial bonding and composite properties has been studied by single fibre pull-out test and evaluating the tensile properties of oriented discontinuous fibre composites. The waxy layer provided good fibre–matrix bond such that removal of the layer resulted in drastic decrease of the fibre pull-out stress, increase of the critical fibre length and corresponding decrease in tensile strength and modulus of the composites. The waxy layer of polymeric nature also exhibited a stronger effect on interfacial bonding than by grafted layer of a C15 long-chain alkyl molecule onto the wax-free fibre. The morphological features of the fibre along with its surface compatibility with the matrix favours oriented flow of relatively long fibres along with the molten matrix during extrusion. **N.S.M. El-Tayeb [2]** explored the possibility of using this natural fibre to reinforce polyester and thus opens a new way to implement locally available inexpensive fibres and produce a new candidate tribo-material for bearing applications. Sugarcane fibre/polyester (SCRP) and glass fibre/polyester (GRP) composites (with chopped fibres of 1, 5, 10mm length randomly distributed and unidirectional mat fibres) were prepared using compression mould and hand-lay-up techniques. Friction coefficients and wear rates of SCRP and GRP composites were determined under dry sliding contact conditions in parallel and anti-parallel orientations and subjected to different operating parameters such as load, speed and test duration. Results of friction and wear proved that

Biomass Conversion and Biorefinery
https://doi.org/10.1007/s13399-024-05385-9

ORIGINAL ARTICLE

Characterization of peanut husk-derived Si_3N_4 basalt fiber-reinforced unsaturated polyester resin composites

S. Jeevanantham[1] · Seeniappan Kaliappan[2] · L. Natrayan[3] · Sudhir Joshi[4]

Received: 27 November 2023 / Revised: 27 January 2024 / Accepted: 30 January 2024

Abstract
The purpose of the study is to investigate the effect of adding peanut husk-derived Si_3N_4 on load-bearing, time-dependent and thermal properties of basalt fiber-reinforced polyester composites. The fine Si_3N_4 particles are synthesized from the discarded peanut husk waste via thermo-chemical process. The composites are meticulously crafted using the hand layup method and undergo thorough characterization following the American Society of Testing and Materials (ASTM) standards. Results revealed that the addition of fiber and particle marginally improved the density and water content; however it is not much deviated from the base values. However, among the fabricated composites, RBS3 produced improved wear resistance, reduced creep strain, enhanced flame retardance and high thermal stability as it has higher tensile strength up to 130 MPa. It demonstrates a specific wear rate of 0.009 mm^3/Nm, coefficient of friction of 0.31 and a low creep strain of 0.0086 mm at 10,000 s. It also exhibits a notably high initial decomposition temperature of 410 °C and a lower flame propagation speed of 6.72 mm/min. In terms of fatigue, RBS2 performs exceptionally well, with high values at 25%, 50% and 75% of its ultimate tensile strength. However, RBS3 experiences a slight reduction in fatigue due to localized stress concentrations. The statistical analysis done on wear, fatigue and creep behavior revealed that the obtained p value is $7.144E-10$; thus, the null hypothesis is rejected, and the results obtained are statically significant. These findings provide a comprehensive understanding of the composite's suitability for diverse engineering applications, where a balance between wear resistance, fatigue strength, creep resistance, and thermal and flame stability is crucial. The domains such as automotives, drone, marine and domestic sectors could benefit out of this material. However, as future work the same materials thermal stability could be improved by adding other engineering ceramics to bring its application in high level engineering domains.

Keywords Basalt · Composite · Creep · Fatigue · Fiber · Flammability · Peanut husk

1 Introduction

Current development and innovation in material science have brought much newer innovative components in composite materials. Generally, composite material has two or more materials with different physical, chemical and mechanical properties. In addition, composite material are light weight, low-cost, economically viable, environmental friendly and have high strength-to-weight ratio [1, 2]. Moreover, to develop high-performance composites the polymer matrix usually reinforces with synthetic or natural fiber depending on the performance need. In recent decades, the raise of awareness on environment conservation and preservation of living creatures was made to produce natural bio based composite material. As a result, the composite is made up of natural fibers such as kenaf, bamboo, sisal, jute, basalt, aloe vera, palm, banana and areca. Since natural fiber has specific characteristic such as biodegradability, eco-friendliness, high tensile strength, thermal stability, low density, renewability and low cost in nature, it is nowadays predominantly used in structural as well as automotive applications [3, 4]. Among many natural fibers the basalt is one that is

✉ S. Jeevanantham
jeevanantham694@gmail.com

1 Department of Mechanical Engineering, Nehru Institute of Engineering and Technology, Coimbatore, India

2 Department of Mechatronics Engineering, KCG College of Technology, Karapakkam, Chennai 600097, Tamil Nadu, India

3 Department of Mechanical Engineering, Saveetha School of Engineering, SIMATS, Chennai, Tamil Nadu, India

4 Department of Mechanical Engineering, Graphic Era Deemed to Be University, Dehradun, Uttarakhand, India

Published online: 08 February 2024

Journal of Advanced Zoology
ISSN: 0253-7214
Volume 44 Issue 5 Year 2023 Page 582-592

TRANSPORTATION FOR ELECTRICAL VEHICLES PLAYS A MAJOR ROLE IN THE AUTOMOBILE INDUSTRY

Dr.SP.Arunkumar[1*], Mr.M. Arther Clive[2], Dr.R.Anand[3], Dr.P.Manliarasan[4], Dr.M.Balakrishnan[5]

[1*]*Associate Professor,Department of Mechatronics Engineering,Nehru Institute of Engineering and Technology, Coimbatore,Mail ID: arungreesma@gmail.com.*
[2]*Assistant Professor ,Department of Mechanical Engineering,Akshaya college of engineering and technology, kinathukadavu, Coimbatore,Mail ID: martherclive@gmail.com.*
[3]*Associate professor, Department of Electrical and Electronic Engineering, Nehru Institute of Engineering and Technology, Coimbatore, India.Mail ID:anandrb.pk@gmail.com.*
[4]*Professor, Department of Aeronautical Engineering, Nehru Institute of Engineering and Technology, Coimbatore, India. manliarasan@gmail.com.*
[5]*Assistant Professor, Mechatronics Engineering, Nehru Institute of Engineering and Technology, Coimbatore, India. Mail ID:balakrishnn0002@gmail.com*

***Corresponding author:** Dr.SP.Arunkumar*
** Associate Professor,Department of Mechatronics Engineering,Nehru Institute of Engineering and Technology, Coimbatore,Mail ID: arungreesma@gmail.com*

Abstract

In recent years, people have grown to appreciate using electric vehicles as transportation. According to the circumstances, electric vehicle drives have a number of advantages over ICE cars, mainly in terms of reduced local pollutants, increased energy efficiency, and reduced reliance on oil. However, a number of obstacles, such as limitations in battery technology, high purchasing costs, and therefore a lack of recharging infrastructure, are preventing the quick adoption of electric vehicles. To fully replace ICE cars, EVs must first overcome a few significant challenges. The primary focus of this essay is on some crucial details regarding electric vehicles, such as their many types, electrical equipment, and batteries. This paper's goal is to give information on the existing and future state of electric vehicle technology.

Key Words: Types Electric Vehicle (EVs), Batteries & specifications, Motor used in EVs

1. Introduction

Electric vehicles (EVs) and battery technology are constantly improving, but there are still several downsides, including high cost, a small driving range, performance difficulties, a lengthy charge time, and a decreasing number of charging stations. When there are more electric vehicles on the road, we may anticipate better air because they have no tailpipe emissions 3. Less sickness in the globe implies cleaner air equals less strain on hospitals, public health systems, and other institutions. We can conserve the ozone layer and lessen our carbon footprint by reducing greenhouse gas emissions. EVs are nothing if not an honest beginning, and if we can't halt heating, we will undoubtedly slow down the process. Neither oil nor gas must be varied or purchased. You only need to link reception to refill while at work, on the road, or at reception 5.

Electric Rechargeable Cells Are Electrochemical Cells That Have Been Used Mostly In Electric Vehicles

Dr.SP.Arunkumar, Mr.B.Sudhakar, Dr.M.Maheswaran, Dr.P.Maniiarasan, Ms.K.Sudhapriya, Dr.C.Prabha

PDF

Keywords: Battery pack, cells, charging, electric vehicles, Li-ion batteries, Li metal batteries

Published
2024-01-06

Abstract

Affordable Electric Vehicles (EVs) are becoming a reality, thanks to lower traction battery prices. With greater drive range per recharge, EVs are becoming more acceptable. High energy density, power density, cycle life, safety, and cheap cost are all desirable characteristics of EV batteries. New cell chemistries are being developed to make batteries smaller, lighter, and capable of storing enough energy to compete with traditional cars. Lithium-ion batteries are the most common EV batteries on the market right now. The cathode material and the transport of lithium ions between the electrodes during

How to Cite

Dr.SP.Arunkumar, Mr.B.Sudhakar, Dr.M.Maheswaran, Dr.P.Maniiarasan, Ms.K.Sudhapriya, Dr.C.Prabha. (2024). Electric Rechargeable Cells Are Electrochemical Cells That Have Been Used Mostly In Electric Vehicles. *SJIS-P*, *35*(3), 730–742. Retrieved from http://sjisscandinavian-iris.com/index.php/sjis/article/view/762

More Citation Formats

Issue
Vol. 35 No. 3 (2023)

IRIS SCANNER BASED COMPUTATIONAL METHOD OLOGY FOR SMART ATM SYSTEMS

[1] Dr.M.Maheswaran, [2] A.S.Narmadha, [3]P.Premelatha, [4]Dr. T. Venkatajalapathi

[1] *Professor, Department of Mechatronics Engineering*

Nehru Institute of Engineering and Technology, Coimbatore

[2]*Assistant Professor/ Department of ECE,*

Hindusthan Institute of Technology, Coimbatore

[3] *Research Scholar, Department of EEE,*

Kumaraguru College of Technology, Coimbatore

[4]*Associate Professor/Department of Mechanical Engineering*

V. S. B College of Engineering Technical Campus, Coimbatore

ABSTRACT

Iris recognition is a robotic biometric identification system that uses fine pattern-recognition techniques on videotape images of either one or both of a person's iris, which have complex patterns that are distinct, stable, and visible up close. A biometric system automatically recognizes an entity based on some sort of distinctive point or attribute maintained by the entity. The security system plays a significant role in everyday living. Iris recognition is emerging as one of the key types of biometrics-based identifying systems as security systems mature. Biometric systems have substantially improved individual identification and authentication, contributing significantly to national, international, and especially public security. Age makes the iris pattern more stable, and its main characteristics are correctness, sufficiency, and unity. Iris recognition is utilized in high-security sectors due to its excellent reliability and nearly flawless identification rates. The advantages of iris recognition systems over conventional biometric systems are explained in this design, along with the security measures utilized by ATMs. In this design, MATLAB software is utilized for iris detection, and Arduino UNO is used to interact with the laptop and mobile device.

Keywords- Biometrics, Iris, ATM, Arduino, MATLAB

ISSN: 2633-4828 Vol. 5 No.4, December, 2023

International Journal of Applied Engineering & Technology

THE SIGNIFICANCE OF CONVERTER LOSSES AND THE ROLE OF TRANSMISSION SYSTEMS IN THE OVERALL EFFICIENCY OF EV PROPULSION

M. Devika[1], M. Maheswaran[2], Bibin P Varghese[3], S. Selvam[4], Dr. P. Vijayakumar[5] and P.Chandrasekaran[6]

[1]Assistant Professor, Department of Electrical and Electronics Engineering, JCT College of Engineering and Technology, Coimbatore, India

[2]Professor, Department of Mechatronics Engineering, Nehru Institute of Engineering and Technology, Coimbatore, India

[3]Assistant Professor, Department of Mechanical Engineering, Providence College Of Engineering Chenganuur, Alappuzha, India

[4]Professor, Department of Mechanical Engineering, Aditya Institute of Technology Coimbatore, India

[5]Assistant Professor, Department of Aeronautical Engineering, Nehru Institute of Technology (Autonomous), India

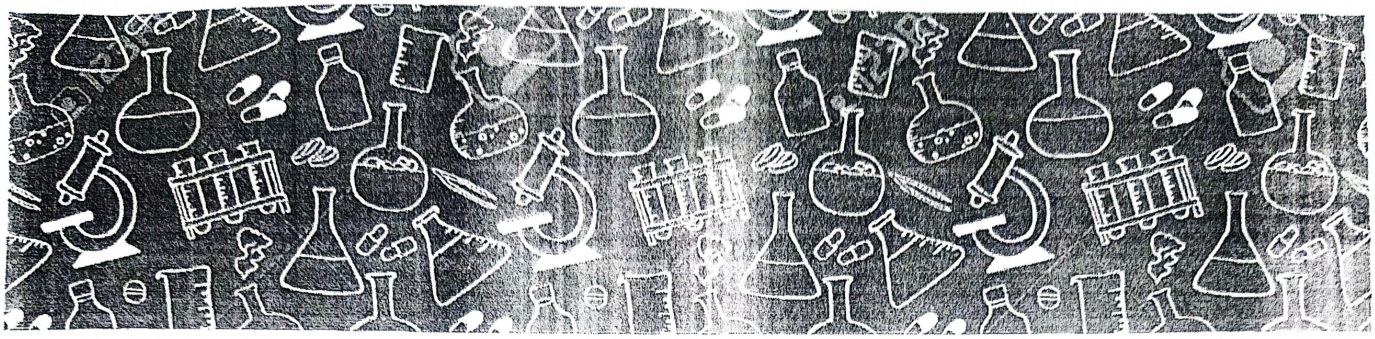
[6]Associate Professor,Department of Mechanical Engineering, Dhanalakshmi Srinivasancollege of Engineering, Coimbatore, India

[1]devikav66@gmail.com

ABSTRACT

The increasing adoption of Electric Vehicles (EVs) as an eco-friendly alternative to traditional internal combustion engine vehicles has led to a growing focus on improving their propulsion system efficiency. This study investigates the significance of converter losses and the role of transmission systems in the overall efficiency of EV propulsion. The research begins by analyzing the various components involved in the EV propulsion system, with a particular emphasis on the power electronics converters. These converters play a crucial role in transforming electrical power between the battery pack and the electric motor. The impact of converter losses on the overall efficiency of the EV propulsion system is examined in detail, considering both AC-DC and DC-AC conversion stages. Furthermore, the study delves into the different types of power electronics topologies, such as pulse-width modulation (PWM) and resonant converters, evaluating their efficiency and suitability for EV propulsion applications. Techniques for minimizing converter losses, such as advanced switching strategies and the use of wide-bandgap semiconductors, are explored to enhance the overall efficiency of the propulsion system. Another key aspect investigated in this research is the role of transmission systems in EVs. While most early EVs adopted single-speed transmissions for simplicity, emerging advancements in transmission technologies have introduced multi-speed transmissions. The study examines the impact of transmission systems on EV propulsion efficiency, considering factors such as torque delivery, speed range, and powertrain losses. To quantify the effects of converter losses and transmission systems on the overall efficiency of EV propulsion, mathematical models and simulations are developed and validated. Real-world driving scenarios are analyzed to assess the performance of different power electronics configurations and transmission setups, providing insights into their practical applicability. Moreover, the study explores the potential for regenerative braking systems to recover energy during deceleration and its influence on the overall propulsion system efficiency. The integration of regenerative braking with the power electronics converters and transmission systems is investigated to optimize energy recovery and improve overall vehicle range. The outcomes of this research contribute to the understanding of how converter losses and transmission systems impact the efficiency of EV propulsion. The findings provide valuable guidance for designers and manufacturers to optimize power electronics and transmission configurations, leading to more energy-efficient and environmentally sustainable EVs.

IndexTerms–Electric Vehicles, converter losses, power electronics, transmission systems, propulsion efficiency, multi-speed transmission, regenerative braking, wide-bandgap semiconductors, efficiency optimization



SUSTAINABLE ENERGY AND POWER QUALITY ASSESSMENT BY INVASIVE THERMOGRAPHY AND ENERGY AUDIT IN THE TEA INDUSTRY: A SCIENTIFIC STUDY

Journal of Environmental Protection and Ecol...

▼ Authors
SUBRAMANIAN, THIRUNAVUKKARASU; NAVEENKUMAR, PUSHPALATHA; MAHESWARAN, M.; GOVINDARAJ, RAMYA SHRI

▼ Abstract
Energy conservation is crucial in any process industry because it can minimise operating costs, reduce environmental effects, improve resource use, foster innovation, and promote sustainability. This work proposes energy conservation methods for various machines involved in the tea processing industry. Most drive systems employed in the process use induction motors. This case study presents real-time data from a leading tea industry. Every electrical system in the industry was analysed, and appropriate energy conservation methods were suggested for various machines. The power quality of every section is analysed, thermographed, and compared to the allowed temperature range. This eminent method of energy auditing reports on possible ways to improve energy conservation by all means. Electrical parameters are measured on various machines at different ratings. In the thermographic study, the temperatures of the motor's driving and non-driving ends were compared, and they were found to be between 38 and 53{\textdegree}C and 49 and 83{\textdegree}C, respectively. The case study improves electrical system consistency.

▼ Keywords
Distortion (THD); Total Harmonic; electrical network; energy audit; non-contact type of testing; power quality; tea industry; thermographic analysis

▼ Cite this article
SUBRAMANIAN, T., NAVEENKUMAR, P., MAHESWARAN. M., & GOVINDARAJ, R. S. (2024). SUSTAINABLE ENERGY AND POWER QUALITY ASSESSMENT BY INVASIVE THERMOGRAPHY AND ENERGY AUDIT IN THE TEA INDUSTRY: A SCIENTIFIC STUDY. In *Journal of Environmental Protection and Ecology* (Vol. 25, Issue 2, pp. 461–472).

EndNote

Dr. P. MANIARASAN
Principal
Nehru Institute of Engg. & Technology
T.M.Palayam, Coimbatore - 641 105.

China Petroleum Processing and Petrochemical Technology

Catalyst Research Volume 23, Issue 2, December 2023 Pp. 4579-4595

OPTIMAL DESIGN AND ANALYSIS OF BALL CATCH MECHANISM IN REVERSO WATCH

Dr.S.P.Arunkumar
Associate Professor Department of Mechatronics Engineering Nehru Institute of Engineering and Technology , Coimbatore

V.Sureshkumar
Assistant Professor Department of Mechanical Engineering Akshaya College Of Engineering Coimbatore

R.Malkiya Rasalin Prince
Assistant Professor Department of Mechanical Engineering Karunya Institute of Technology and Science Coimbatore.

Dr.C.Prabha
Associate Professor and Head Department of Mechanical Engineering Arjun College of Technology Coimbatore.

P.Sureshkumar
Department of Mechanical Engineering JCT College of Engineering and Technology Coimbatore.

1. ABSTRACT
Usually watches can show standard time of a country. When we are in other country, suppose we need to know the time of our country, we have to calculate the time of other country by adding or subtracting from the time of that country. To overcome this trouble TITAN developed a new concept and implements it into the new product named as REVERSO. Reverso watches have two watch heads; one is on the topside, another is opposite to that. Each head having the capacity of showing different time and each can be controlled separately. Head can be changed whenever necessary by rotating it. Changing of head is possible by lock or unlock with the watchcase by pushing or pulling.

Keywords: Time, TITAN, Reverso, Pushing, Pulling, Capacity

2. INTRODUCTION

Ball catch is the functional component, which integrated with watch head in the Reverso watches. When watch head is locked, spring tension in the Ball catch pushes the ball head into a notched watchcase. Slip is avoided by the spring tension.

Ball catch is an important functional component of the Reverso watch, which integrated with watch head by press fit. The concept of the Reverso is carried out by the proper function of the Ball catch.

Tuijin Jishu/Journal of Propulsion Technology
ISSN: 1001-4055
Vol. 45 No. 1 (2024)

A Study of Barrier and Challenges of Electric Vehicle in India and Vehicle to Grid Optimization

Dr. M. Balakrishnan,
Assistant Professor,
Department of Mechatronics Engineering, Nehru Institute of Engineering Technology, Coimbatore.

R. Satheesh,
Assistant Professor,
Department of Electrical and Electronics Engineering, JCT College of Engineering Technology, Coimbatore.

S. Selvam,
Professor,
Department of Mechanical Engineering, Aditya Institute of Technology Coimbatore.

V. Raja Subramanian,
Assistant professor,
Department of Food Technology Nehru institute of Technology, Coimbatore.

R. Masilamani,
Assistant Professor,
Department of Mechanical Engineering, Karpagam college of Engineering, Coimbatore.

G. Nirmal Kumar,
Lecturer,
Department of Mechanical Engineering, PSG Polytechnic College, Coimbatore.

Abstract

Electric cars not only reduce fossil fuel reliance, but also minimise ozone damaging compounds and enable large-scale renewable deployment. Despite extensive study on the qualities and properties of electric cars, as well as the nature of their charging infrastructure, electric vehicle manufacturing and network modelling continue to change and be restricted. The study addresses the numerous modelling approaches and optimization strategies used in the studies of Electric Vehicle, Hybrid Electric Vehicle, Plug-in-Hybrid Electric Vehicle, and Battery Electric Vehicle market penetration rates.. When renewable energy sources are unavailable, the development of the new Vehicle-to-Grid concept has offered a backup power source. We conclude that electric cars' unique qualities are critical to their mobility. The purpose of this research article is to investigate a strategy for charging electric automobiles. This patent-pending method entails installing electric generators to provide a portion of the energy required by the electric vehicle. The effects on the speed of the electric vehicle, regenerative braking, and the amount of energy that can be provided through this innovation have all been studied in this research paper, and there are a number of important things to consider when dealing with this topic. The most important things that have been studied are the effects on the speed of the electric vehicle, regenerative braking, and the amount of energy that can be provided through this innovation. The design of a DC-DC Boost converter with two loops PID controllers, as well as the design of a Field.

Keywords: Battery, DC-DC, Electric car, Hybrid, Power source.

ANALYSIS OF DATA WITH POSSIBILE WAYS FORCHARGING THE BATTERY OF ELECTRICALTWO WHEELER

P.Sureshkumar[1*], Dr.J.Niresh[2], R.S.Prakash[3], Dr.M.Balakrishnan[4], T.Nithyanandhan[5], B.Nandhakumar[6]

Abstract

The idea of electric cars is not new to us; the first one is known to have existed in the late 1890s. Nevertheless, due to conventional vehicles dominance in the commercial sector, electric vehicles were long ignored and repressed. Petroleum fuels, which are not renewable and not very environmentally friendly, are used to fuel conventional automobiles. We have reached a point where a brighter future cannot rely on these quickly diminishing non-renewable sources of energy. Hence, we must create and use renewable energy sources that are clean, non-polluting, and never run out. People didn't begin to see the necessity for electric automobiles until the late 1960s. As a superior alternative to traditional automobiles, electric vehicleseco-friendly and more effective.

Keywords: Electric bicycle, electric motorcycle, smart electric bicycle, regenerative motor, and power control unit.

[1*]Assistant Professor Department of Mechanical Engineering JCT College of Engineering and Technology Coimbatore, Email:
[2]Assistant Professor Department of Automobile Engineering PSG College Of Technology Coimbatore
3Assistant Professor Department of Automobile Engineering Hindusthan College of Engineering & Technology, Coimbatore.
[4]Assistant Professor Department of Mechatronics Engineering Nehru Institute of Engineering & Technology Coimbatore.
[5]Assistant Professor of Department of Mechanical Engineering Sri Krishna College of Technology Coimbatore.
[6]PG Student of Department of Mechanical Engineering Sri Krishna College of Technology Coimbatore.

***Corresponding Author:** P.Sureshkumar
*Assistant Professor Department of Mechanical Engineering JCT College of Engineering and Technology Coimbatore. Email:

DOI: - 10.48047/ecb/2023.12.si5a.0121

Dr. P. MANIIARASAN
Principal
Nehru Institute of Engg. & Technology
T.M.Palayam, Coimbatore - 641 105.

1. INTRODUCTION

Electric vehicles struggle to remain competitive in the commercial sector due to a shortage of charging stations throughout the nation and a lengthy battery charging process, which makes them a dubious choice for the general public. This issue was resolved by attempting to design, build, and construct a dual-battery electric car prototype that vehicle, including bikes, automobiles, trucks, and others, may use this technology. The prototype that was created as an illustration to show how much more efficient electric bike are.

2. DesignandDevelopment

2.1. ElectronicControl Unit(ECU)

The electronically controlled unit, which serves as

STUDY ON A SOLAR WATER HEATER PERFORMANCE UNDER THE INFLUENCE OF NANOFLUID

STUDIU PRIVIND PERFORMANȚA UNUI ÎNCĂLZITOR DE APĂ SOLARĂ SUB INFLUENȚA NANOFLUIDELOR

P. MANOJ KUMAR[1], M. RAJESWARI[2], P. T. SARAVANAKUMAR[3], SP. ARUNKUMAR[4], P. Michael Joseph STALIN[5]

Abstract: *Globally, a significant amount of energy is spent to produce hot water for processing industries, domestic requirements, commercial buildings, and so on. In such cases, the deployment of solar water heating systems has been identified as a competent solution, considering their environment-friendly operation and affordability. In the current work, an investigation was piloted to examine the influence of deploying nano-CeO_2/water nanofluid as circulating fluid in an evacuated tube solar water heater (ETSWH) at mass fluxes of 1.002 kg/min and 10.02 kg/min, respectively. The outcomes revealed that the incorporation of nano-CeO_2/water nanofluid boosted the ETSWH system's peak temperature gradient and daily average efficacy to 40 °C and 75%, respectively.*

Keywords: evacuated tube, nanofluid, nano-CeO_2/water, solar water heater, thermal efficiency.

Rezumat:. *La nivel global, o cantitate semnificativă de energie este cheltuită pentru a produce apă caldă pentru industriile de prelucrare, cerințele interne, clădirile comerciale și așa mai departe. În astfel de cazuri, implementarea sistemelor solare de încălzire a apei a fost identificată ca o soluție competentă,*

[1] Associate Professor, Department of Mechanical Engineering, KPR Institute of Engineering and Technology, Coimbatore - 641407, Tamil Nadu, India, e-mail: pasupathimanojkumar@gmail.com
[2] Associate Professor, Department of CSE, Karunya Institute of Technology and Sciences, Coimbatore, Tamil Nadu, India, e-mail: rajeswari@karunya.edu
[3] Professor and HoD, Department of Mechatronics Engineering, Hindusthan College of Engineering and Technology, Coimbatore – 641032, Tamil Nadu, India, e-mail: ptscfd@gmail.com
[4] Associate Professor, Department of Mechatronics Engineering, Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India, e-mail: arungreesma@gmail.com
[5] Department of Mechanical Engineering, Audisankara College of Engineering & Technology, Gudur - 524101, Andhra Pradesh, India, e-mail: pmjstalin@gmail.com

Dr. P. MANIIARASAN
Principal
Nehru Institute of Engg. & Technology
T.M.Palayam, Coimbatore - 641 105.